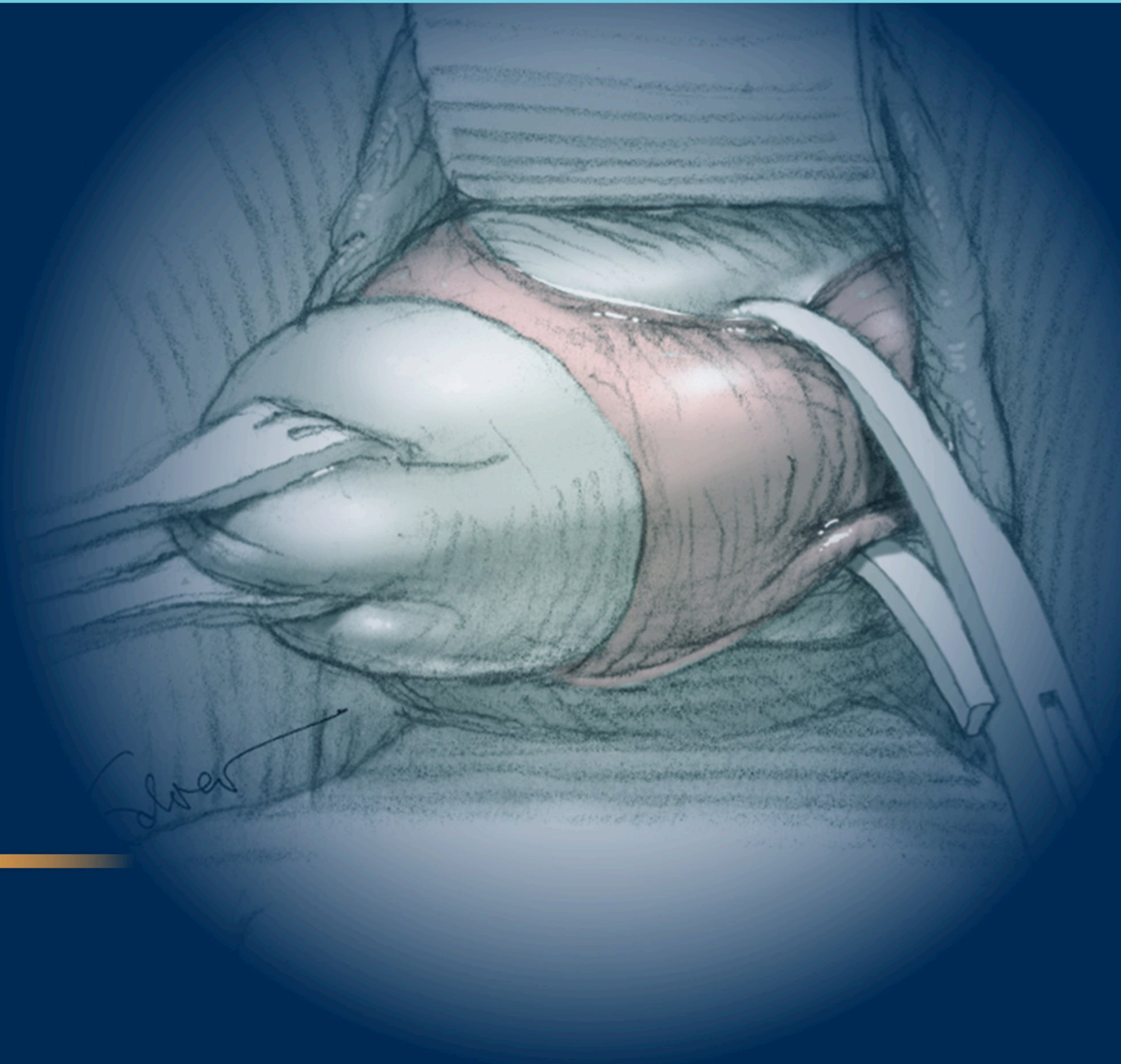


THIRD EDITION

Williams GYNECOLOGY

STUDY GUIDE

WERNER
RICHARDSON
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THIRD EDITION

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Williams GYNECOLOGY STUDY GUIDE

THIRD EDITION

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Williams Gynecology Study Guide, Third Edition

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DEDICATION

To our mentors and patients, who inspire us to strive for excellence in gynecology,
To our residents, who challenge us to be better teachers each day,
and
To our families, whose love and support make this possible

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PREFACE

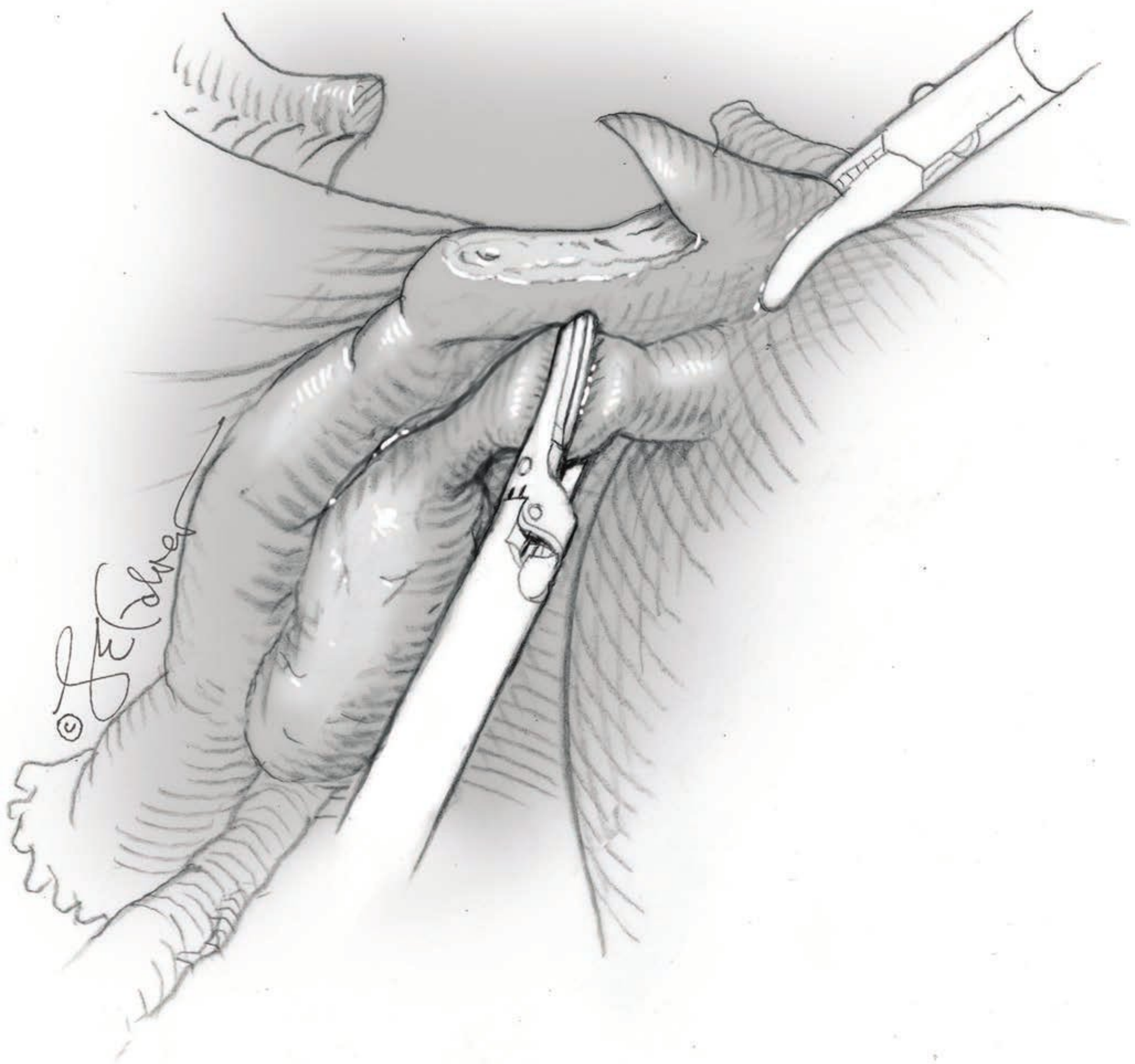
The *Williams Gynecology Third Edition Study Guide* is designed to assess comprehension and retention of information presented in the third edition of *Williams Gynecology*. The questions for each section have been selected to emphasize the key points from each chapter. In total, 1,793 questions have been created from the 46 chapters. Questions are in a multiple-choice format, and one single best answer should be chosen for each.

With this edition, we have also included 243 color images as question material. Moreover, clinical case questions have been added to test implementation of content learned. At the end of each chapter, answers are found, and a page guide directs readers to the text section that contains the answer. We believe that our clinical approach to crafting questions translates into an accurate test of important clinical knowledge.

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SECTION 1

BENIGN GENERAL GYNECOLOGY



CHAPTER 1

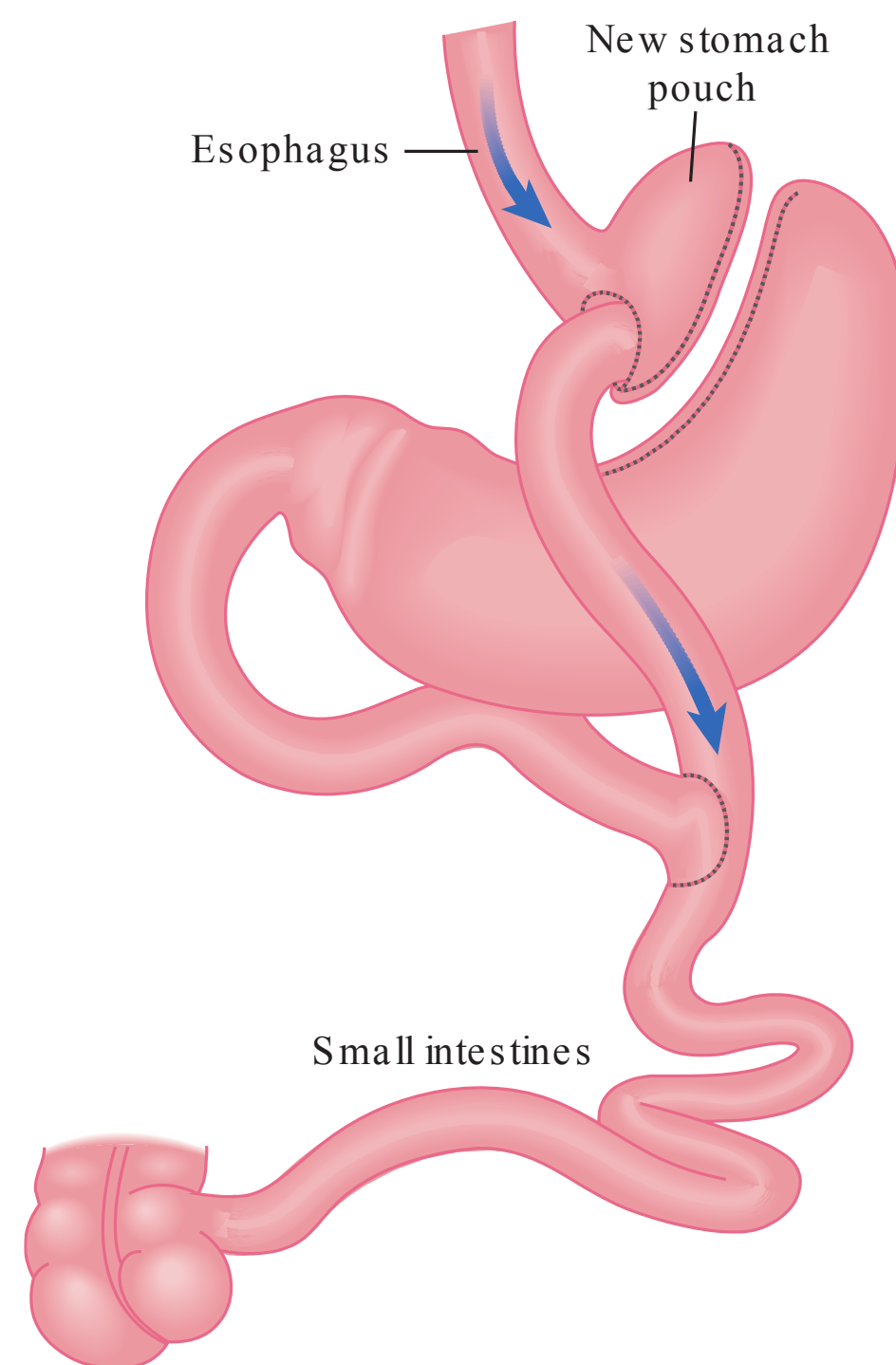
Well Woman Care

- 1–1.** As both specialists and primary care providers, gynecologists provide which of the following to their patients?
- Screening tests
 - Promotion of ideal health behaviors
 - Referral as needed for management of chronic medical conditions
 - All of the above
- 1–2.** A 45-year-old woman has failed medical management of her symptomatic uterine leiomyomas. She is about to undergo a total hysterectomy and bilateral salpingo-oophorectomy with subsequent initiation of estrogen therapy. Before major surgery or hormone initiation, it is most important to obtain a family or personal history of which medical problem?
- Endometriosis
 - Substance abuse
 - Thromboembolic events
 - Vaccine preventable childhood illnesses
- 1–3.** Which of the following is true regarding self breast examination (SBE)?
- It increases diagnostic testing rate.
 - It lowers breast cancer mortality rate.
 - It decreases diagnosis of benign breast disease.
 - It is recommended by US Preventive Services Task Force (USPSTF).
- 1–4.** Which of the following components of the clinical breast examination is no longer recommended because it adds no useful information?
- Axillary lymph node palpation
 - Inspection for skin abnormalities
 - Breast palpation with the patient supine
 - Inspection with patient's arms raised overhead
- 1–5.** During the clinical breast examination, attempts at nipple discharge expression are not required unless which of the following indications is present?
- Cyclic breast pain
 - Current breastfeeding with fever
 - Spontaneous nipple discharge in a nonlactating woman
 - Bilateral, milky discharge evident only when expressed by the patient
- 1–6.** Which of the following is true regarding the use of a gel lubricant when performing a vaginal speculum examination?
- It increases the unsatisfactory Pap test rate.
 - It decreases the detection of *Chlamydia trachomatis*.
 - It interferes with human papillomavirus (HPV) testing.
 - It may be applied sparingly to improve patient's comfort.
- 1–7.** A 23-year-old patient presents for routine well woman care. She is sexually active and has no complaints, symptoms, or high-risk behaviors worrisome for a sexually transmitted infection. Screening for which of the following is most strongly recommended?
- Syphilis
 - Hepatitis B virus
 - Herpes simplex virus
 - Chlamydia trachomatis*
- 1–8.** All adolescent and adult women up to an age of 64 years should be offered screening at least once for which of the following regardless of risk factors?
- Hepatitis C virus
 - Treponema pallidum
 - Human papillomavirus
 - Human immunodeficiency virus

- 1–9.** Performance of which component of the routine pelvic examination varies most among providers and is more often performed for specific indications?
- Perineal inspection
 - Rectovaginal examination
 - Bimanual palpation of the uterus and adnexa
 - Speculum examination of the cervix and vagina
- 1–10.** A 15-year-old adolescent woman who is sexually naïve comes to your office for the recommended initial reproductive health visit. She has no specific complaints or concerns. Which of the following is **NOT** indicated during this encounter?
- Pelvic examination
 - Establishment of rapport
 - Discussion of menstruation
 - Reproductive healthcare needs assessment
- 1–11.** In general, evaluation or treatment of adolescents for which of the following requires parental consent?
- Pregnancy
 - Contraception
 - Routine immunizations
 - Sexually transmitted infections
- 1–12.** The American College of Physicians currently recommends against which of the following screening tests in an asymptomatic, nonpregnant adult woman?
- Cervical cytology
 - Pelvic examination
 - Domestic violence assessment
 - Depression and substance abuse screening
- 1–13.** Pneumococcal vaccine should be offered to adults with which of the following conditions?
- Chronic illness
 - Age 65 years and older
 - Asplenia or other immunocompromised
 - All of the above
- 1–14.** Assuming that childhood immunizations have been administered correctly, which vaccination warrants repeat dosing at 10-year intervals in adults?
- Hepatitis B
 - Pneumococcal
 - Herpes zoster
 - Tetanus–diphtheria
- 1–15.** Which of the following immunizations is **NOT** contraindicated during pregnancy?
- Zoster
 - Varicella
 - Mumps, measles, rubella (MMR)
 - Tetanus, diphtheria, pertussis (Tdap)
- 1–16.** Which of the following statements is **INCORRECT** regarding colon cancer and colon cancer screening in an asymptomatic woman at average risk?
- Current guidelines recommend screening starting at age 50 years.
 - Screening colonoscopy, if negative, should be repeated every 5 years.
 - Colon cancer is the third leading cause of cancer death in U.S. women.
 - Fecal immunochemical testing (FIT) is more specific (fewer false positives) than the guaiac fecal occult blood test (gFOBT).
- 1–17.** Guidelines for colorectal screening apply to average-risk individuals. Higher-risk individuals may warrant more frequent screening at earlier ages. Which of the following conditions is **NOT** considered a high-risk factor for colorectal cancer?
- Lynch syndrome
 - Diabetes mellitus
 - Adenomatous polyps
 - Chronic inflammatory bowel disease
- 1–18.** Which of the following patients presenting for routine primary and gynecologic care should be considered for lung cancer screening with low-dose helical computed tomography (CT) scanning?
- A 43-year-old patient in good health who smoked half a pack of cigarettes from age 22 until age 42.
 - A 56-year-old patient who smoked two packs of cigarettes daily from age 26 until quitting 10 years ago.
 - A 69-year-old patient with congestive heart failure who has smoked a pack of cigarettes daily for 15 years.
 - A 78-year-old patient who quit smoking 25 years ago, but her cohabiting family members smoke heavily around her.
- 1–19.** Skin cancer screening includes assessment of lesions for which of the following concerning characteristics?
- Asymmetry
 - Border irregularity
 - Diameter greater than 6 mm
 - All of the above

- 1–20.** Cigarette smoking has been linked to which of the following adverse health issues in women?
- Diminished fertility
 - Pregnancy complications
 - Postoperative complications
 - All of the above
- 1–21.** Which of the following smoking cessation drugs is a nicotine agonist, rather than a nicotine replacement or central nervous system agent?
- NicoDerm CQ
 - Clonidine (Catapres)
 - Varenicline (Chantix)
 - Bupropion (Wellbutrin SR, Zyban)
- 1–22.** Which of these is **NOT** a beneficial effect of regular exercise?
- Reduced weight
 - Lower blood pressure
 - Improved blood sugar control
 - Increased low-density lipoprotein cholesterol
- 1–23.** The U.S. Department of Health and Human Services recommends weekly time totals for moderate-intensity or vigorous-intensity exercise, achieved in at least 10-minute increments. Which weekly exercise activity is achieving the recommended goal?
- Walking for 180 minutes
 - Yard work for 120 minutes
 - Swimming laps for 60 minutes
 - Aerobic dancing for 40 minutes
- 1–24.** What waist circumference threshold in women correlates with poor health outcomes?
- 35 inches (88 cm)
 - 40 inches (101 cm)
 - 45 inches (114 cm)
 - 50 inches (127 cm)
- 1–25.** A 40-year-old woman has hyperlipidemia, diabetes, and a body mass index (BMI) of 37. Which of the following treatment options can be recommended to her?
- Surgery
 - Pharmacotherapy
 - Diet, activity, and behavioral therapy
 - All are appropriate.

- 1–26.** Which diet plan, if adhered to, has been shown superior to others for achieving a 10 percent weight loss over 1 year?
- Vegan
 - Low protein
 - Low carbohydrate
 - None has been shown to be superior.
- 1–27.** A 32-year-old woman has recently undergone a Roux-en-Y gastric bypass, as diagrammed, for her morbid obesity after years of failed diet and exercise plans. She desires pregnancy in the near future. You recommend pregnancy delay for 6 to 12 months during the period of expected rapid weight loss. Her current body mass index (BMI) is 52. Which contraceptive method has been determined most conclusively to be less effective in women weighing more than 90 kg?



Reproduced with permission from Hoffman BL, Horsager R, Roberts SW, et al: Obesity. In Williams Obstetrics, 23rd Edition Study Guide. New York, McGraw-Hill, 2011, Figure 43-22.

- Subdermal contraceptive rod
- Depot medroxyprogesterone acetate
- Combination hormone contraceptive patch
- Combination hormone oral contraceptive pill

- 1–28.** An appropriately sized blood pressure cuff is necessary for the accurate measurement of blood pressure and screening for hypertension. At minimum, what percentage of the arm above the elbow should the cuff bladder encircle?
- 40 percent
 - 60 percent
 - 80 percent
 - 100 percent
- 1–29.** Prehypertension increases the risk of developing both overt hypertension and cardiovascular disease. Which blood pressure range defines prehypertension (mm Hg)?
- 120 to 129/70 to 79
 - 130 to 139/80 to 89
 - 140 to 149/80 to 89
 - 150 to 159/90 to 99
- 1–30.** The regular use or consumption of which of the following agents is **NOT** among the identifiable causes of hypertension?
- Licorice
 - Valproic acid
 - Combination oral contraceptives
 - Nonsteroidal antiinflammatory agents
- 1–31.** Upon diagnosing hypertension, which of the following tests can be helpful to further investigate possible causes and comorbidities?
- Urinalysis and serum creatinine
 - Thyroid function and blood glucose
 - Electrocardiogram and lipid profile
 - All of the above
- 1–32.** Which of the following is **NOT** a risk factor for stroke in women?
- Dysmenorrhea
 - Hypertension
 - Migraines with aura
 - Combination oral contraceptive use
- 1–33.** Data support which of the following lipoprotein categories as the most strongly related to atherogenesis?
- Triglycerides
 - Total cholesterol
 - Low-density lipoprotein cholesterol
 - High-density lipoprotein cholesterol
- 1–34.** Which of the following venous blood test results indicates a diagnosis of diabetes mellitus in an adult?
- HbA_{1c} = 8 percent
 - Fasting plasma glucose = 110 mg/dL
 - Two-hour plasma glucose during an oral glucose tolerance test (OGTT) measures 180 mg/dL
 - 4+ glycosuria with any degree of ketonuria
- 1–35.** Measurement of which of the following is **NOT** included in diagnostic criteria for metabolic syndrome?
- Triglycerides
 - Blood pressure
 - Fasting glucose
 - Low-density lipoprotein cholesterol
- 1–36.** The U.S. Preventive Services Task Force has found insufficient evidence for or against routine screening for thyroid dysfunction in women. However, the American Thyroid Association recommends that women be screened with a serum thyroid-stimulating hormone level measurement every 5 years beginning at what age?
- 35 years
 - 45 years
 - 55 years
 - 65 years
- 1–37.** Preconceptual counseling should include discussing any teratogenic medications a woman is taking. Which of the following should be included in such a discussion?
- Warfarin
 - Methotrexate
 - Angiotensin-receptor blockers
 - All of the above

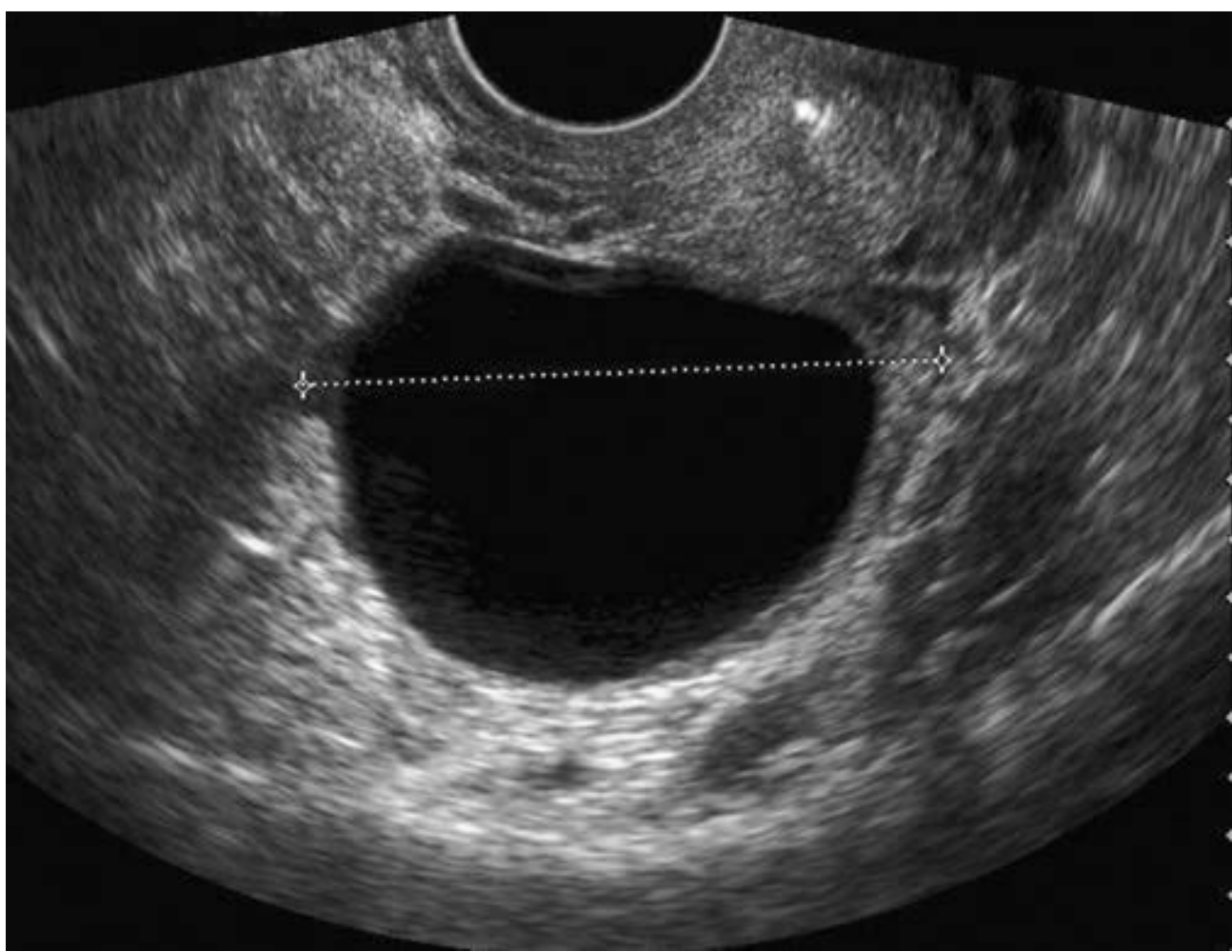
Chapter 1 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
1-1	d	p. 2	Well Woman Care	1-19	d	p. 10	Skin Cancer
1-2	c	p. 2	Medical History	1-20	d	p. 10	Smoking
1-3	a	p. 2	Clinical Evidence	1-21	c	p. 10	Smoking
1-4	d	p. 2	Breast Examination	1-22	d	p. 11	Exercise
1-5	c	p. 2	Breast Examination	1-23	a	p. 11	Exercise
1-6	d	p. 4	Speculum Examination	1-24	a	p. 12	Obesity
1-7	d	p. 6	Table 1-1	1-25	d	p. 13	Table 1-7
1-8	d	p. 6	Table 1-1	1-26	d	p. 13	Treatment
1-9	b	p. 6	Rectovaginal Examination	1-27	c	p. 13	Treatment
1-10	a	p. 7	Examination Interval	1-28	c	p. 14	Chronic Hypertension
1-11	c	p. 7	Examination Interval	1-29	b	p. 14	Chronic Hypertension
1-12	b	p. 7	Examination Interval	1-30	b	p. 15	Table 1-10
1-13	d	p. 8	Table 1-2	1-31	d	p. 14	Chronic Hypertension
1-14	d	p. 8	Table 1-2	1-32	a	p. 14	Stroke
1-15	d	p. 8	Table 1-2	1-33	c	p. 15	Hypercholesterolemia
1-16	b	p. 7	Colon Cancer	1-34	a	p. 16	Table 1-14
1-17	b	p. 7	Colon Cancer	1-35	d	p. 17	Table 1-15
1-18	b	p. 10	Lung Cancer	1-36	a	p. 17	Thyroid Disease
				1-37	d	p. 18	Table 1-17

CHAPTER 2

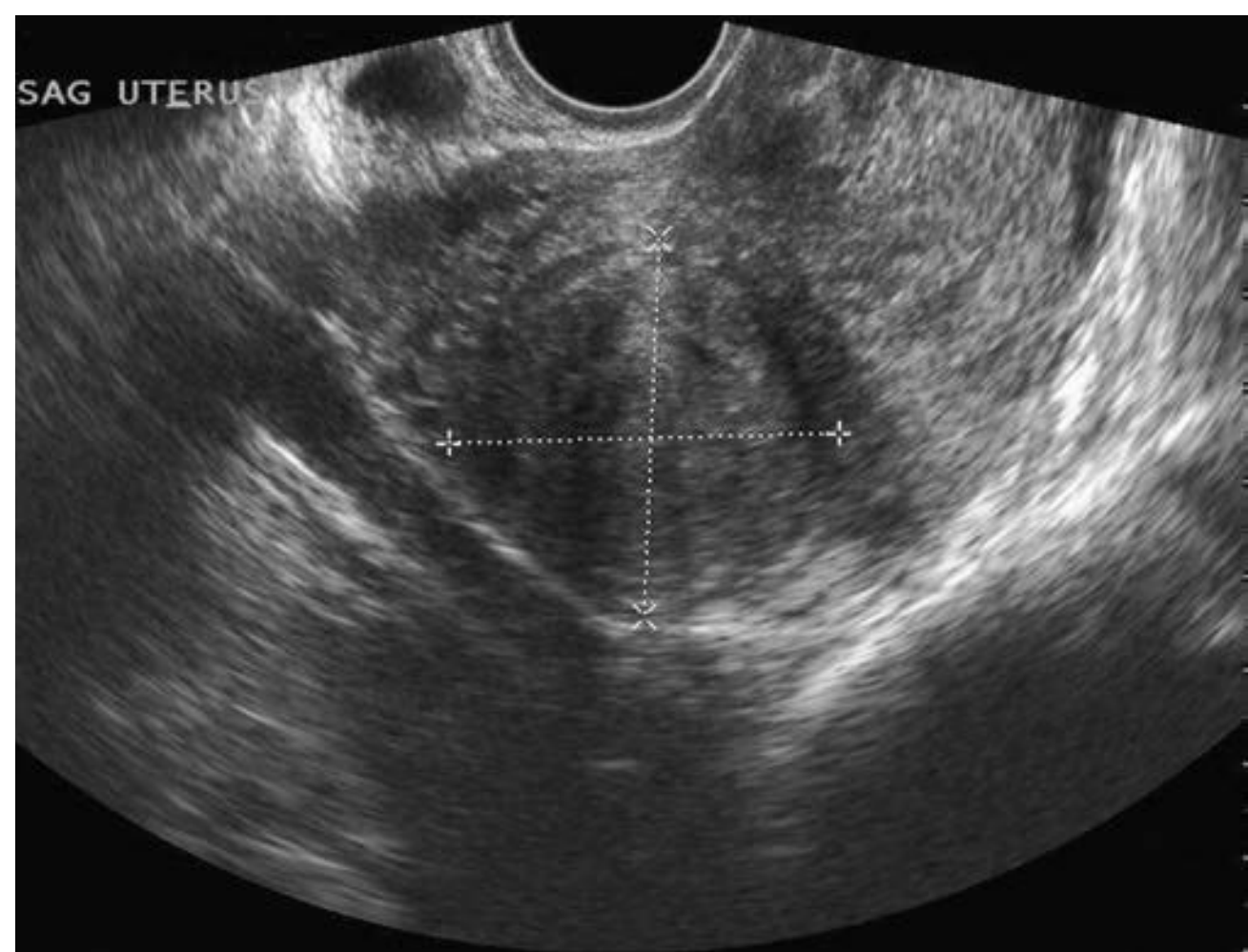
Techniques Used for Imaging in Gynecology

2–1. A 23-year-old woman presents with complaints of right lower quadrant pain. During bimanual examination, an enlarged right ovary is suspected, and transvaginal sonography reveals this a simple ovarian cyst. What sonographic feature, demonstrated here, is characteristic of cysts?



- a. Acoustic window
- b. Acoustic shadowing
- c. Acoustic enhancement
- d. Tip of the iceberg sign

2–2. A 40-year-old woman presents with complaints of heavy menstrual bleeding. During examination, an irregularly contoured uterus is palpable, and transvaginal sonography demonstrates multiple leiomyomas. What sonographic feature, as demonstrated here, is characteristic of dense structures?

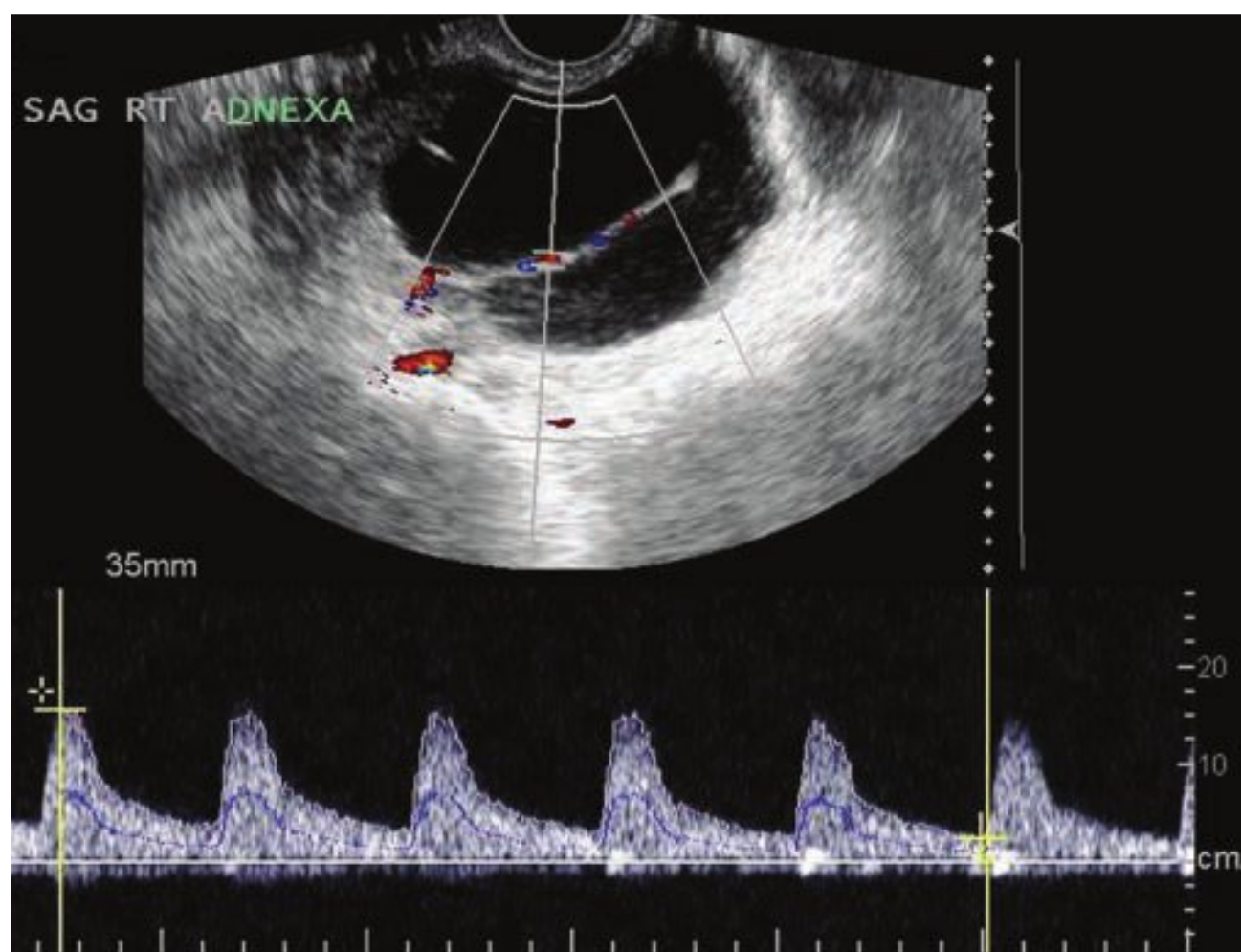


- a. Acoustic window
- b. Acoustic shadowing
- c. Acoustic enhancement
- d. Tip of the iceberg sign

2–3. Which of the following is **NOT** a relative or absolute contraindication to transvaginal sonography?

- a. Patient refusal
- b. Imperforate hymen
- c. Postpartum status
- d. Strictured introitus

- 2-4. Which of the following is **NOT** a characteristic of the Doppler technology illustrated below?



- a. Scaling of color
 b. Most sensitive to low-flow velocities
 c. Directionality of blood flow with dual colors
 d. Quantitative measurement of impedance to red blood cell velocity
- 2-5. Power Doppler imaging differs from color Doppler mapping in which of the following ways?
 a. Only power Doppler maps red blood cell motion.
 b. Color Doppler is more sensitive to low-flow velocities.
 c. Power Doppler gives no information regarding blood flow direction.
 d. All of the above
- 2-6. Which of the following statement is true when performing saline infusion sonography (SIS)?
 a. SIS is best performed within the first 10 days of the menstrual cycle.
 b. Touching the uterine fundus when advancing the catheter is avoided as it can cause pain and false-positive results.
 c. The uterine isthmus and endocervical canal are evaluated as the catheter is withdrawn under sonographic visualization.
 d. All of the above
- 2-7. Saline infusion sonography may be used to evaluate which of the following?
 a. Uterine cavity defects during infertility investigations
 b. Endometrial lesions such as polyps and submucosal leiomyomas
 c. Endometrial thickness in women taking tamoxifen with uterine bleeding
 d. All of the above
- 2-8. Compared with hysterosalpingography (HSG), hysterosalpingo-contrast sonography (HyCoSy) offers what advantage?
 a. Lower cost
 b. Avoids x-ray exposure
 c. Provides information on ovarian morphology
 d. All of the above
- 2-9. What are the three main components of three-dimensional (3-D) sonography?
 a. Volume acquisition, rotation, display
 b. Volume automation, processing, storage
 c. Volume acquisition, processing, display
 d. Volume automation, processing, rendering
- 2-10. With three-dimensional (3-D) sonography, the operator-selected region of interest is called which of the following?
 a. Footprint
 b. Volume box
 c. Z-technique
 d. None of the above
- 2-11. Which of the following is a technique used to display three-dimensional (3-D) acquired volumes?
 a. Reverse mode
 b. Multiplanar reconstruction
 c. Perpendicular tomographic slices
 d. All of the above
- 2-12. In gynecology, three-dimensional (3-D) sonography aids in the assessment of which of the following conditions?
 a. Diagnosis of congenital müllerian anomalies
 b. Intrauterine device identification and positioning
 c. Calculation of ovarian volume and antral follicle counts
 d. All of the above
- 2-13. A 28-year-old nulligravida presents for evaluation of abnormal uterine bleeding. Transvaginal sonography demonstrates multiple uterine leiomyomas, including one distorting the endometrial cavity contour. What is the preferred next step in evaluating this patient for possible hysteroscopic resection of the myoma?
 a. Computed tomography
 b. Magnetic resonance imaging
 c. Three-dimensional saline infusion sonography
 d. No further imaging is needed; any submucosal fibroid is eligible for hysteroscopic resection.

- 2-14. Three-dimensional (3-D) sonography during evaluation of the pelvic floor typically provides all of the following **EXCEPT** which one?
- Poor depiction of typical mesh implants
 - Dynamic information about pelvic floor structures
 - Better visualization of the urethra and periurethral tissue using coronal plane reconstruction
 - Quantification of the degree of a levator ani defect using reconstructed tomographic 3-D images

- 2-15. A patient with oligomenorrhea and suspected polycystic ovarian syndrome (PCOS) is evaluated. She does not demonstrate clinical or laboratory evidence of hyperandrogenism. You elect transvaginal sonography to assess her ovaries, as ovarian volume is one of the diagnostic criteria for PCOS. What is the formula to calculate ovarian volume, where A, B, and C are the ovarian diameters in centimeters?



- $(A \times B \times C)/\pi$
- $(A \times B \times C)/3$
- $(\pi/6) \times (A \times B \times C)$
- $[(A \times B \times C)/3 + 2.54]/0.7$

- 2-16. The sonographic appearance of the endometrium during the menstrual cycle correlates with the phasic changes in its histologic anatomy. Which phase of the menstrual cycle is characterized by the classic trilaminar appearance shown below?



- Menstrual
- Secretory
- Proliferative
- Periovulatory

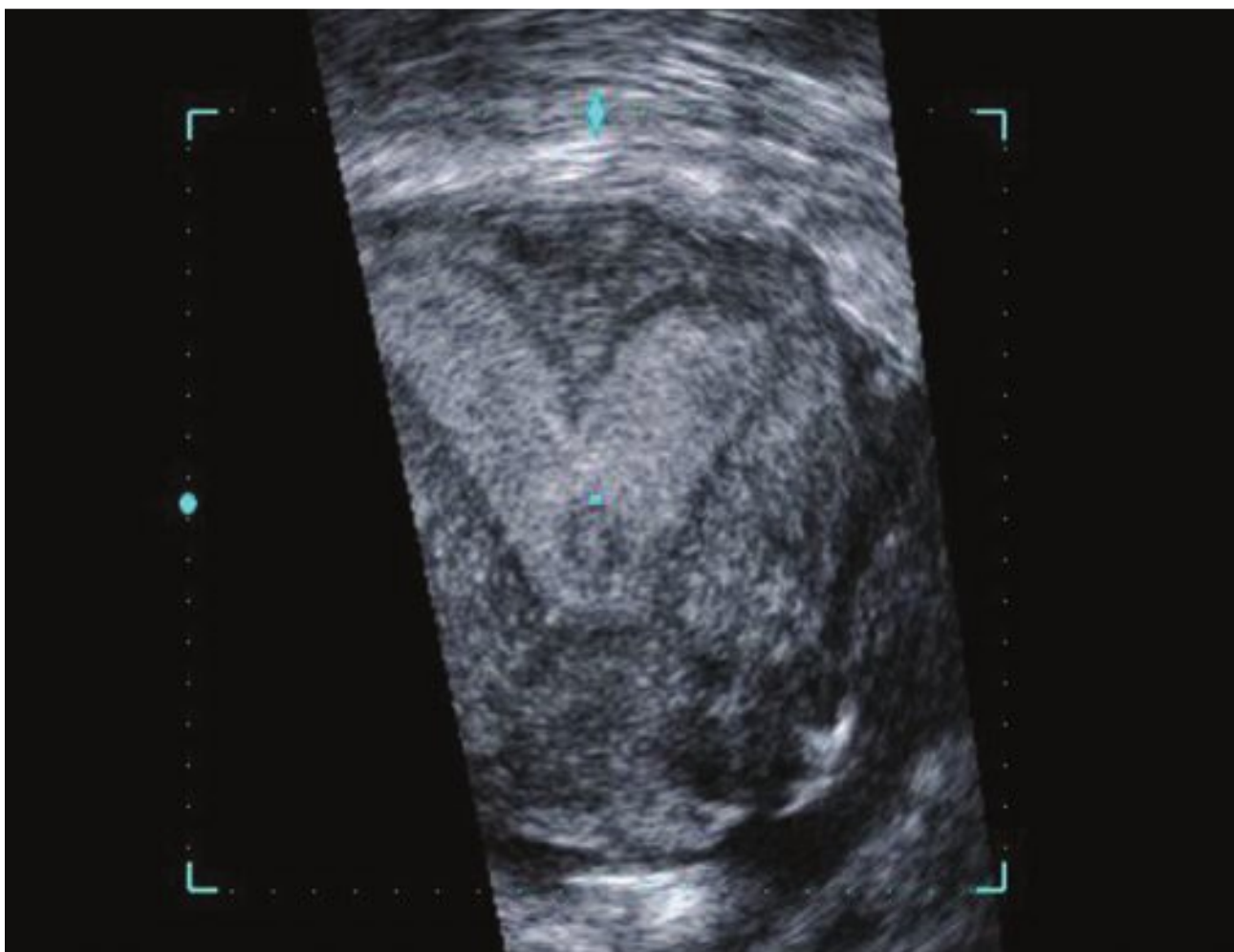
- 2-17. While staffing in the emergency room, you see a patient who presents with 8 weeks of amenorrhea, acute lower abdominal pain, and vaginal spotting. Her urine pregnancy test is positive. Transvaginal ultrasound demonstrates free fluid in the paracolic gutters and Morison pouch. Based on these sonographic findings, what is the minimum volume of intraperitoneal fluid expected to be found during surgery?

- 500 mL
- 1000 mL
- 1500 mL
- 2000 mL

- 2-18. Morphologic scoring systems used to predict the probability of malignancy of ovarian masses include which of the following parameters?

- Tumor size
- Presence of a solid component
- Color content of the tumor using color Doppler
- All of the above

- 2–19.** Which of the following statements regarding the use of sonography in the evaluation of pelvic inflammatory disease (PID) is true?
- With early disease, most cases show anatomic changes.
 - Sonographic changes of the fallopian tubes are the least specific landmarks of PID.
 - When the ovary becomes involved in PID, a tubo-ovarian complex or abscess may be visualized by sonography.
 - Large studies evaluating the sensitivity and specificity of sonography in this clinical setting are abundant.
- 2–20.** Uses of sonography to evaluate and treat infertility include which of the following?
- Endometrial cavity evaluation
 - Monitoring of folliculogenesis in normal and stimulated cycles
 - Demonstration and characterization of congenital uterine anomalies
 - All of the above
- 2–21.** Which of the following ultrasound measurements may be used to differentiate a bicornuate from a septate uterus?



- Depth of fundal notch
- Angle between the endometrial cavities
- Relationship between the intracornual line and the uterine serosa
- All of the above

- 2–22.** Which sonographic appearance is frequently exhibited in an endometriotic cyst, as shown below?



- Retracting clot
 - Acoustic shadowing
 - Diffuse low-level echoes
 - Change in the internal structure over time
- 2–23.** All of the following statements are true regarding compression sonography of the lower extremities **EXCEPT**:
- Normal venous sonography findings do not necessarily exclude pulmonary embolism.
 - Impaired visibility, noncompressibility, and the typical echo pattern of a thrombosed vein confirm the diagnosis.
 - Compression sonography combined with color Doppler is the initial test currently used to detect deep-vein thrombosis.
 - Compression sonography is as accurate for the diagnosis of distal (calf vein) thromboses as for proximal (femoral or popliteal vein) thromboses.
- 2–24.** All of the following statements regarding mammography are true **EXCEPT**:
- Breast pain warrants screening mammography.
 - Screening mammography has been clinically proven to decrease breast-cancer-related mortality rates.
 - Breast compression during mammography shortens exposure time and provides more uniform tissue thickness.
 - In the presence of breast implants, mammography evaluation includes standard and implant-displaced views.

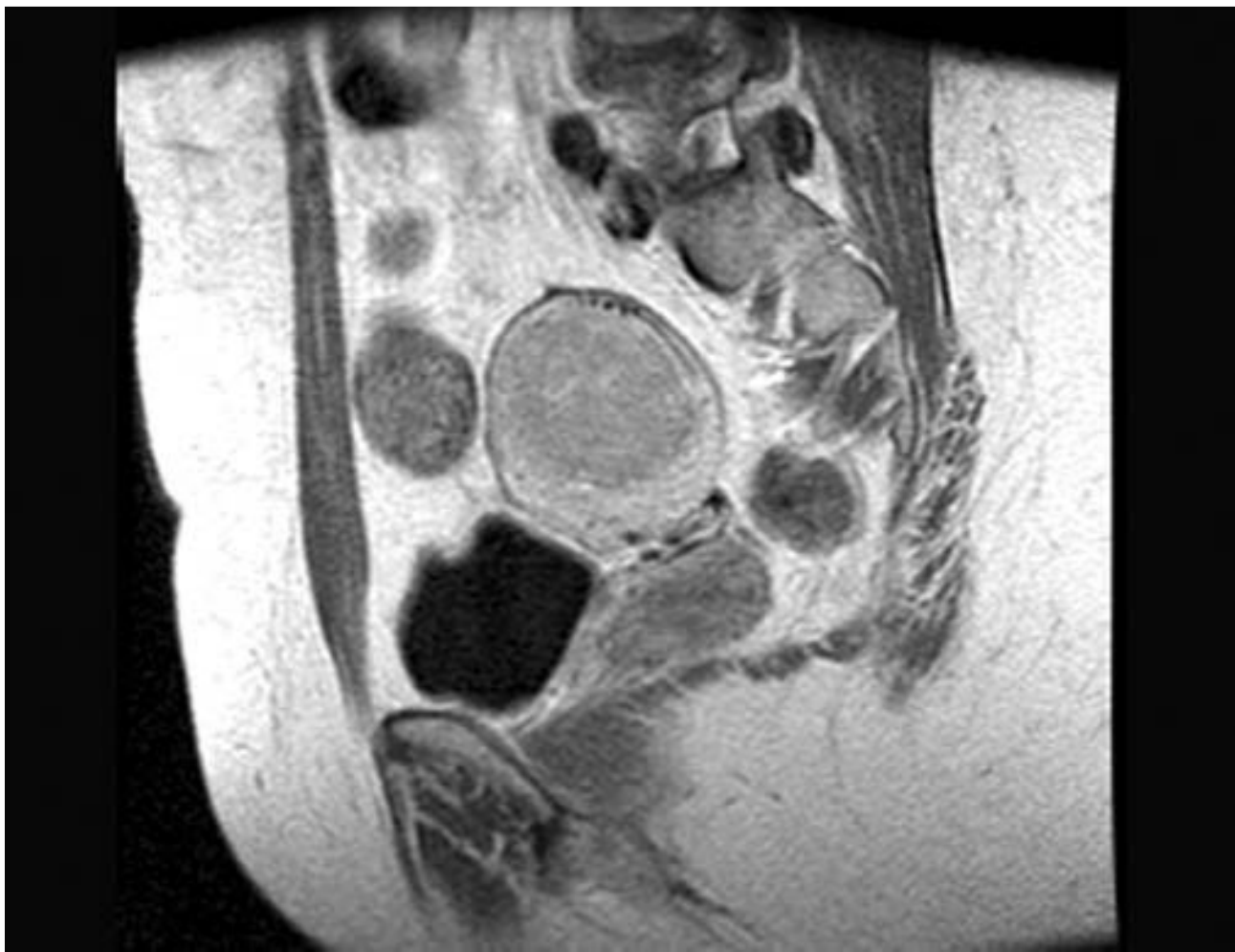
- 2–25.** A woman who delivered vaginally 3 months ago complains of urine leakage from her vagina. You suspect that she has developed a vesicovaginal fistula. Which of the following radiologic tests is most appropriate in her evaluation?
- Intravenous pyelography (IVP)
 - Voiding cystourethrography (VCUG)
 - Positive pressure urethrography (PPUG)
 - Magnetic resonance imaging imaging of the pelvis
- 2–26.** Which of the following is **NOT** a contraindication to the radiologic imaging technique shown here?



- Pregnancy
 - Iodine allergy
 - Acute pelvic infection
 - History of pelvic inflammatory disease
- 2–27.** Which of the following statements regarding bone densitometry methods is true?
- Dual energy x-ray absorptiometry (DEXA) is the best technique for axial osteopenia evaluation.
 - Quantitative computed tomography (QCT) is best at evaluating the bone mineral density in the high-turnover cortical bone.
 - Quantitative sonography (QUS) is a recently validated alternative technique to DEXA.
 - Dual energy x-ray absorptiometry (DEXA) is a three-dimensional technique that can distinguish between cortical and trabecular bones.

- 2–28.** Computed tomography (CT) is well suited to diagnose which of the following gynecologic surgical complications?
- Small bowel obstruction
 - Ureteral disruption or obstruction
 - Abdominopelvic abscess or hematoma
 - All of the above
- 2–29.** Which of the following statements is true regarding imaging techniques for the evaluation and surveillance of gynecologic malignancies?
- Sonography is the most frequently used modality for this purpose.
 - Scant data support the use of positron emission tomography (PET) imaging in gynecologic malignancies.
 - Computed tomography (CT) is more sensitive for the detection of diffuse intraperitoneal metastases than for bulky metastases.
 - Magnetic resonance (MR) imaging is now often preferable to CT because it does not use radiation and provides multiplanar views of the pelvis.
- 2–30.** Which of the following statements is true regarding magnetic resonance (MR) imaging?
- Relaxation time properties are the factors principally responsible for contrast among tissues.
 - Water-containing organs, such as the bladder, will appear bright on T1-weighted images and dark on T2-weighted images.
 - Images are constructed based on the radiofrequency signal emitted by oxygen nuclei after they have been “excited” by radiofrequency pulses.
 - MR contrast, such as gadolinium, is given in concentrations and doses significantly higher than those used in computed tomography (CT) imaging and is unsafe in patients with mildly compromised renal function.
- 2–31.** Which of the following can be safely imaged using magnetic resonance (MR) imaging at 3 Tesla?
- Essure device
 - Filshie clips
 - Mirena intrauterine device
 - ParaGard intrauterine device

- 2–32.** Contraindications to this imaging modality include all of the following **EXCEPT**:



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- a. Nexplanon
 - b. Cochlear implant copper
 - c. Intracranial aneurysm clips
 - d. Internal cardiac pacemaker or defibrillator
- 2–33.** Magnetic resonance imaging may be ideal for all of the following **EXCEPT**:
- a. To initially evaluate suspected gynecologic disease
 - b. To evaluate large masses that are poorly delineated with sonography
 - c. To clarify pathology in a pregnant woman when sonographic findings are nondiagnostic
 - d. To evaluate endometrial lesions in a poor surgical candidate when sonographic findings are nondiagnostic
- 2–34.** Uses for magnetic resonance imaging in the evaluation of leiomyomas include all of the following **EXCEPT**:
- a. Evaluation of equivocal sonographic findings
 - b. Initial imaging technique for suspected leiomyoma
 - c. Evaluation before uterine artery embolization (UAE) or focused ultrasound treatment
 - d. Quantification of leiomyoma volume changes during gonadotropin-releasing hormone (GnRH) agonist therapy
- 2–35.** All of the following statements are true regarding the current role of magnetic resonance high-intensity focused ultrasound (MR-HIFU) therapy for leiomyomas **EXCEPT**:
- a. It is a safe and feasible minimally invasive alternative treatment.
 - b. It directs a series of sonications into the myoma with precise tissue targeting.
 - c. Its long-term results are confirmed to be comparable to other interventional treatments.
 - d. Total uterine size > 24 weeks, tumors > 10 cm, and a desire for future fertility are current limitations of its use.
- 2–36.** Compared with myomectomy or uterine artery embolization, magnetic resonance high-intensity focused ultrasound (MR-HIFU) therapy for leiomyoma treatment has which of the following attributes?
- a. More cost-effective
 - b. Fewer major adverse events
 - c. Stabilizes leiomyoma size better over time
 - d. Gradually improves leiomyoma-related symptoms
- 2–37.** Uses of magnetic resonance imaging in gynecologic malignancies include all of the following **EXCEPT**:
- a. Assessment of local tumor extension in the evaluation of cervical cancer
 - b. Determination of lymph node metastasis in high-grade endometrial carcinoma
 - c. Evaluation of indeterminate adnexal masses or ovarian cystic masses that measure > 7 cm
 - d. All of the above
- 2–38.** All of the following statements are true regarding uterine artery embolization (UAE) for leiomyoma treatment **EXCEPT**:
- a. Coexistent adenomyosis is a contraindication to UAE.
 - b. UAE can provide definitive, independent treatment of uterine leiomyomas.
 - c. Postprocedural evaluation of UAE is assessed by sonography or magnetic resonance (MR) imaging.
 - d. MR imaging is the diagnostic method of choice for preprocedural evaluation of UAE.

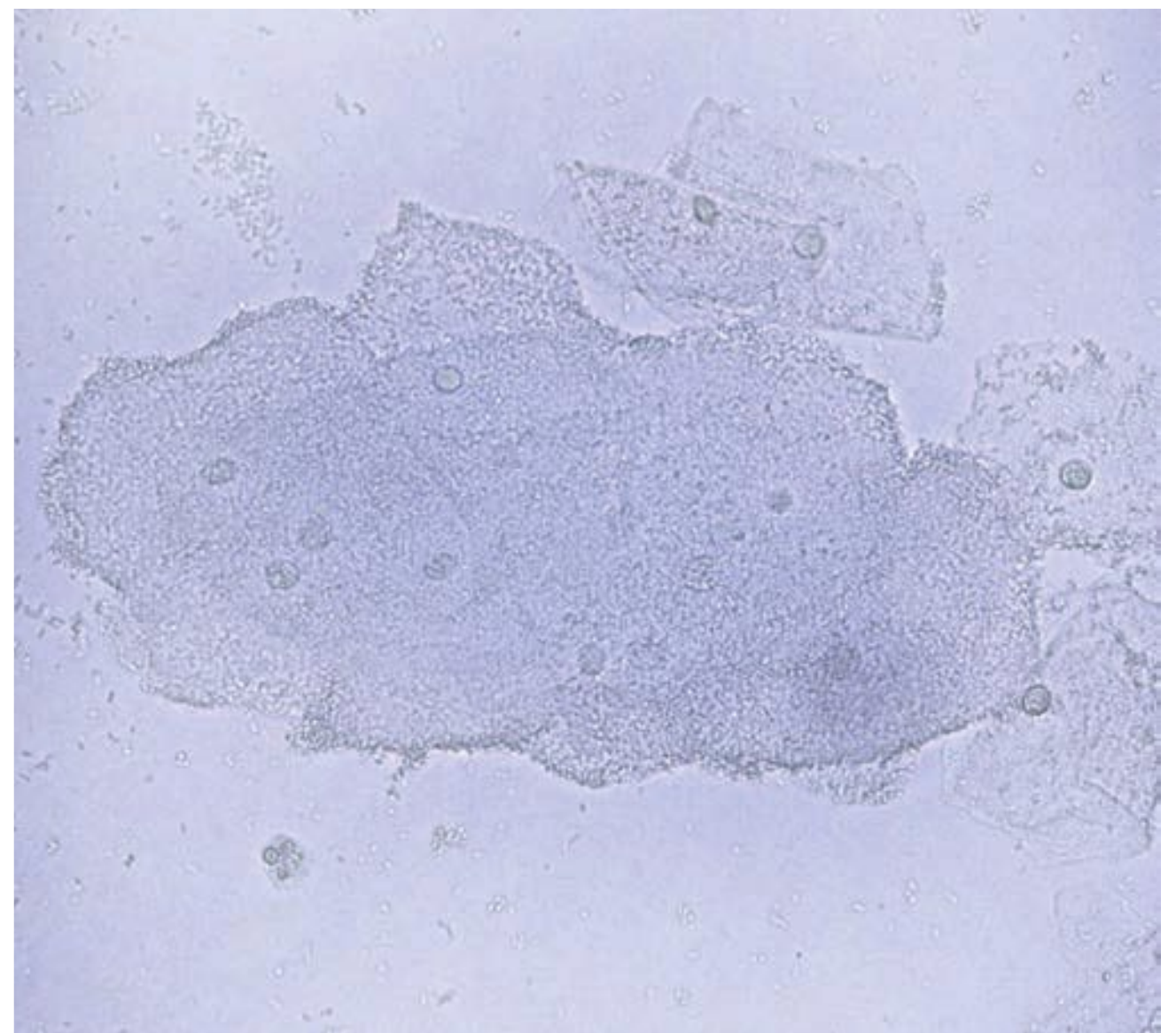
Chapter 2 ANSWER KEY

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2-3	c	p. 23	Grayscale Imaging	2-22	c	p. 34	Infertility
2-4	b	p. 23	Doppler Technology	2-23	d	p. 36	Compression Sonography
2-5	c	p. 23	Doppler Technology	2-24	a	p. 37	Breast Imaging
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2-12	d	p. 27	Clinical Use	2-31	c	p. 41	Table 2-1
2-13	c	p. 27	Clinical Use	2-32	a	p. 41	Safety
2-14	a	p. 27	Clinical Use	2-33	a	p. 42	Use in Gynecology
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2-18	d	p. 33	Malignant Ovarian Characteristics	2-37	d	p. 44	Gynecologic Malignancies
2-19	c	p. 33	Pelvic Inflammatory Disease	2-38	a	p. 45	Interventional Radiology

CHAPTER 3

Gynecologic Infection

- 3–1.** Vaginal flora of a normal, asymptomatic reproductive-aged woman includes multiple aerobic and anaerobic bacterial species. Anaerobes predominate over aerobic species by approximately what factor?
- 5
 - 10
 - 50
 - 100
- 3–2.** Normal colonization of the vaginal mucosa by bacteria is known to serve what main physiologic function?
- Unknown
 - Stimulate lubrication
 - Stimulate epithelial differentiation
 - Facilitate production of beneficial antibodies
- 3–3.** Which of the following statements is true regarding the *normal* presence of bacteria in the female reproductive tract?
- The upper reproductive tract is sterile.
 - Bacterial colonization is restricted to the lower genital tract.
 - Presence of bacteria in the upper reproductive tract indicates active infection.
 - The upper reproductive tract is not sterile, and the presence of certain bacterial species does not indicate active infection.
- 3–4.** What is the typical normal range of vaginal pH?
- 3.0 to 3.5
 - 4.0 to 4.5
 - 5.0 to 5.5
 - 6.0 to 6.5
- 3–5.** The rise in vaginal pH observed after menopause correlates with which of the following?
- Increased lactic acid production by bacteria
 - Decrease in vaginal cellular glycogen content
 - Use of oral or intravaginal estrogen replacement
 - All of the above
- 3–6.** Which factor can influence female reproductive tract flora?
- Hormone replacement therapy
 - Broad-spectrum antibiotic use
 - Phase within the menstrual cycle
 - All of the above
- 3–7.** Which of the following statements regarding bacterial vaginosis in reproductive-aged women is **NOT** true?
- Condom use lowers risk.
 - Douching after menses is preventive.
 - It is the most common cause of vaginal discharge.
 - Rates of sexually transmitted disease acquisition are increased in its presence.
- 3–8.** Diagnostic criteria for bacterial vaginosis (BV) include clue cells seen on a saline slide preparation (“wet prep”), a positive potassium hydroxide “whiff” test, and a high vaginal pH (> 4.5). At least what percentage of squamous cells on wet prep should be clue cells to confirm the diagnosis of BV?



Used with permission from Dr. Lauri Campagna and Mercedes Pineda, WHNP.

- 20
- 40
- 60
- 80

- 3–9.** Increased risk of which of the following adverse health outcomes has been associated with the presence of bacterial vaginosis?
- Preterm birth
 - Postabortal endometritis
 - Pelvic infection following pelvic surgery
 - All of the above
- 3–10.** Several regimens for the treatment of bacterial vaginosis are proposed by the Centers for Disease Control and Prevention (2015). Antibiotics recommended include all of the following **EXCEPT**:
- Tinidazole
 - Clindamycin
 - Erythromycin
 - Metronidazole
- 3–11.** A 26-year-old woman complains of recurrent bouts of bacterial vaginosis (BV) despite successful initial treatment. She does not douche or smoke and has been in a monogamous relationship for 6 years. Recurrence of BV after initial treatment is common (up to 30 percent), which can be frustrating for the patient. Which of the following consistently decreases recurrence rates and should be recommended to this patient?
- Treatment of male partners
 - Use of acidifying vaginal gels
 - Probiotics and reintroduction of lactobacilli
 - No intervention consistently decreases recurrence.
- 3–12.** Which of the following is **NOT** a β -lactamase inhibitor?
- Sulbactam
 - Probenecid
 - Tazobactam
 - Clavulanic acid

- 3–13.** In addition to urticaria and exfoliative dermatitis (shown here), which of the following are potential adverse reactions to penicillins?



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- Neutropenia
 - Hemolytic anemia
 - Elevated transaminase levels
 - All of the above
- 3–14.** Which of the following is expected to be **LEAST** effectively treated with a member of the penicillin family?
- Syphilis
 - Breast cellulitis
 - Pseudomembranous colitis
 - Actinomyces* infections related to intrauterine device use

- 3–15. Which of the following antibiotic groups is best suited for prophylaxis against postoperative pelvic infections?
- Carbapenems
 - Penicillins
 - Cephalosporins
 - Aminoglycosides
- 3–16. A woman scheduled for a vaginal hysterectomy gives a credible history of anaphylaxis after receiving a dose of penicillin. Choice of antibiotic prophylaxis for her upcoming surgery should take this history into account. What approximate percentage of individuals with a similar history of penicillin allergy can be expected to have a serious allergic reaction to cephalosporins?
- 1
 - 5
 - 15
 - 35
- 3–17. Major complications of aminoglycosides include all of the following **EXCEPT**:
- Hemolysis
 - Ototoxicity
 - Nephrotoxicity
 - Neuromuscular blockade
- 3–18. Your patient has a history of anaphylaxis after oral penicillin use and a lesser allergic reaction (hives and pruritis) after being given a cephalosporin intravenously. She is currently hospitalized for a suspected pelvic infection. Which of the following antibiotics poses the greatest risk of allergic reaction for this patient?
- Imipenem
 - Doxycycline
 - Ciprofloxacin
 - Trimethoprim-sulfamethoxazole
- 3–19. Based upon its antimicrobial spectrum of action, clindamycin is **LEAST** useful to treat which of the following?
- Pelvic abscess
 - Pyelonephritis
 - Bacterial vaginosis
 - Soft tissue infections
- 3–20. Which of the following is **NOT** a potential adverse effect of vancomycin?
- Ototoxicity
 - “Red man” syndrome
 - Back and chest muscle spasms
 - Clostridium dif cile* colitis
- 3–21. Metronidazole is commonly used to treat trichomonal infections and bacterial vaginosis. When prescribed, patients are warned against concurrent use or ingestion of which of the following due to an increased incidence of associated side effects?
- Alcohol
 - Benzodiazapines
 - Grapefruit juice
 - Monoamine oxidase inhibitors
- 3–22. Fluoroquinolones are contraindicated in children, adolescents, and breast-feeding women due to possible adverse effects on the development of which of the following tissues?
- Bone
 - Liver
 - Cartilage
 - Dental enamel
- 3–23. Your patient is a 30-year-old with a painful 2-cm vulvar abscess and surrounding edema (shown here). She is otherwise healthy. You decide to give her oral antibiotics while awaiting bacterial culture results following incision and drainage of the lesion. Which of the following tetracyclines offers the **LEAST** activity against methicillin-resistant *Staphylococcus aureus* infections?



- Doxycycline
- Minocycline
- Tetracycline
- All of these are equally effective.

3–24. You prescribe oral doxycycline to the patient described in Question 3–23. She should be cautioned against which of the following while taking this medication due to the increased potential for an adverse reaction?

- a. Sun exposure
- b. Alcohol consumption
- c. Contemporaneous use of muscle relaxants
- d. Standing upright quickly from sitting or supine positions

3–25. A 28-year-old presents with her first episode of painful vulvar lesions, which first appeared as “blisters.” Which of the following statements regarding this type of infection is true?



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- a. Serologic assays are more sensitive than viral culture.
- b. Prompt antiviral therapy prevents the development of viral latency but not transmission to partners.
- c. More than 90 percent of genital infections caused by this pathogen are diagnosed during the initial infection.
- d. The immune response to this infection lowers the risk of subsequently acquiring a human immunodeficiency virus infection.

3–26. A 32-year-old woman was diagnosed recently with human immunodeficiency virus (HIV) infection/acquired immunodeficiency syndrome (AIDS). She presents with genital lesions that have been present for 1 week, shown here in the first photograph. She reports having had a single sore on her vulva 4 months ago. It was similar to the lesion shown in the second photograph, was not painful, and resolved without treatment after approximately 2 weeks. What is the most likely diagnosis of her current lesions?



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- a. Chancroid
- b. Condyloma lata
- c. Granuloma inguinale
- d. Condyloma accuminata

3–27. Regarding the patient in Question 3–26, which of the following serologic tests specific to her lesions do you expect to be positive?

- a. Rapid plasma reagin
- b. Venereal Disease Research Laboratory
- c. Fluorescent treponemal antibody-absorption
- d. All of the above

3–28. A 45-year-old woman is diagnosed with primary syphilis. She has a history of respiratory distress and hives with past penicillin use. She refuses to undergo skin testing to confirm her penicillin allergy and will not undergo desensitization. What is the best alternative oral antibiotic to treat her infection?

- a. Doxycycline
- b. Azithromycin
- c. Erythromycin
- d. Ciprofloxacin

3–29. A 24-year-old woman presents with recent onset of painless vulvar nodules that have evolved into red ulcers that bleed easily. Inguinal lymphadenopathy is minimal on examination. She has been in a mutually monogamous, heterosexual relationship for 2 years. Wright-Giemsa stain of a swab from one of the lesions shows Donovan bodies. What is her diagnosis?

- a. Chancroid
- b. Primary syphilis
- c. Granuloma inguinale
- d. Lymphogranuloma venereum

3–30. Risk factors for the vaginal pathogen seen here on potassium hydroxide (KOH) preparation include which of the following?



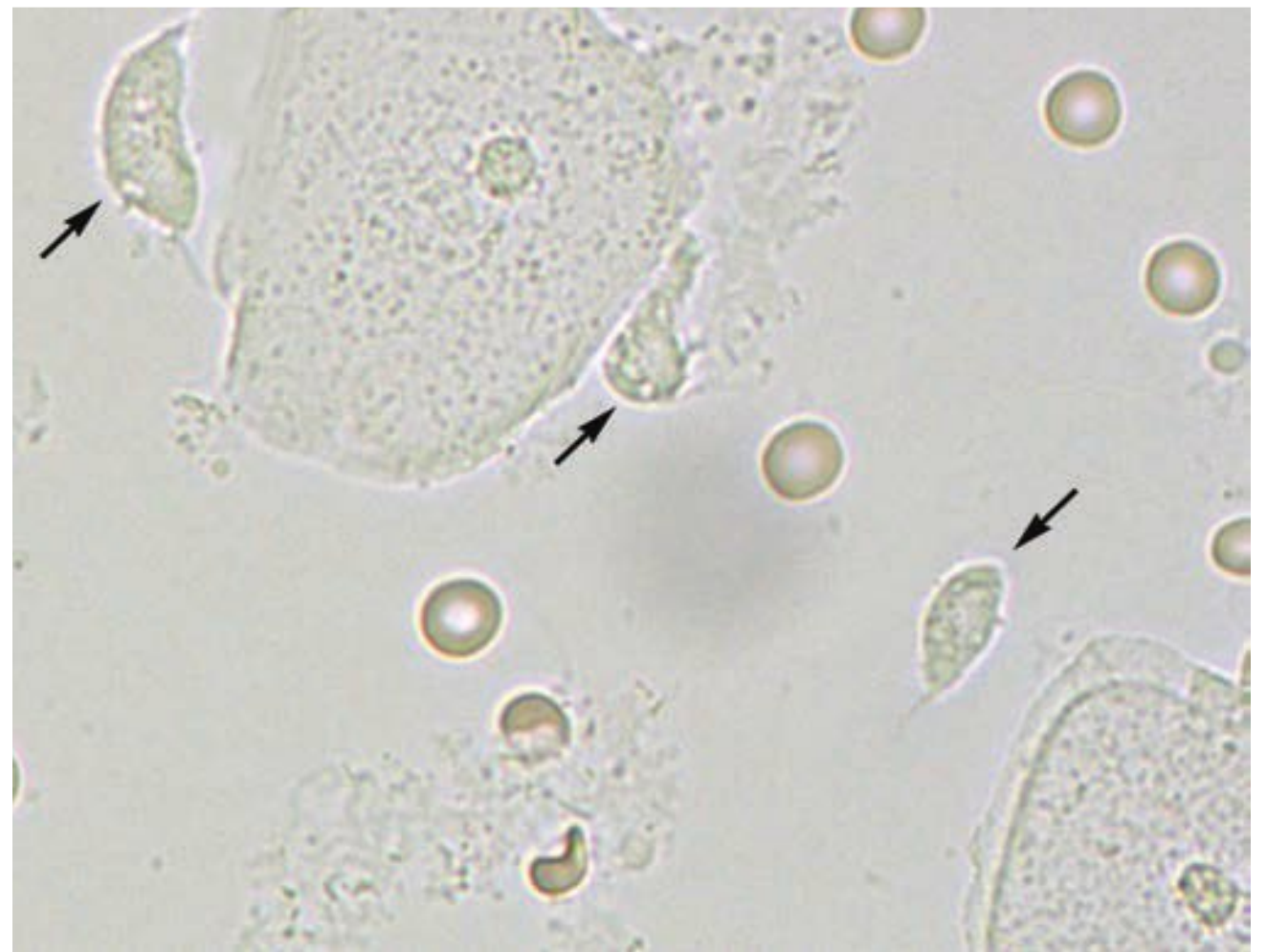
Used with permission from David A. Eschenbach, M.D.

- a. Obesity
- b. Orogenital sex
- c. Immunosuppression
- d. All of the above

3–31. Oral azole therapy may be contraindicated if used along with which of the following medications?

- a. Warfarin
- b. Phenytoin
- c. Protease inhibitors
- d. All of the above

3–32. A 32-year-old woman presents with recent onset of mild dysuria, a foul vaginal discharge, and vaginal spotting. A saline preparation of her vaginal secretions is shown below. Your patient has had this infection before and relates a convincing history of a significant allergic reaction to metronidazole. What is the best option for treatment?



Used with permission from Dr. Lauri Campagna and Rebecca Winn, WHNP.

- a. Mild vinegar douches
- b. Intravaginal clindamycin
- c. Boric acid vaginal suppositories
- d. Referral for desensitization to nitroimidazoles

3–33. Recommended treatment of uncomplicated gonorrhea of the cervix takes into account recent development of drug resistance to quinolones and the declining efficacy of a previously favored cephalosporin. The most current treatment guideline from the Centers for Disease Control and Prevention (2015) lists which of the following as the preferred regimen?

- a. Erythromycin
- b. Cefixime plus doxycycline
- c. Ceftriaxone plus azithromycin
- d. Benzathine penicillin G plus erythromycin

- 3–34.** Fallopian tube damage from *Chlamydia trachomatis* infection most likely results from which of the following mechanisms?
- Acute inflammatory response causing direct damage
 - Delayed hypersensitivity reaction to chlamydial antigens
 - Infiltration and destruction of the muscularis layer within the tubal wall
 - All of the above
- 3–35.** A 20-year-old nulligravida presents with generalized abdominal pain that worse in both lower quadrants, vaginal discharge, anorexia, fever, and chills. She rates her pain as a “9” on a scale of 10. She became sexually active for the first time 1 year ago and has had three sexual partners since. She uses condoms for contraception. Her oral temperature is 39.1°C. Abdominal examination shows diffuse tenderness with bilateral lower quadrant guarding and rebound pain. Her cervix has the appearance shown. Lateral movement of the cervix during bimanual examination elicits increased pain. There are sheets of leukocytes on a vaginal saline slide preparation. Her urine pregnancy test result is negative. Which of the following tests would be **LEAST** helpful for the diagnosis and management of this patient?



- Urinalysis
- Pelvic sonography
- Complete blood count
- Endometrial biopsy for bacterial culture

- 3–36.** The patient in Question 3–35 is admitted to the inpatient gynecology service. Which of the following parenteral antibiotic regimens would **NOT** be appropriate for initial therapy?
- Cefotetan plus doxycycline
 - Clindamycin plus gentamicin
 - Ciprofloxacin plus metronidazole
 - Ampicillin/sulbactam plus doxycycline
- 3–37.** A 28-year-old woman is hoping to become pregnant soon. She is worried about her history of acute pelvic inflammatory disease (PID) when in college 8 years ago. What is her approximate risk of infertility due to this one bout of acute PID?
- 15 percent
 - 35 percent
 - 55 percent
 - 75 percent
- 3–38.** A college freshman presents to the student health clinic with the vulvar lesions shown below. She first noticed them 2 weeks ago, and they are growing in size and number. She reports her first sexual encounter was approximately 3 months ago. She has not been vaccinated against the human papillomavirus. Which of the following patient-applied topical therapies for such lesions has shown superiority over the others in clinical trials with nearly 100 percent initial clearance rates?



- Imiquimod
- Sinecatechins
- Podophyllotoxin
- None of the above

- 3–39.** A 32-year-old G3P2 presents at 20 weeks' gestation complaining of itchy skin lesions on her hands and arms. Her school-aged children have similar lesions. Scrapings of the linear skin lesions are mixed with immersion oil and show the microscopic finding below. What is the best option for topical treatment of your patient?

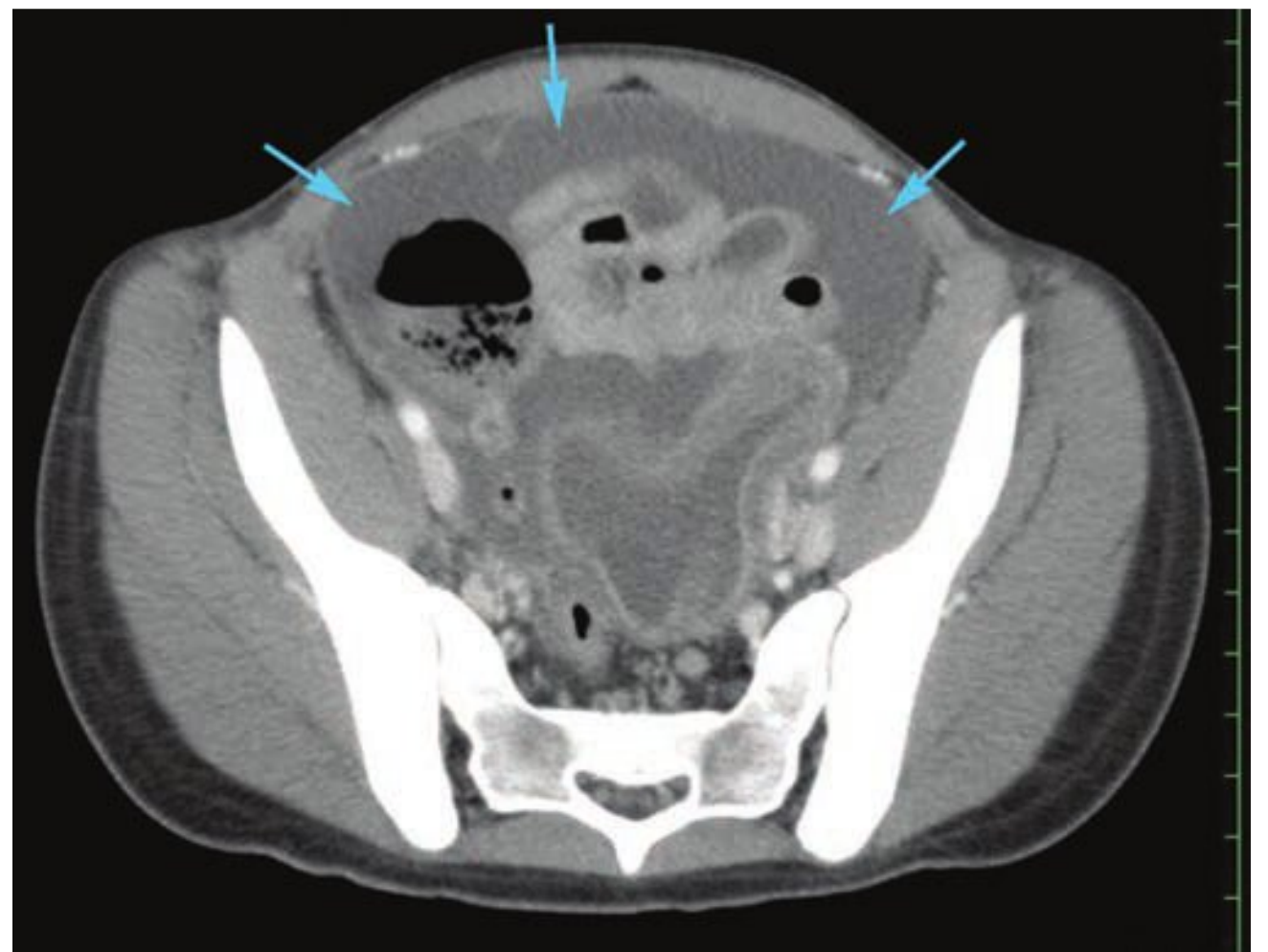


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- a. Lindane
 - b. Imiquimod
 - c. Permethrin
 - d. Sinecatechin
- 3–40.** A 20-year-old college student calls the office reporting acute onset of urinary frequency and dysuria 2 days ago. She begins final examinations in 2 days and does not want to come to the office. She is otherwise healthy and afebrile. She had one similar episode 15 months ago that resolved quickly with oral antibiotics. Before antibiotics are prescribed for uncomplicated cystitis, which of the following studies are necessary?
- a. Urinalysis
 - b. Urine culture with bacterial sensitivities
 - c. Physical examination with sexually transmitted disease testing
 - d. None of the above
- 3–41.** Which of the following can cause false positive leukocyte esterase testing of a urine specimen?
- a. *Trichomonas* vaginitis
 - b. Contamination with rectal or vaginal bacteria
 - c. Delayed testing or a poorly preserved specimen
 - d. All of the above

- 3–42.** Which of the following statements is true regarding typical vaginal cuff cellulitis after vaginal hysterectomy?
- a. Parenteral antibiotics are indicated for at least 24 hours.
 - b. It is an expected result of surgery and generally does not require treatment.
 - c. Presence of numerous white blood cells on a saline slide preparation of vaginal secretions or any purulent vaginal discharge should prompt opening the vaginal cuff and placing a drain.
 - d. Its incidence is a metric used by the Joint Commission to monitor surgical-site infection rates and is used for individual physician credentialing and hospital accreditation.

- 3–43.** Your 42-year-old patient underwent an uneventful vaginal hysterectomy for adenomyosis 10 days ago. She received perioperative prophylactic antibiotics. She presents to your office today complaining of diffuse lower abdominal pain. This began several days ago as left-sided lower abdominal pain but has worsened and become more generalized. She developed subjective fever and anorexia yesterday. On examination, she appears ill. Her temperature is 40.0°C, pulse 112, BP 85/50. Her abdominal and pelvic examinations suggest peritonitis with extreme tenderness. An image from her computed tomographic (CT) is significant for the finding seen below. Which of the following true gynecologic emergency does this likely represent?



- a. Pelvic cellulitis
- b. Vaginal cuff cellulitis
- c. Infected pelvic hematoma
- d. Ruptured ovarian abscess

3–44. You are called to the emergency department to consult on a 26-year-old patient presenting with 36 hours of progressive malaise, fever, muscle aches, anorexia, diarrhea, and confusion. Her last menstrual period began 2 to 3 days ago as expected. She has had an intrauterine device in place for 1 year without problems. She has a new sexual partner as of 1 month ago. Her temperature is elevated, she is hypotensive, and she has erythema of her oropharynx and vaginal mucosa. Her skin demonstrates a diffuse macular rash. Abdominal and bimanual pelvic examinations are mildly tender but no specific or localized findings are present. After obtaining appropriate laboratory tests and bacterial cultures, you quickly start parenteral antibiotics effective against which of the following pathogens?

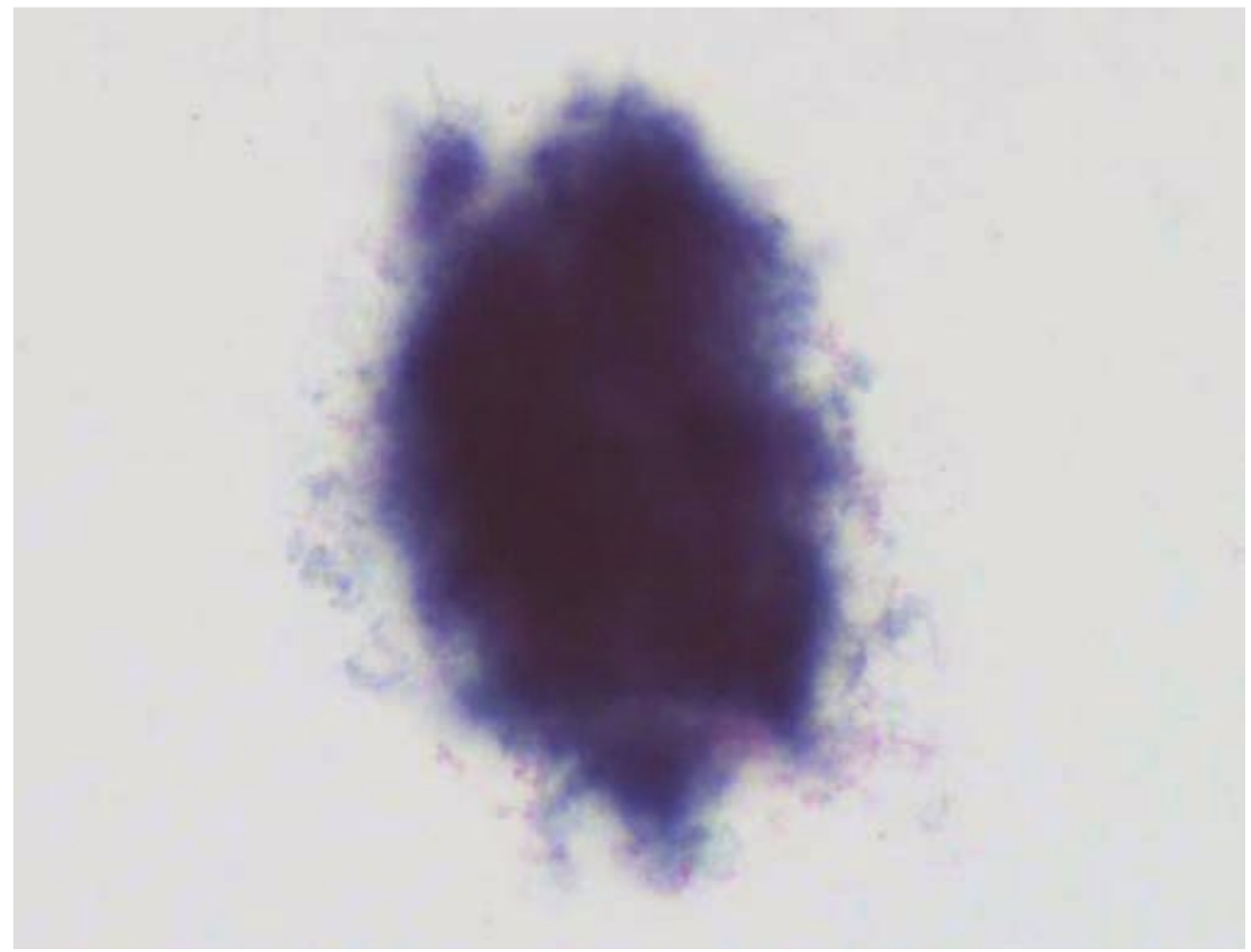
- a. *Neisseria gonorrhoeae*
- b. *Staphylococcus aureus*
- c. *Streptococcus pyogenes*
- d. *Clostridium perfringens*

3–45. A 37-year-old woman presents with increasing left vulvar pain and swelling over the past few days. Her vulvar is seen below. What is the most likely diagnosis?



- a. Folliculitis
- b. Skene gland abscess
- c. Hidradenitis suppurativa
- d. Bartholin gland duct abscess

3–46. Your patient is a 36-year-old G2P2 who presents for routine well woman care. She has no gynecologic complaints and normal, cyclic menses. She wishes to continue using an intrauterine device (IUD), which has been in place for 7 years. Her examination is normal. Her cervical cytology subsequently is resulted as negative, but the presence of *Actinomyces* is noted in the final cytology report. As seen here microscopically, this bacterium has tiny thin filaments, which aggregate to form a tangled woolly ball. Which of the following is a reasonable approach to their presence in this asymptomatic patient?



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- a. Expectant management and leave IUD in place
- b. Extended oral antibiotics and leave IUD in place
- c. IUD removal, without or without oral antibiotics
- d. All are appropriate options.

Reference

Centers for Disease Control and Prevention: Sexually transmitted diseases treatment guidelines 2015. MMWR 64(3):1, 2015

Chapter 3 ANSWER KEY

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3-3	d	p. 50	Normal Vaginal Flora	3-28	a	p. 58	Table 3-5
3-4	b	p. 50	Vaginal pH	3-29	c	p. 59	Granuloma Inguinale
3-5	b	p. 50	Vaginal pH	3-30	d	p. 60	Fungal Infection
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3-23	c	p. 55	Tetracyclines				
3-24	a	p. 55	Tetracyclines				
3-25	a	p. 55	Herpes Simplex Virus Infection				

CHAPTER 4

Benign Disorders of the Lower Genital Tract

- 4-1.** Pathology involving the vulva is common, with lesions resulting from which of the following?
- Trauma
 - Neoplasia
 - Immune responses
 - All of the above
- 4-2.** Agents commonly implicated in allergic or contact dermatitis include which of the following?
- Lanolin
 - Benzocaine
 - Clobetasol propionate
 - All of the above
- 4-3.** The initial evaluation of vulvovaginal complaints without an obvious etiology typically includes which of the following vaginal assessments?
- Biopsy
 - Colposcopy
 - Pap screening
 - Saline slide preparation, vaginal pH testing, and aerobic culture
- 4-4.** Vulvar skin changes are frequently nonspecific, requiring biopsy for accurate diagnosis. Biopsy site bleeding may need control. Which of the following approaches to hemostasis may permanently discolor the skin?
- Suturing
 - Monsel paste
 - Silver nitrate stick
 - Prolonged, direct pressure with gauze
- 4-5.** Chronic vulvar trauma due to excessive rubbing and scratching may result in lichen simplex chronicus. Histology classically shows which of the following?
- Dermal homogenization
 - Granulomatous pattern
 - Vasculopathic pattern
 - Acanthosis and hyperkeratosis

- 4-6.** Which chronic inflammatory condition of the anogenital skin is demonstrated in this photograph?



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- Lichen planus
 - Lichen sclerosus
 - Contact dermatitis
 - Hidradenitis suppurativa
- 4-7.** Autoimmune disorders associated with lichen sclerosus include which of the following?
- Graves disease
 - Diabetes mellitus
 - Systemic lupus erythematosus
 - All of the above
- 4-8.** A newly diagnosed patient with vulvar lichen sclerosus complains of mild-to-moderate vulvar pruritus on most days. She has not tried any therapeutic interventions yet. First-line therapy for lichen sclerosus includes which of the following topical agents?
- Estrogen cream
 - Testosterone cream
 - Ultrapotent topical corticosteroid ointment
 - All of the above

4–9. Patients with lichen sclerosus are at increased risk of vulvar malignancy. Accordingly, lifetime surveillance of women with lichen sclerosus annually is prudent. Malignant transformation within lichen sclerosus has been reported in what percentage of patients?

- a. 0.05 percent
- b. 0.5 percent
- c. 5 percent
- d. 25 percent

4–10. Which chronic condition is caused by friction between moist skin surfaces and is often found in the genitocrural folds?

- a. Psoriasis
- b. Intertrigo
- c. Atopic eczema
- d. Erythematous inflammation

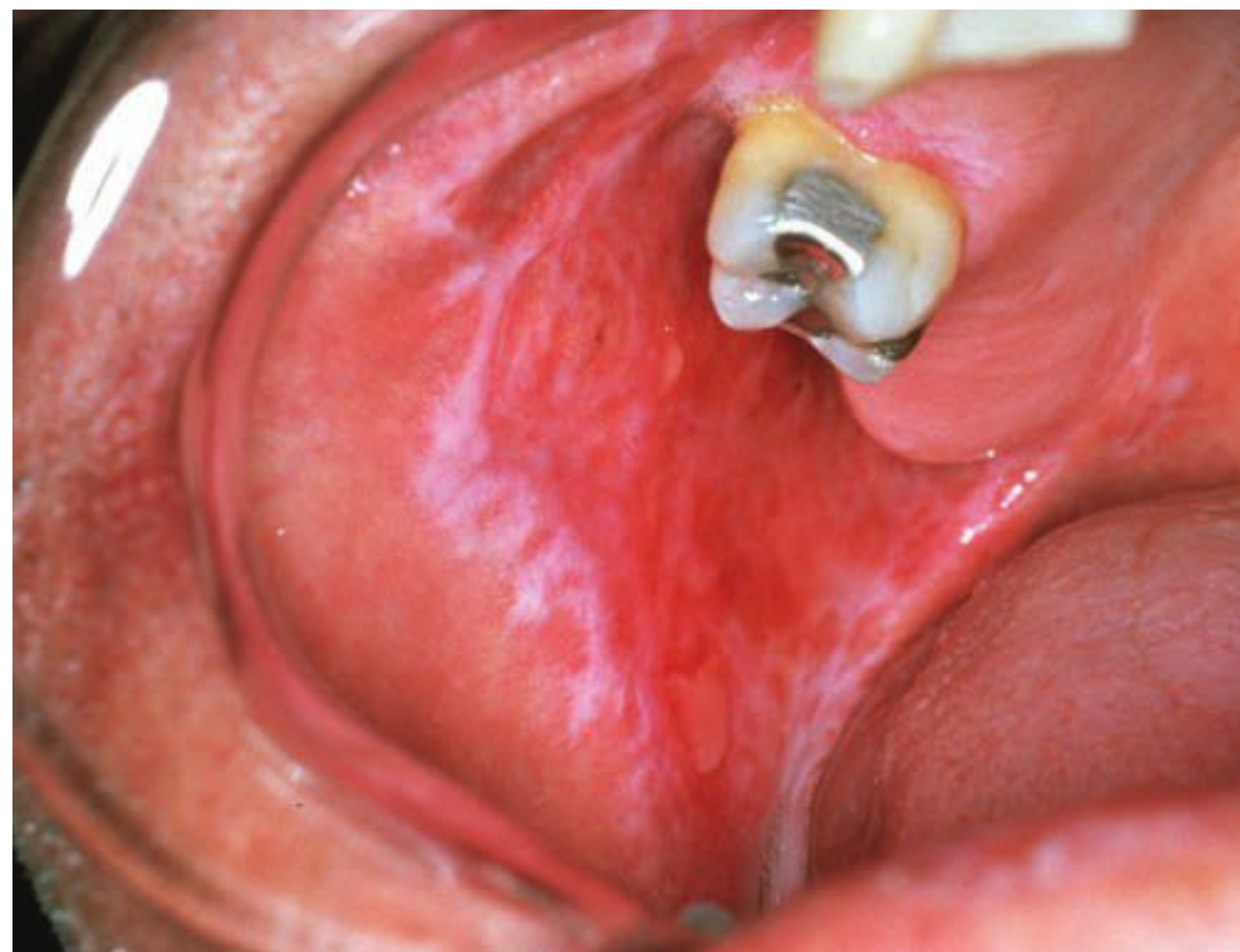
4–11. In the United States, the prevalence of psoriasis is approximately 1 to 2 percent. Although several treatments are available for psoriasis (shown here), which of the following is most widely used?



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- a. Alefacept
- b. Infliximab
- c. Vitamin D analog
- d. Topical corticosteroid

4–12. A 30-year-old woman with a newly diagnosed vulvar dermatosis also has the oral lesions, as shown here, known as Wickham striae. What is her diagnosis most likely to be?



Used with permission from Dr Edward Ellis.

- a. Lichen planus
- b. Lichen sclerosus
- c. Pemphigus vulgaris
- d. Fox–Fordyce disease

4–13. Vulvar lichen planus can present as one of three variants. Which of the following variants is the most common vulvovaginal form and the most difficult to treat?

- a. Erosive
- b. Degenerative
- c. Hypertrophic
- d. Papulosquamous

4–14. Treatment of vaginal lichen planus is often challenging. Symptomatic relief has been reported using which of the following?

- a. Minocycline
- b. Estrogen cream
- c. Sequential vaginal dilators
- d. Vaginal corticosteroid suppositories

- 4–15.** A 26-year-old woman presents with recurrent vulvar skin lesions that are painful and drain purulent material occasionally (shown below). Antibiotics give partial, temporary relief. She has two brothers with similar skin lesions in their axillae. What is the likely diagnosis of her condition?



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- a. Vitiligo
 - b. Lichen planus
 - c. Lichen sclerosus
 - d. Hidradenitis suppurativa
- 4–16.** Hidradenitis suppurativa is a chronic skin disease manifested by recurrent papular lesions that may lead to abscess and fistular tract formation with scarring. Which of the following lists reflects the most commonly affected areas in descending order of frequency?
- a. Inframammary, axillae, perineal, inguinal
 - b. Axillae, inguinal, perineal, inframammary
 - c. Perineal, inguinal, inframammary, axillae
 - d. Inguinal, inframammary, perineal, axillae
- 4–17.** Which of the following structures is primarily involved in the development of hidradenitis suppurativa?
- a. Blood vessels
 - b. Hair follicles
 - c. Sebaceous glands
 - d. Apocrine sweat glands

- 4–18.** Early treatment of hidradenitis suppurativa involves which of the following?
- a. Topical corticosteroid ointment
 - b. Infliximab, a monoclonal antibody
 - c. Surgical excision of apocrine gland sinus tracts
 - d. Warm compresses, topical antiseptics, and systemic antibiotics
- 4–19.** Which of the following is a common, painful, self-limited mucosal lesion?
- a. Vitiligo
 - b. Aphthous ulcer
 - c. Pemphigus vulgaris
 - d. All of the above
- 4–20.** This condition is commonly associated with which of the following?



- a. Anorexia
- b. Hypertension
- c. Hyperlipidemia
- d. Polycystic ovarian syndrome

- 4–21.** Distinctive, linear “knife-cut” ulcerations, as shown here, affecting the inguinal, genitocrural, and interlabial folds are found in up to one third of women with which of the following diseases?



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- a. Crohn disease
 - b. Diverticulitis
 - c. Diabetes mellitus
 - d. Inflammatory bowel disease
- 4–22.** The exact etiology of Behçet disease remains unknown. This rare, chronic, autoinflammatory form of systemic vasculitis is characterized by lesions found in which of the following areas?
- a. Oral
 - b. Ocular
 - c. Genital
 - d. All of the above

- 4–23.** A healthy 50-year-old woman presents with unexplained, progressive, patchy pigmentation loss of her vulvar skin. She is very upset by the cosmetic effect of this change. The loss of epidermal melanocytes with resultant depigmentation of vulvar skin, shown here, is termed which of the following?



Used with permission from Sharon Irvin, WHNP.

- a. Vitiligo
 - b. Acanthosis
 - c. Fox–Fordyce disease
 - d. Nigricans acrochordon
- 4–24.** The most common cause of vitiligo involves genetic factors. What percentage of patients has at least one similarly affected first-degree relative?
- a. 2 percent
 - b. 20 percent
 - c. 40 percent
 - d. 60 percent

- 4–25.** Flesh-colored, polypoid masses, like the unusually large example and also a smaller one, as shown here, are usually devoid of hair and generally measure 1 to 6 mm in diameter. What is such a lesion called?



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- a. Acrochordon
- b. Condylomata
- c. Keratoacanthoma
- d. Ectopic breast tissue

- 4–26.** The figure below represents an asymptomatic structure lined by squamous epithelium resulting from a plugged sebaceous gland. What is this lesion?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology. 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Vera Bell WHNP.

- a. Skene gland abscess
- b. Urethral diverticulum
- c. Epidermal inclusion cyst
- d. Bartholin gland duct cyst

- 4–27.** A 36-year-old patient has undergone two incision and drainage procedures for a Bartholin gland duct abscess. Which of the following would provide the most definitive treatment for her recurrent Bartholin gland duct abscess?

- a. Marsupialization
- b. Long-term antibiotics
- c. Five-percent lidocaine ointment
- d. Warm compresses and frequent sitz baths

- 4–28.** According to the 2003 International Society for the Study of Vulvovaginal Disease World Congress, which of the following terms describes burning vulvar pain occurring in the absence of relevant visible findings or a specific, clinically identifiable neurologic disorder?

- a. Dermatitis
- b. Vulvodynia
- c. Vestibulitis
- d. Psychosomatic vestibulopathy

- 4–29.** The pain of vulvodynia is categorized as which of the following?

- a. Provoked
- b. Unprovoked
- c. Generalized
- d. All of the above

- 4–30.** Limited studies estimating the prevalence of vulvodynia in the general population indicate that up to what percentage is affected?

- a. 2 percent
- b. 11 percent
- c. 22 percent
- d. 51 percent

- 4–31.** A 22-year-old nulligravida complains of months of vulvar burning and discomfort, especially during intercourse. Although no specific laboratory test can diagnose vulvodynia, which of the following tests are useful to exclude an underlying vulvovaginitis?

- a. Vulvar cytology
- b. Vulvar skin patch testing
- c. Human papillomavirus (HPV) serology
- d. Saline slide preparation and pH testing of vaginal discharge; cultures for herpes simplex virus and candidal species

4–32. When tricyclic antidepressants are used to medically manage vulvodynia, reported response rates may reach what percentage listed below?

- a. 47 percent
- b. 67 percent
- c. 87 percent
- d. 97 percent

4–33. Desquamative inflammatory vaginitis is an uncommon disorder that develops primarily in Caucasian, perimenopausal women. Patients typically present complaining of copious vaginal discharge, introital burning, and dyspareunia refractory to common therapies. This disorder may represent a variant of which of the following?

- a. Herpes simplex
- b. Lichen sclerosus
- c. Vaginal aphthous ulcers
- d. Erosive vaginal lichen planus

Chapter 4 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
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4-2	d	p. 87	Table 4-1	4-19	b	p. 94	Aphthous Ulcers
4-3	d	p. 87	Physical Examination	4-20	d	p. 94	Acanthosis Nigricans
4-4	c	p. 87	Vulvar Biopsy	4-21	a	p. 94	Crohn Disease
4-5	d	p. 88	Lichen Simplex Chronicus	4-22	d	p. 94	Behçet Disease
4-6	b	p. 88	Lichen Sclerosus	4-23	a	p. 95	Vitiligo
4-7	d	p. 88	Lichen Sclerosus	4-24	b	p. 95	Vitiligo
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4-13	a	p. 92	Lichen Planus	4-30	b	p. 97	Vulvodynia
4-14	d	p. 93	Vaginal Lichen Planus Treatment	4-31	d	p. 98	Diagnosis
4-15	d	p. 93	Hidradenitis Suppurativa	4-32	a	p. 100	Medications
4-16	b	p. 93	Hidradenitis Suppurativa	4-33	d	p. 101	Desquamative Inflammatory Vaginitis
4-17	d	p. 93	Hidradenitis Suppurativa				

CHAPTER 5

Contraception and Sterilization

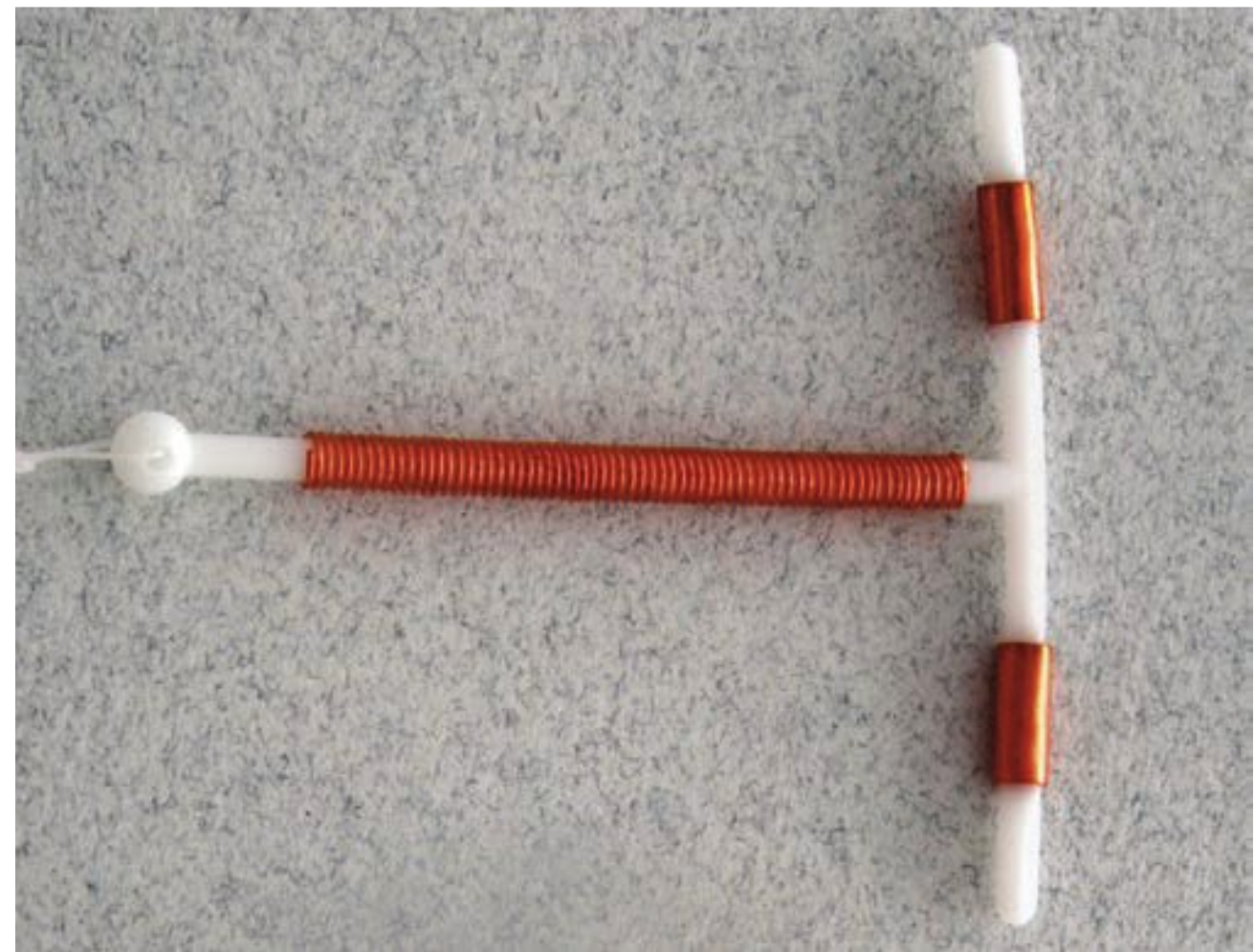
- 5–1.** Which of the following poses the highest risk of death in fertile women aged 35 to 44 years?
- Pregnancy
 - Oral contraceptive use
 - Intrauterine device (IUD) use
 - Surgical tubal sterilization procedure
- 5–2.** Which of the following is a first-tier contraceptive method with an expected failure rate of 2 pregnancies per 100 women during the first year?
- Spermicide
 - Male condom
 - Intrauterine device (IUD)
 - Depot medroxyprogesterone acetate (DMPA)
- 5–3.** Which of the following is a second-tier contraceptive method with an expected failure rate of 3 to 9 pregnancies per 100 users during the first year?
- Spermicide
 - Withdrawal
 - Intrauterine device
 - Oral contraceptive pills
- 5–4.** A 35-year-old woman presents to your office as a new family planning patient for initiation of contraception. Her medical history is notable for migraines with aura. She wishes to use combination oral contraceptive pills (COCs). You refer to the United States Medical Eligibility Criteria (US MEC) guidelines and see that this method is rated a “4.” Which of the following corresponds to this score and describes the safety profile for COC use in this particular patient?
- Use is not restricted.
 - Method advantages outweigh risks.
 - Method risks outweigh advantages.
 - Method poses an unacceptable high health risk.
- 5–5.** Your patient delivered a healthy infant 2 weeks ago and wishes to initiate use of a contraceptive method during the next few weeks. She is breastfeeding exclusively. For which of the following is there strong evidence that use decreases the quantity and quality of breast milk?
- Progestin-only pills
 - Depot medroxyprogesterone acetate
 - Combination hormonal contraceptives
 - None of the above
- 5–6.** A 16-year-old nulligravida is requesting a contraceptive method. She plans to become sexually active with her boyfriend soon. Which of the following is legally required in most states prior to prescribing hormonal contraception for adolescents below the age of consent?
- Parental consent
 - Pelvic examination
 - Cervical cancer screening
 - None of the above
- 5–7.** Which of the following statements is **NOT** a progestin-mediated mechanism by which a levonorgestrel-releasing intrauterine system (LNG-IUS) may prevent pregnancy?
- Endometrial atrophy
 - Decrease in tubal motility
 - Thickening of cervical mucus
 - Lysosomal activation and inflammation

- 5–8. Which of the following conditions is **NOT** listed by the manufacturer as a contraindication of this contraceptive method?



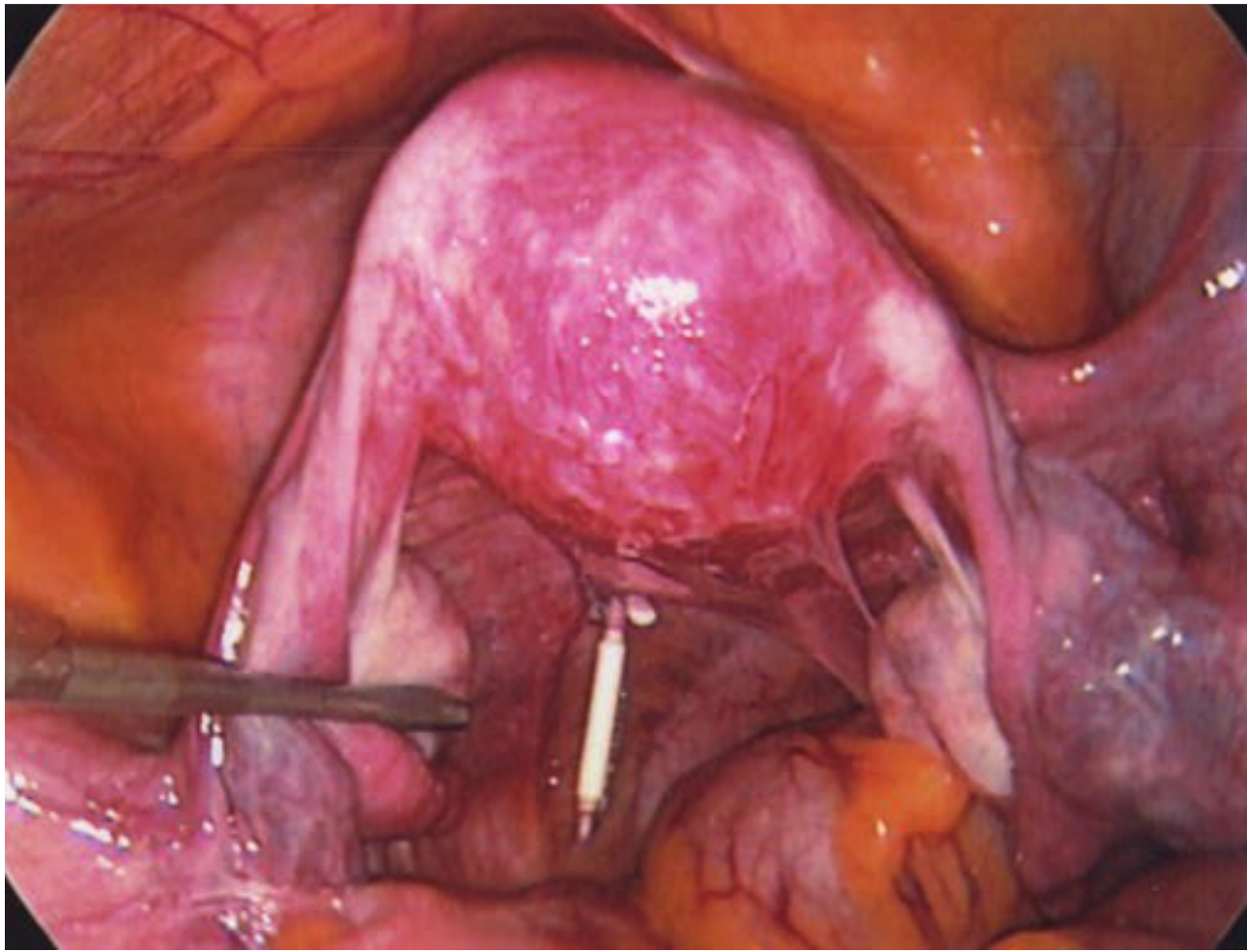
- a. Acute liver disease
- b. Heavy menses due to coagulation disorder
- c. Increased susceptibility to pelvic infection
- d. Uterine anomaly with distortion of the uterine cavity

- 5–9. Your patient is a 26-year-old multipara who presents for a well-woman examination. She has no complaints. She is satisfied with her current method of contraception (shown here). It was inserted 2 years ago, and she wishes to continue with this contraceptive method. Her pelvic examination is normal. Cervical cytology (Pap test) is obtained and is negative for malignancy, but filamentous organisms consistent with *Actinomyces* species are identified on the smear. Which of the following is **NOT** a reasonable treatment option for managing this incidental finding according to current recommendations from the American College of Obstetricians and Gynecologists (2011)?



- a. Hysterectomy
 - b. Expectant management (no intervention)
 - c. Extended course of antibiotics with intrauterine device (IUD) left in place
 - d. Intrauterine device removal and initiation of an alternative contraceptive method
- 5–10. For which of the following is intrauterine device use contraindicated due to an increased complication rate?
- a. Adolescence
 - b. Human immunodeficiency infection
 - c. Insertion immediately after spontaneous or induced abortion
 - d. None of the above
- 5–11. What is the spontaneous expulsion rate for the intrauterine device during the first year after placement?
- a. 0.05 percent
 - b. 0.5 percent
 - c. 5 percent
 - d. 15 percent

- 5–12.** What is the approximate risk of the complication shown here per intrauterine device insertion?



Used with permission from Dr Kimberly Kho.

- a. 1 in 100
- b. 1 in 1000
- c. 1 in 10,000
- d. 1 in 100,000

- 5–13.** A 34-year-old multipara with a copper-containing intrauterine device (IUD) in place presents for IUD removal because she plans to become pregnant soon. Her last menstrual period was 8 weeks ago. Her urine pregnancy test is positive, and transvaginal sonography confirms an 8-week intrauterine gestation. She wishes to continue this pregnancy, if possible. She feels well, is afebrile, and has no cervical discharge or pelvic tenderness. You see the IUD tail strings protruding from the external cervical os. Which of the following management strategies is recommended to optimize the outcome for your patient?



- a. Remove the IUD and evacuate the uterine contents
 - b. Remove the IUD and plan expectant pregnancy management
 - c. Leave the IUD in place and plan expectant pregnancy management
 - d. Leave the IUD in place and administer broad-spectrum antibiotics for the next 4 weeks
- 5–14.** For which of the following contraceptive methods is a history of previous ectopic pregnancy considered, by its manufacturer, to be a contraindication to its use?
- a. Depot medroxyprogesterone acetate
 - b. Copper-containing intrauterine device
 - c. Progestin-containing subdermal implant
 - d. Levonorgestrel-releasing intrauterine system

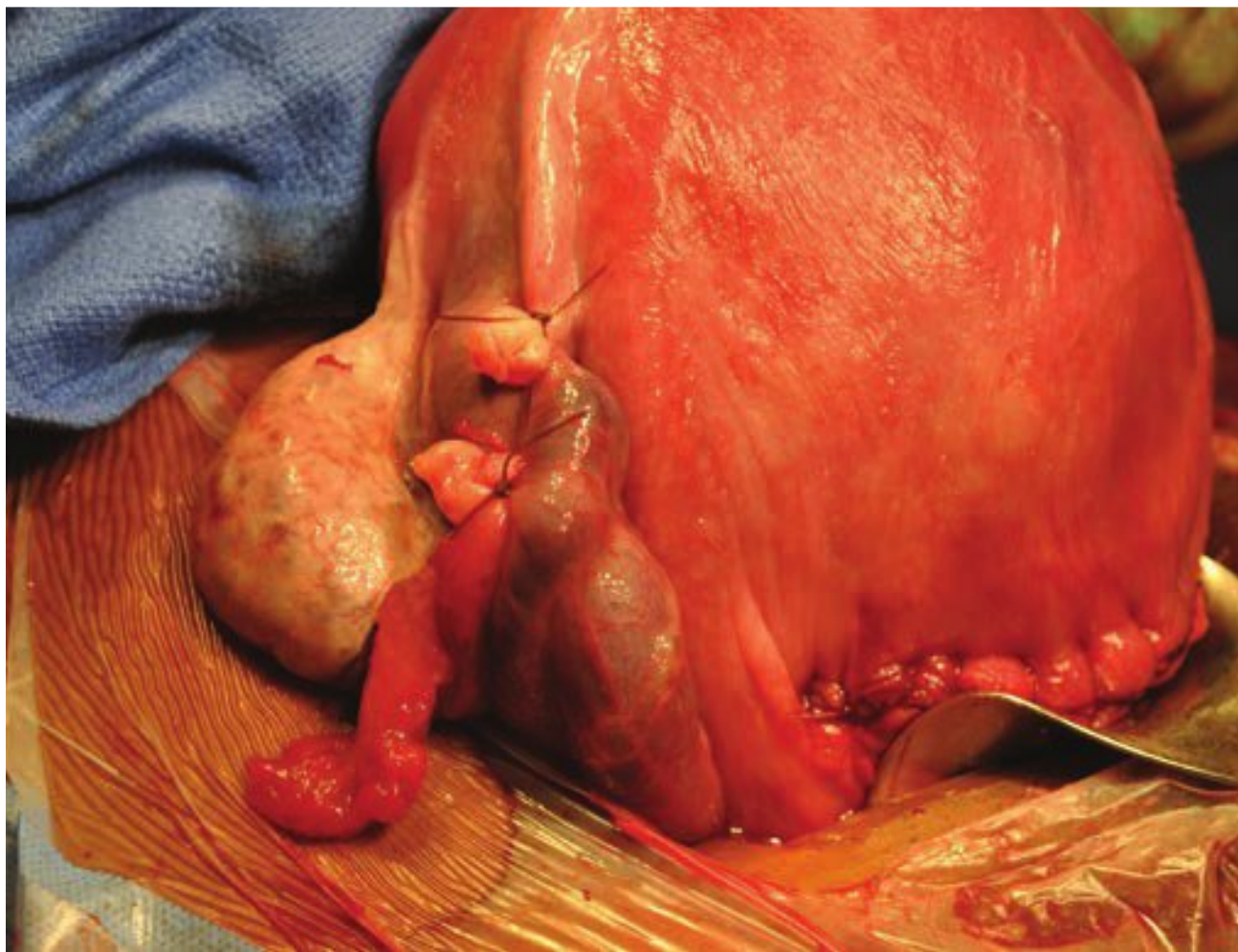
5–15. Which of the following is thought to be a mechanism of action by which the etonogestrel implant provides contraception?

- a. Ovulation suppression
- b. Endometrial atrophic changes
- c. Increased cervical mucus viscosity
- d. All of the above

5–16. Which of the following methods of tubal sterilization has the highest cumulative probability of failure at 5 years?

- a. Bipolar sterilization
- b. Unipolar sterilization
- c. Band or clip placement
- d. Puerperal sterilization

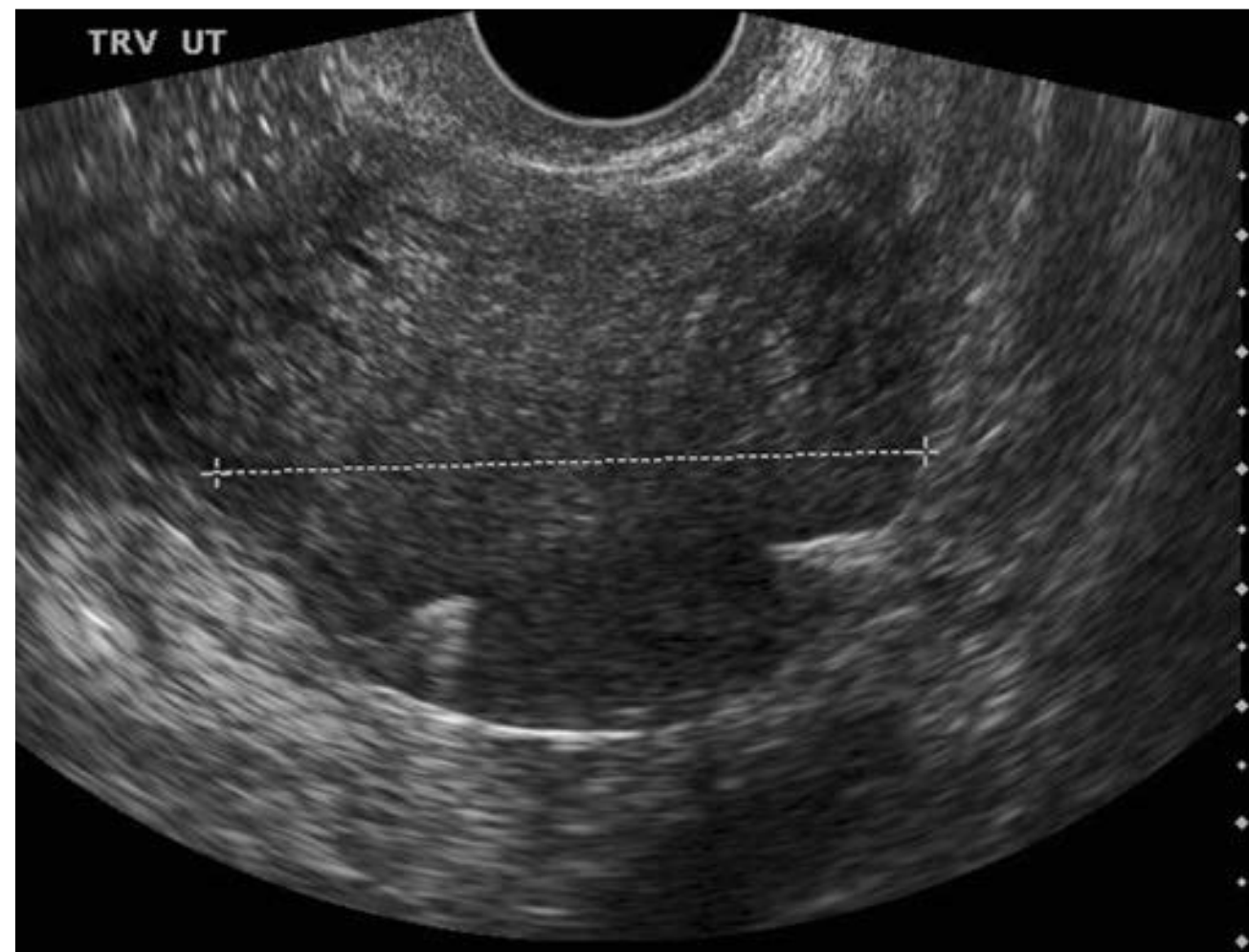
5–17. Which of the following statements is true regarding the effects of female tubal sterilization?



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- a. Ovarian cancer risk is increased.
- b. The incidence of menorrhagia and dysmenorrhea is increased.
- c. Approximately 10 percent of pregnancies occurring after the procedure are ectopic.
- d. By 5 years postprocedure, 50 percent of women aged 30 years or younger at the time of sterilization express regret.

5–18. Which of the following statements is true regarding the Essure permanent birth control system, which is shown in this sonogram.



- a. Procedure time averages more than 1 hour.
- b. Placement must be performed in the operating room.
- c. If coils are placed bilaterally and occlusion is documented, contraceptive success rates exceed 95 percent.
- d. Transvaginal sonography has been approved by the Food and Drug Administration for confirmation of postprocedural tubal occlusion.

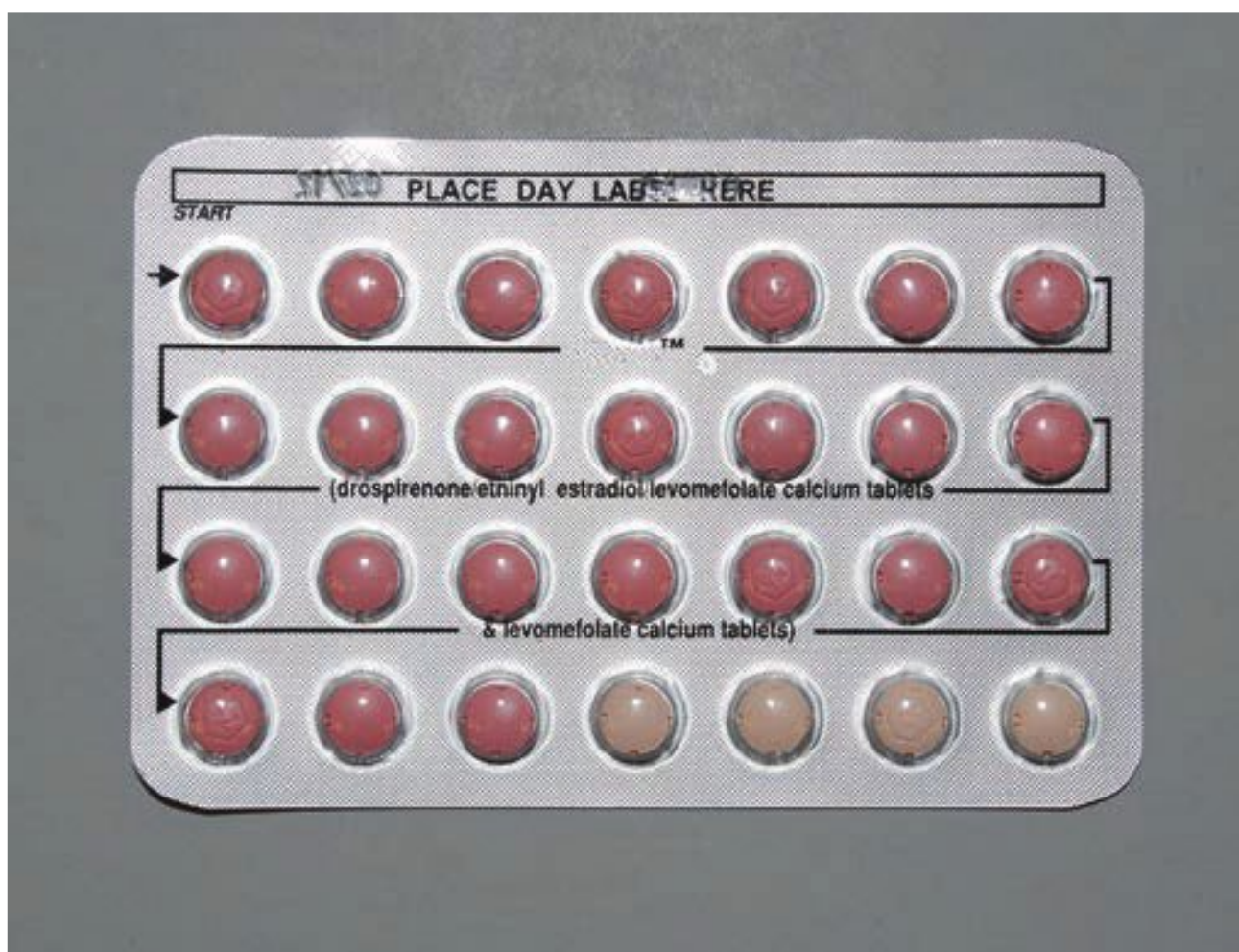
5–19. Which of the following statements regarding vasectomy is true?

- a. Semen analysis is performed 3 months after vasectomy to confirm azoospermia.
- b. The failure rate is 30 times less than that of female tubal sterilization.
- c. The postoperative complication rate is 20 times less than that of female tubal sterilization.
- d. All of the above

5–20. Which of the following is **NOT** a physiologic effect exerted by the progestin component of combination hormonal contraceptives?

- a. Lowered serum free testosterone levels
- b. Suppressed serum levels of luteinizing hormone
- c. Elevated serum levels of follicle-stimulating hormone
- d. All are physiologic effects.

- 5-21. Which of the following is **NOT** an absolute contraindication to use of this contraceptive method?



- a. Thrombotic disorders
 - b. Cholestatic jaundice
 - c. Migraines with focal neurologic deficits
 - d. Uncomplicated systemic lupus erythematosus that includes negative testing for antiphospholipid antibodies
- 5-22. Which of the following statements regarding the method of contraception shown here compared with combination oral contraceptive pills (COCs) is true?



- a. Total estrogen exposure is higher with this method.
- b. This method is less likely to cause breast tenderness.
- c. This method controls dysmenorrhea in a greater percentage of women.
- d. The pregnancy rate with this method is slightly higher than with COCs.

- 5-23. Rates of which of the following are increased with use of extended cycle hormonal contraception compared with that of traditional cyclic hormonal contraception?
- a. Headaches
 - b. Escape ovulation
 - c. Endometrial cancer
 - d. Unpredictable bleeding
- 5-24. Use of which of the following drugs most clearly decreases combined hormonal contraceptive efficacy?
- a. Rifampin
 - b. Penicillin
 - c. Doxycycline
 - d. Ciprofloxacin
- 5-25. Low-dose combination hormonal contraceptives most clearly increase the risk of developing which of the following?
- a. Obesity
 - b. Clinically significant hypertension
 - c. Overt diabetes in women with prior gestational diabetes
 - d. None of the above
- 5-26. With combination hormonal contraceptive use, stroke risk is elevated by which of the following being coexistent?
- a. Tobacco use
 - b. Hypertension
 - c. Migraine headaches with aura
 - d. All of the above
- 5-27. Your patient is concerned after reading that the risk of deep-vein thrombosis and pulmonary embolism is tripled or quadrupled in current users of combination hormonal contraceptives (CHCs) compared with that of the general population. You explain that this is true but that the risk is still lower than the risk of venous thrombosis related to pregnancy. What is the approximate rate of thromboembolic events per 10,000 woman years with CHC use?
- a. 4 events
 - b. 40 events
 - c. 240 events
 - d. 440 events

- 5–28.** Your patient is an 18-year-old nulligravida who is not sexually active but takes combination oral contraceptive pills (COCs) to achieve good control of her irregular menses and dysmenorrhea. She has grand mal epilepsy. Her seizures are well controlled on medication. Serum levels of which anticonvulsant medication are decreased significantly by concurrent COC use?
- Phenytoin
 - Lamotrigine
 - Carbamazepine
 - Phenobarbital
- 5–29.** Contemporary low-dose combination oral contraceptive pills (COCs) are most strongly implicated as a risk factor for the development of which of the following neoplasms?
- Breast cancer
 - Cervical cancer
 - Benign hepatic adenomas
 - Lymphoma, if human immunodeficiency virus (HIV) infection coexists
- 5–30.** Your patient has diabetes mellitus and hypertension but prefers to use “pills” for contraception. She declines an intrauterine device and barrier methods. She is considering a progestin-only contraceptive and favors progestin-only pills. You counsel her regarding the advantages. You also explain which of the following disadvantages of progestin-only pills compared with combination oral contraceptive pills (COCs)?
- Higher failure rate
 - High rate of irregular bleeding
 - Higher relative ectopic pregnancy rate if pregnancy occurs
 - All of the above
- 5–31.** Which of the following is generally increased by the use of depot medroxyprogesterone acetate compared with other contraceptive methods?
- Acne
 - Bone fractures
 - Hepatic neoplasms
 - Interval to resumption of ovulation after method cessation
- 5–32.** Which of the following is an advantage of lambskin condoms compared with latex rubber condoms?
- Fewer allergic reactions
 - Lower breakage and slippage rates
 - Better protection against sexually transmitted infections
 - All of the above
- 5–33.** Which of the following statements about spermicides is **NOT** true?
- Spermicides alone provide protection against sexually transmitted diseases.
 - The chemical agents, such as nonoxynol-9 or octoxynol-9, are spermicidal.
 - Spermicide preparations are marketed in various forms, such as creams, jellies, suppositories, film, and foams.
 - Even when inserted regularly and correctly, spermicide preparations have a failure rate of up to 12 pregnancies per 100 woman years of use.
- 5–34.** Which of the following is **NOT** a mechanism of action for hormone-based emergency contraception?
- Disruption of an implanted zygote
 - Endometrial changes that prevent implantation
 - Interference with sperm transport or penetration
 - Inhibition or delay of ovulation and impaired corpus luteum function
- 5–35.** Which of the following is an advantage of progestin-only emergency contraception regimens compared with estrogen–progestin combinations for this purpose?
- More effective in preventing pregnancy
 - Effective if taken beyond 5 days after exposure
 - Provides better protection against sexually transmitted infections
 - None of the above

Reference

American College of Obstetricians and Gynecologists: Long-acting reversible contraception: Implants and intrauterine devices. Practice Bulletin No. 121, July 2011, Reaffirmed 2013.

Chapter 5 ANSWER KEY

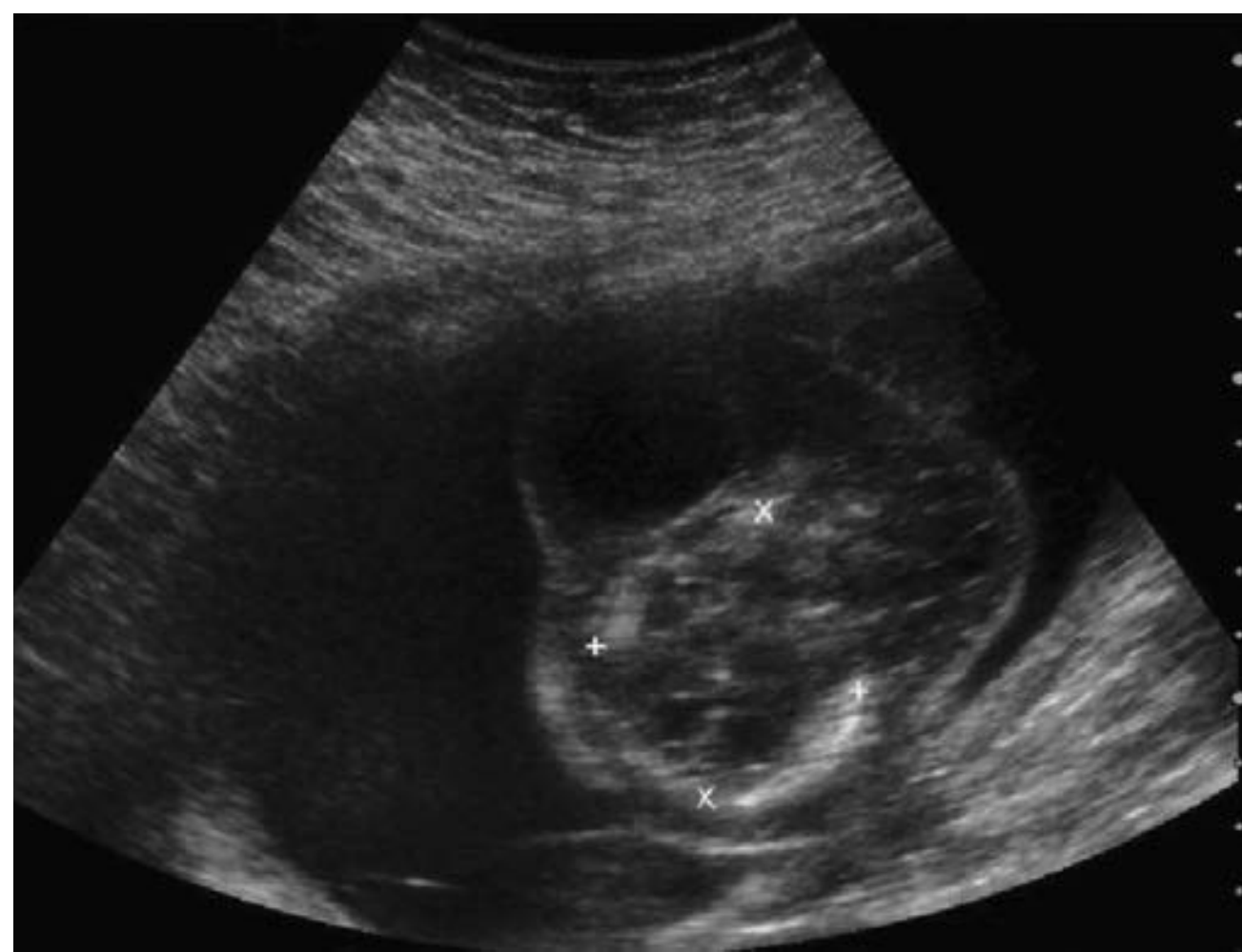
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
5-1	a	p. 105	Table 5-1	5-20	c	p. 118	Pharmacology
5-2	c	p. 105	Chapter 5: Contraception and Sterilization	5-21	d	p. 119	Table 5-6
5-3	d	p. 105	Chapter 5: Contraception and Sterilization	5-22	a	p. 122	Transdermal System
5-4	d	p. 105	Medical Eligibility Criteria	5-23	d	p. 123	Extended Cycle Contraception
5-5	d	p. 108	Table 5-3	5-24	a	p. 124	Table 5-9
5-6	d	p. 107	Adolescence and Perimenopause	5-25	d	p. 124	Obese and Overweight Women, Diabetes Mellitus, Cardiovascular Disease
5-7	d	p. 108	Levonorgestrel-Releasing Intrauterine System (LNG-IUS)	5-26	d	p. 125	Cerebrovascular Disorders
5-8	b	p. 109	Table 5-4	5-27	a	p. 125	Venous Thromboembolism
5-9	a	p. 109	Infection	5-28	b	p. 125	Seizure Disorders
5-10	d	p. 110	Low Parity and Adolescents	5-29	b	p. 126	Neoplastic Diseases
5-11	c	p. 110	Expulsion or Perforation	5-30	d	p. 126	Progestin-Only Pills
5-12	b	p. 110	Expulsion or Perforation	5-31	d	p. 127	Notable Effects
5-13	b	p. 111	Marker Strings	5-32	a	p. 128	Male Condoms
5-14	d	p. 111	Ectopic Pregnancy	5-33	a	p. 130	Spermicides and Microbicides
5-15	d	p. 112	Progestin Implants	5-34	a	p. 131	Hormone-Based Emergency Contraception
5-16	a	p. 107	Figure 5-7	5-35	a	p. 132	Progestin-Only Regimens
5-17	c	p. 117	Other Effects				
5-18	c	p. 116	Counseling				
5-19	d	p. 118	Male Sterilization				

CHAPTER 6

First-Trimester Abortion

- 6-1.** The World Health Organization defines abortion as any *spontaneous or induced* pregnancy termination prior to how many weeks' gestation?
- 18
 - 20
 - 22
 - 24
- 6-2.** Approximately what percentage of first-trimester abortions is anembryonic, that is, with no identifiable embryonic elements?
- 5 percent
 - 25 percent
 - 50 percent
 - 90 percent
- 6-3.** Most early pregnancy losses are clinically silent. Highly sensitive maternal serum β -human chorionic gonadotropin assays indicate approximately what percentage of pregnancies is lost after implantation?
- 0.5 percent
 - 10 percent
 - 30 percent
 - 60 percent
- 6-4.** More than 80 percent of spontaneous abortions occur in the first 12 weeks of pregnancy. What percentage of first-trimester abortions results from chromosomal anomalies?
- 15 percent
 - 35 percent
 - 55 percent
 - 75 percent
- 6-5.** Which of the following chromosomal anomalies is most frequently identified with first-trimester abortion?
- Triploidy
 - Monosomy X (45,X)
 - Autosomal trisomy
 - Balanced robertsonian translocation

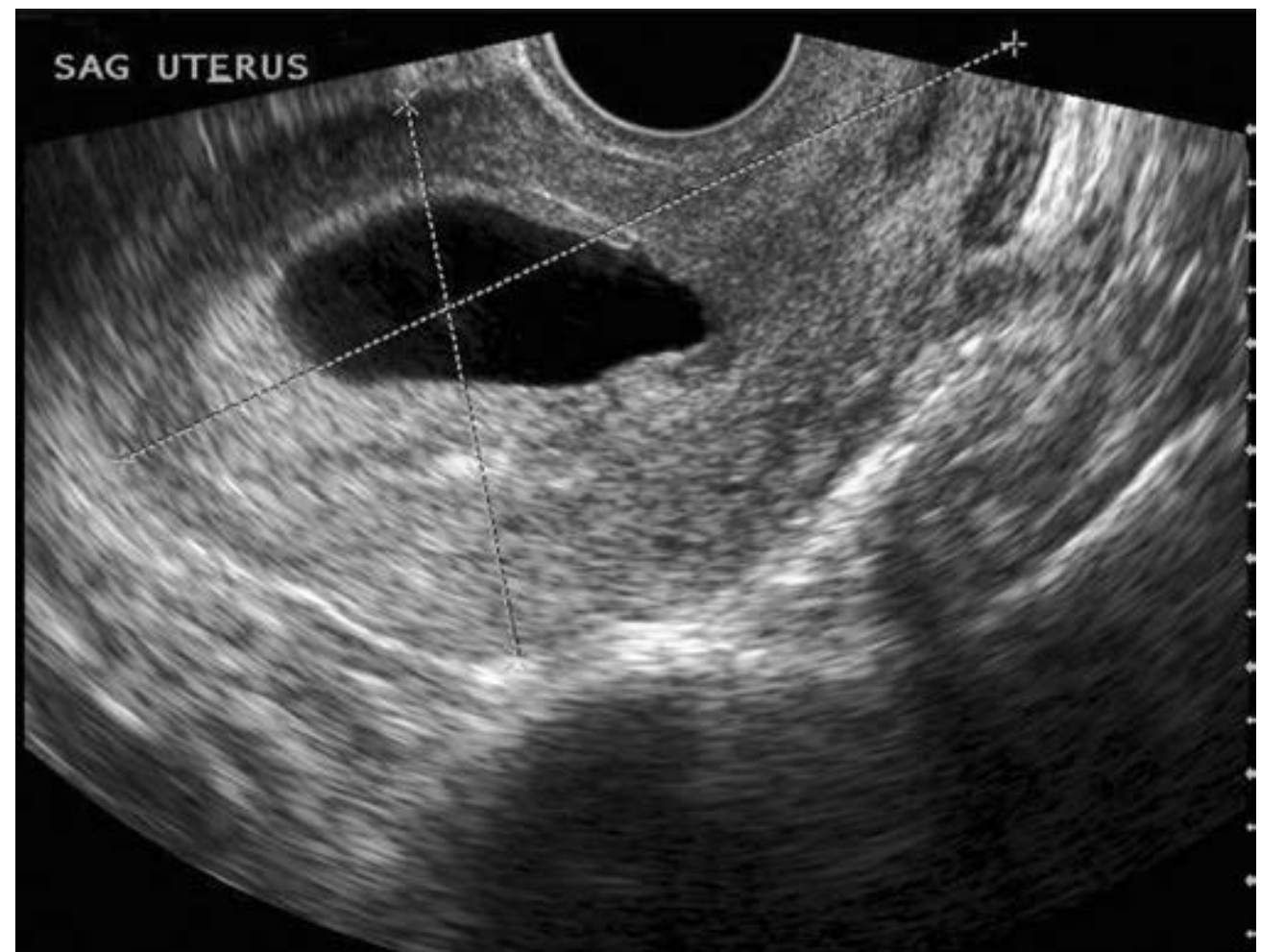
- 6-6.** Monosomy X (45,X) is the single most common specific chromosomal abnormality in abortuses. Cystic hygromas, shown here at the fetal neck, are a common sonographic finding with this syndrome and carry a poor prognosis. This syndrome is known by what eponym?



- Down syndrome
- Turner syndrome
- Anderson syndrome
- Wolf-Hirschhorn syndrome

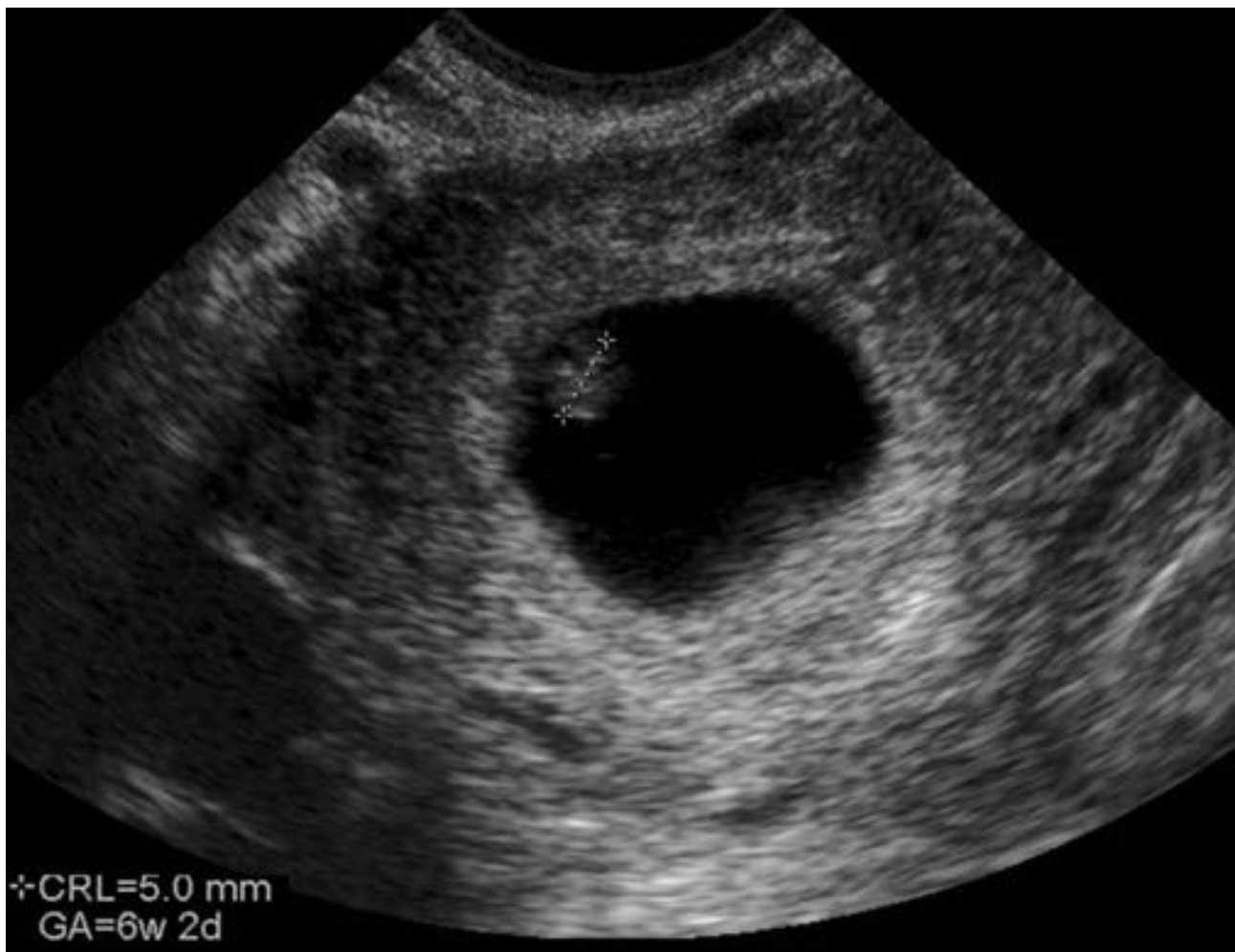
- 6–7.** Maternal factors that contribute to euploid abortion include all of the following **EXCEPT**:
- Frequent alcohol use
 - Daily tobacco smoking
 - Poorly controlled diabetes mellitus
 - Moderate dietary nutrient deficiency
- 6–8.** Although moderate caffeine consumption is unlikely to cause spontaneous abortion, studies indicate that use, above what daily amount, increases the risk for miscarriage?
- 200 mg (two cups of coffee)
 - 300 mg (three cups of coffee)
 - 400 mg (four cups of coffee)
 - 500 mg (five cups of coffee)
- 6–9.** Up to what percentage of women experience vaginal spotting or bleeding during a first-trimester gestation?
- 5 percent
 - 25 percent
 - 45 percent
 - 65 percent
- 6–10.** Approximately what percentage of pregnancies will abort in women experiencing first-trimester bleeding?
- 3 percent
 - 23 percent
 - 43 percent
 - 63 percent
- 6–11.** A 26-year-old primigravida with a previously confirmed early pregnancy presents with vaginal bleeding and pelvic pain. Which of the following tests can help ascertain if the fetus is viable or if it is located within the uterus?
- Transvaginal sonography
 - Serum progesterone levels
 - Serial quantitative serum β -human chorionic gonadotropin levels
 - All of the above
- 6–12.** By transvaginal sonography, absence of an embryo in a gestational sac is suspicious for pregnancy failure when the mean sac diameter (MSD) is within what range?
- 1 to 6 mm
 - 4 to 12 mm
 - 10 to 18 mm
 - 16 to 24 mm

- 6–13.** A 35-year-old diabetic patient presents with abnormal vaginal bleeding 10 weeks after her last menstrual period. She is not using contraception, and her urine pregnancy test is positive. On examination, her uterus is enlarged, and the cervix is closed. The transvaginal sonogram of this patient, shown below, displays which of the following?



- Cervical pregnancy
 - Interstitial pregnancy
 - Cesarean scar pregnancy
 - Intrauterine anembryonic gestation
- 6–14.** Septic abortion deaths following medical abortion are rare. Some of these deaths are more notably caused by toxic shock syndrome from which of the following bacterial infections?
- Clostridium sodellii*
 - Chlamydia trachomatis*
 - Neisseria gonorrhoeae*
 - Staphylococcus aureus*
- 6–15.** A proven, effective therapy for threatened abortion includes which of the following?
- Bedrest
 - Daily morning acetaminophen
 - Increased oral fluid intake
 - None of the above

- 6–16.** Your patient presents with complaints of vaginal spotting and a last menstrual period 6 weeks ago. Transvaginal sonography reveals the following and fetal heart motion is seen. Which of the following is your diagnosis?

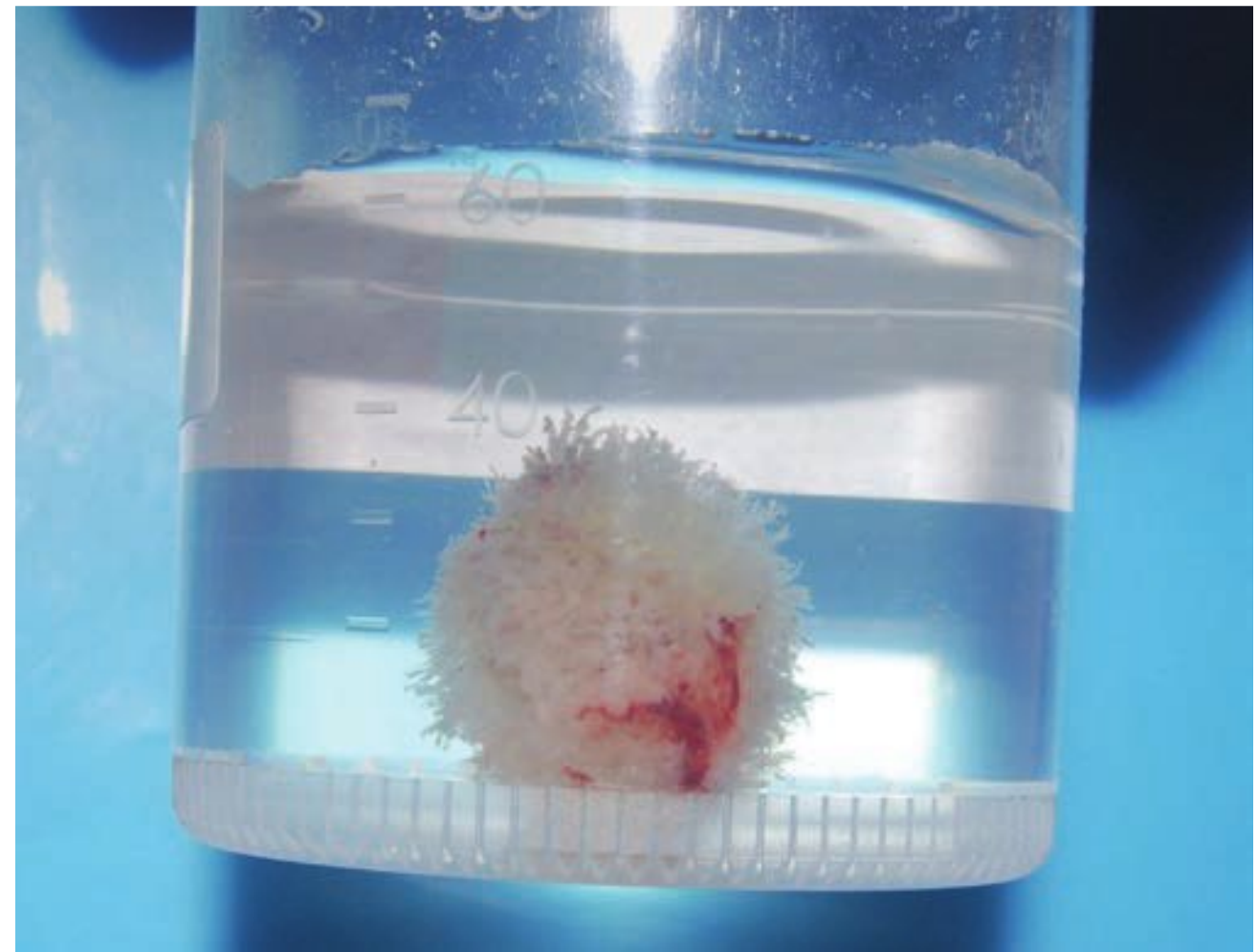


- a. Missed abortion
 - b. Incomplete abortion
 - c. Threatened abortion
 - d. All of the above
- 6–17.** The same patient in Question 6–16 returns to your office 2 weeks later complaining of light vaginal bleeding and strong pelvic cramps. Her blood pressure is 132/78 mm Hg, pulse is 72 beats per minute, and she is afebrile. Her hematocrit is 40 percent. Transvaginal sonography reveals the following. Appropriate management includes which of the following?



- a. Await spontaneous miscarriage
- b. Excise cesarean scar pregnancy
- c. Perform emergent cerclage placement
- d. Administer intramuscular injection of methotrexate

- 6–18.** The patient in Question 6–17 presents to the Emergency Department a few hours later and passes the tissue shown below. Her bleeding and pain have now subsided. Which of the following is your diagnosis now?



- a. Missed abortion
 - b. Complete abortion
 - c. Threatened abortion
 - d. All of the above
- 6–19.** Appropriate management of this patient in Question 6–18 now includes which of the following?
- a. Dilation and curettage
 - b. Transvaginal sonography
 - c. Administration of anti-Rho (D) immunoglobulin if the patient is Rh negative
 - d. All of the above
- 6–20.** In women experiencing a first-trimester spontaneous abortion without dangerous hemorrhage or infection, expectant management results in spontaneous resolution of the pregnancy in what percentage?
- a. 10 percent
 - b. 30 percent
 - c. 50 percent
 - d. 80 percent
- 6–21.** Recurrent spontaneous abortion or recurrent miscarriage is classically defined by which of the following?
- a. Two pregnancy losses in 10 years at 20 weeks' gestation or less
 - b. Two consecutive pregnancy losses at 20 weeks' gestation or less
 - c. Three or more consecutive pregnancy losses at 20 weeks' gestation or less
 - d. Three or more consecutive pregnancy losses with fetal weights greater than 500 g

- 6–22.** Which of the following causes are more likely to result in recurrent *second-trimester* losses?
- Genetic
 - Infectious
 - Autoimmune or anatomic
 - All of the above
- 6–23.** Acquired defects that may lead to recurrent miscarriage include which of the following?
- Leiomyoma
 - Asherman syndrome
 - Cervical incompetence
 - All of the above
- 6–24.** What is the approximate incidence of uterine anomalies in the general population?
- 0.06 percent
 - 0.6 percent
 - 6 percent
 - 26 percent
- 6–25.** Of müllerian duct anomalies, which has the lowest associated risk of pregnancy loss and is shown here in this three-dimensional sonography image?

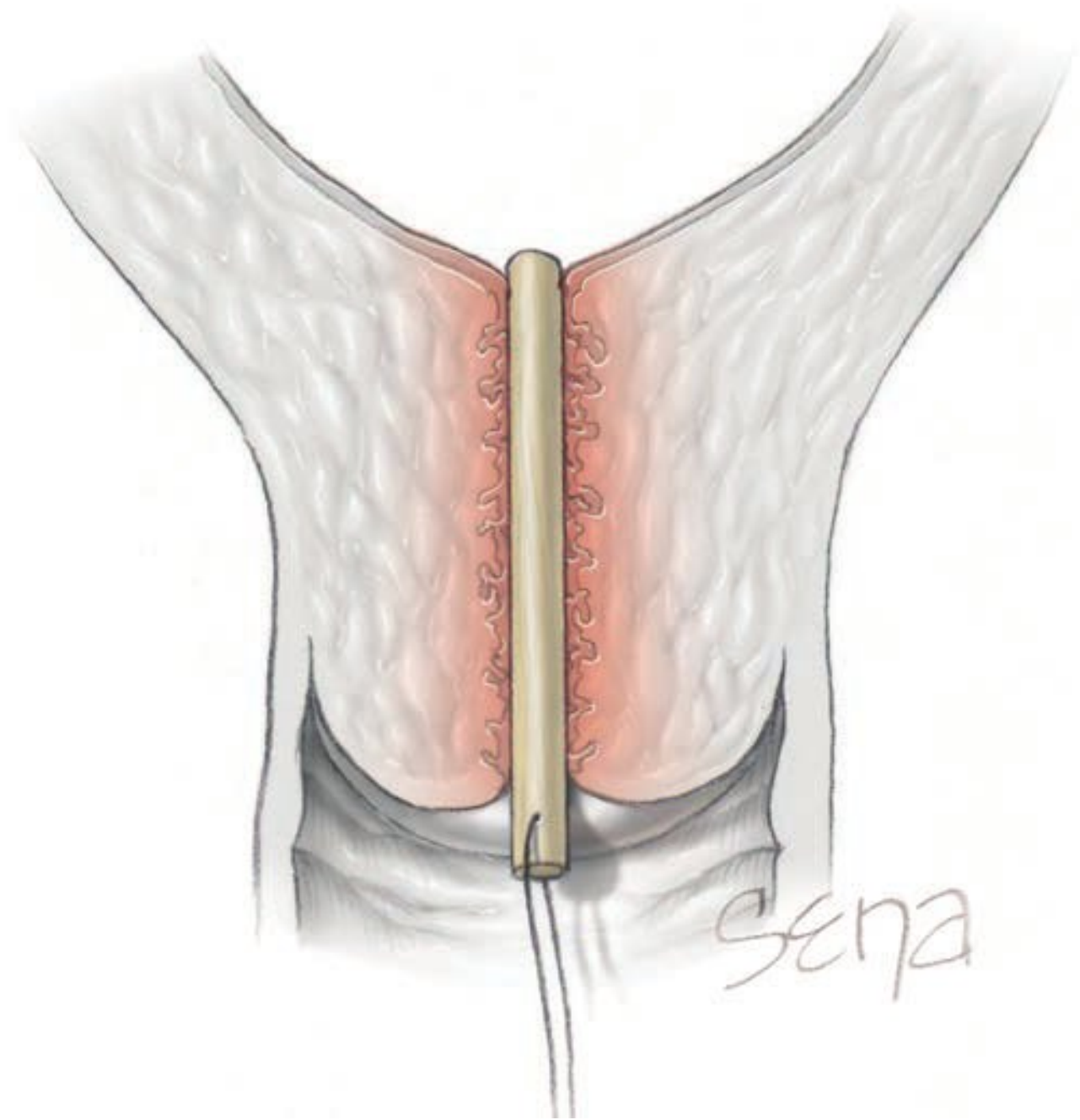


- Septate
- Arcuate
- Didelphys
- Unicornuate

- 6–26.** It is estimated that immunologic factors are present in what percentage of women with recurrent pregnancy loss?
- 0.15 percent
 - 1.5 percent
 - 15 percent
 - 45 percent
- 6–27.** Antiphospholipid antibodies are the only autoimmune condition that can be correlated with adverse pregnancy outcome. Clinical and laboratory diagnostic criteria include which of the following?
- Presence of lupus anticoagulant
 - Three or more consecutive spontaneous abortions before 10 weeks' gestation
 - Moderate to high levels of immunoglobulin G (IgG) or immunoglobulin M (IgM) anticardiolipin antibodies
 - All of the above
- 6–28.** Early pregnancy loss is most common in women with which of the following?
- Polycystic ovarian syndrome
 - Well-controlled type 2 diabetes mellitus
 - Human immunodeficiency virus (HIV) infection
 - Systemic lupus erythematosus with antiphospholipid antibodies
- 6–29.** There are treatment regimens for antiphospholipid syndrome that increase live birth rates. A regimen proposed by the American College of Obstetricians and Gynecologists (2012) includes which of the following?
- Low-dose aspirin daily
 - 5000 units vitamin D daily
 - Unfractionated heparin daily
 - Low-dose aspirin plus unfractionated heparin daily

- 6–30.** An initial scheme for the evaluation of couples with recurrent pregnancy loss includes all of the following **EXCEPT**:
- Parental karyotyping
 - Psychological screening
 - Uterine cavity evaluation
 - Antiphospholipid antibody syndrome testing
- 6–31.** According to the World Health Organization's latest report (Sedgh, 2012), the induced abortion rate worldwide is which of the following?
- 1 in 5 pregnancies
 - 1 in 50 pregnancies
 - 1 in 250 pregnancies
 - 1 in 2,500 pregnancies
- 6–32.** Regarding the role of abortion services in women's healthcare, the American College of Obstetricians and Gynecologists (2014) has called for which of the following?
- Improved patient access
 - Increased provider advocacy to overturn restrictions
 - Codify abortion as a fundamental component of women's health care
 - All of the above
- 6–33.** An 18-year-old primigravida presents with an early first-trimester pregnancy following contraceptive failure. She is seeking counseling while considering whether to obtain an abortion. Which of the following choices should be objectively disclosed to her?
- Termination of pregnancy
 - Continued pregnancy with arranged adoption
 - Continued pregnancy with its risks and parental responsibilities
 - All of the above
- 6–34.** During counseling, the patient in Question 6–33 strongly desires a first-trimester abortion. Which of the following success rates do you quote when discussing medical or surgical abortion techniques?
- 85 percent medical and 89 percent surgical
 - 89 percent medical and 85 percent surgical
 - 95 percent medical and 99 percent surgical
 - 99 percent medical and 95 percent surgical

- 6–35.** In the United States, what percentage of induced abortions is managed using medical methods?
- 0.3 percent
 - 1 percent
 - 10 percent
 - 30 percent
- 6–36.** With medical termination of pregnancy, surgery is usually avoided as is the need for sedation. However, medical termination is used less frequently than surgical termination for which of the following reasons?
- Incomplete abortion is more common.
 - Bleeding is usually heavier and less predictable.
 - Extended length of time for termination completion.
 - All of the above
- 6–37.** In preparation for surgical termination of a 14 weeks' gestation, a laminaria is placed, as depicted below. This method of cervical preparation is typically associated with all of the following **EXCEPT**:



Reproduced with permission from Cunningham FG, Leveno LJ, Bloom SL, et al (eds): Abortion. In Williams Obstetrics, 24th ed. New York, McGraw-Hill Education, 2014, Figure 18-7A.

- Less procedure pain
- Shorter operating time
- Technically easier procedure
- Increased procedural blood loss

- 6–38.** Three medications have been studied widely for early medical abortion, and several dosing regimens are effective. Which of the following medications is used in every dosing scheme?
- a.** Ibuprofen
 - b.** Misoprostol
 - c.** Methotrexate
 - d.** Mifepristone

References

American College of Obstetricians and Gynecologists: Antiphospholipid syndrome. Practice Bulletin No. 132, December 2012.

American College of Obstetricians and Gynecologists: Increasing access to abortion. Committee Opinion No. 613, November 2014.

Sedgh G, Singh S, Shah I, et al: Induced abortion: incidence and trends worldwide from 1995 to 2008. *Lancet* 379:625, 2012.

Chapter 6 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
6-1	b	p. 137	Terminology	6-21	c	p. 144	Recurrent Miscarriage
6-2	c	p. 137	Terminology	6-22	c	p. 145	Etiology
6-3	c	p. 137	Incidence	6-23	d	p. 147	Acquired Uterine Defects
6-4	c	p. 138	Figure 6-1	6-24	c	p. 147	Developmental Anomalies
6-5	c	p. 138	Aneuploid Abortion	6-25	b	p. 147	Table 6-7
6-6	b	p. 138	Aneuploid Abortion	6-26	c	p. 148	Immunologic Factors
6-7	d	p. 140	Nutritional Factors and Weight	6-27	d	p. 148	Autoimmune Factors
6-8	d	p. 140	Behavior	6-28	d	p. 148	Autoimmune Factors
6-9	b	p. 140	Threatened Abortion	6-29	d	p. 149	Antiphospholipid Antibody Syndrome Treatment
6-10	c	p. 140	Threatened Abortion	6-30	b	p. 150	Evaluation and Treatment
6-11	d	p. 141	Diagnosis	6-31	a	p. 150	Rates
6-12	d	p. 141	Diagnosis	6-32	d	p. 151	Legality
6-13	d	p. 141	Diagnosis	6-33	d	p. 152	Counseling Before Elective Abortion
6-14	a	p. 143	Septic Abortion	6-34	c	p. 152	Abortion Techniques
6-15	d	p. 143	Management	6-35	c	p. 152	Abortion Techniques
6-16	c	p. 143	Management	6-36	d	p. 152	Abortion Techniques
6-17	a	p. 143	Management	6-37	d	p. 153	Cervical Preparation
6-18	b	p. 143	Management	6-38	b	p. 154	Medical Abortion
6-19	c	p. 143	Management				
6-20	d	p. 143	Management				

CHAPTER 7

Ectopic Pregnancy

- 7–1.** An ectopic (extrauterine) pregnancy is one in which the blastocyst implants somewhere other than the endometrial lining of the uterine cavity. Reported ectopic pregnancy incidence rates vary but account for up to what percentage of pregnancies in the United States?
- 0.02 percent
 - 0.1 percent
 - 2 percent
 - 10 percent
- 7–2.** Several factors raise the estimated incidence of ectopic pregnancy and include which of the following?
- Improved sensitivity of diagnostic tools
 - Increased use of assisted reproductive technology
 - Greater prevalence of sexually transmitted disease
 - All of the above
- 7–3.** Which of the following confers the highest risk of ectopic pregnancy?
- Smoking
 - Prior ectopic pregnancy
 - Assisted reproductive technology
 - Positive test result for cervical *Chlamydia trachomatis*
- 7–4.** You are counseling a nullipara to discontinue her cigarette smoking prior to attempting pregnancy. Among the numerous adverse pregnancy consequences of tobacco use, you list an increased risk of ectopic pregnancy. Women who smoke more than one pack of cigarettes daily increase the risk of ectopic pregnancy by up to what amount?
- Fourfold
 - Tenfold
 - Twentyfold
 - Thirtyfold
- 7–5.** Contraception lowers overall pregnancy rates and thereby lowers ectopic pregnancy rates. However, if pregnancy does occur, which of the following methods slightly increases the relative incidence of ectopic pregnancy?
- Consistent condom use
 - Combined hormonal contraceptives
 - Progestin-only contraceptive pills
 - None of the above
- 7–6.** Acute inflammation has been implicated in tubal damage that predisposes to ectopic pregnancy. Which of the following recurrent infections has been reported to cause such damage, including intraluminal inflammation, subsequent fibrin deposition, and tubal scarring?
- Chlamydial
 - Streptococcal
 - Staphylococcal
 - All of the above

- 7-7. A 30-year-old woman presents with the classic symptom triad of ectopic pregnancy: amenorrhea, followed by vaginal bleeding and ipsilateral abdominal pain. A more ominous clinical finding is her shoulder pain worsened by inspiration, indicative of which of the following that shown here?



- a. Pneumothorax
- b. Pleural effusion
- c. Liver enlargement
- d. Subdiaphragmatic blood

- 7-8. A woman with known risk factors for extrauterine pregnancy presents with amenorrhea. Which of the following symptoms may accompany an ectopic pregnancy?
- a. Breast tenderness
 - b. Nausea and vomiting
 - c. Vaginal bleeding with abdominal pain
 - d. All of the above

- 7-9. Early pregnancy complications, such as threatened or missed abortion, may be difficult to differentiate. Of women with normal pregnancies, approximately what percentage has early bleeding?
- a. 2 percent
 - b. 10 percent
 - c. 20 percent
 - d. 30 percent

- 7-10. The most valuable diagnostic aids to confirm the presence of an ectopic pregnancy include transvaginal sonography and which of the following?
- a. Hemogram
 - b. Magnetic resonance imaging
 - c. Serial serum β -human chorionic gonadotropin (hCG) measurements
 - d. All of the above

- 7-11. Inappropriately rising serum β -human chorionic gonadotropin (hCG) levels indicate a dying pregnancy, but not its location. With a robust uterine pregnancy, serum β -hCG levels should increase by which of the following percentage ranges every 48 hours?
- a. 23 percent and 46 percent
 - b. 53 percent and 66 percent
 - c. 63 percent and 76 percent
 - d. 73 percent and 86 percent

- 7-12. Serum levels of which hormone can be used to support a clinical impression of ectopic pregnancy but cannot reliably distinguish an ectopic from an intrauterine pregnancy?
- a. Estradiol
 - b. Progesterone
 - c. Luteinizing hormone
 - d. Follicle-stimulating hormone

7–13. A 23-year-old multigravida who uses an intrauterine device (IUD) for contraception presents with 6 weeks of amenorrhea and a positive home pregnancy test result. Serum pregnancy testing is confirmatory. Transvaginal sonography is completed to exclude ectopic implantation. Her echogenic IUD is seen in the endocervical canal on the right. Using transvaginal sonography, the anechoic intrauterine gestational structure shown below on the left is usually first visible at what gestational age?



- a. 4.5 to 5 weeks
- b. 5.5 to 6 weeks
- c. 6.5 to 7 weeks
- d. After 7 weeks

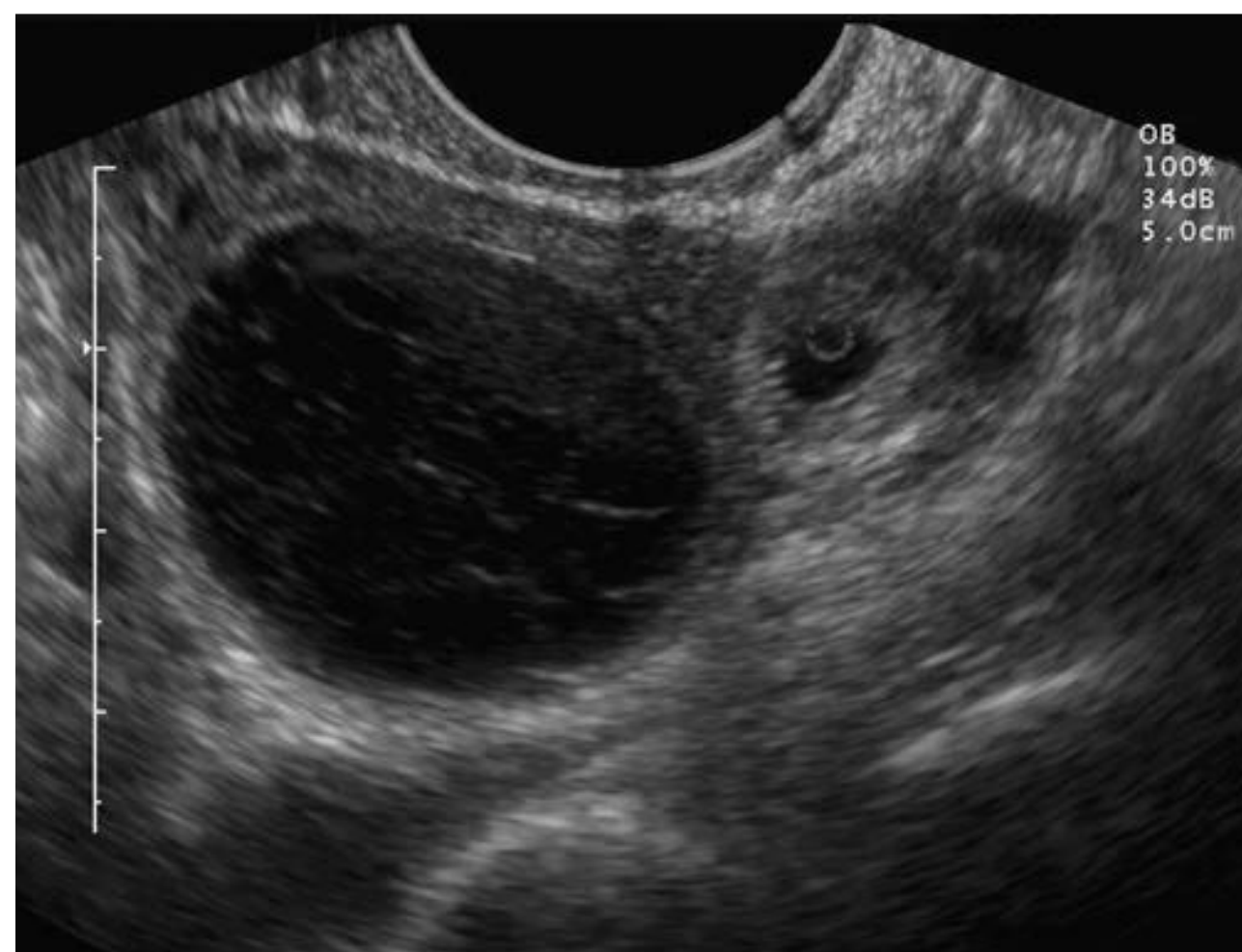
7–14. At most institutions, what is the lower-limit (discriminatory) serum β -human chorionic gonadotropin (hCG) concentration at which transvaginal sonography can reliably visualize pregnancy?

- a. 1500 and 2000 mIU/mL
- b. 2500 and 3000 mIU/mL
- c. 4500 and 5000 mIU/mL
- d. 5500 and 6000 mIU/mL

7–15. The absence of a uterine pregnancy by transvaginal sonography with serum β -human chorionic gonadotropin (hCG) levels **ABOVE** the discriminatory value is consistent with which of the following?

- a. Ectopic pregnancy
- b. Incomplete abortion
- c. Resolving completed abortion
- d. All of the above

7–16. This image demonstrates a yolk sac within a gestational sac. Where is this pregnancy located?

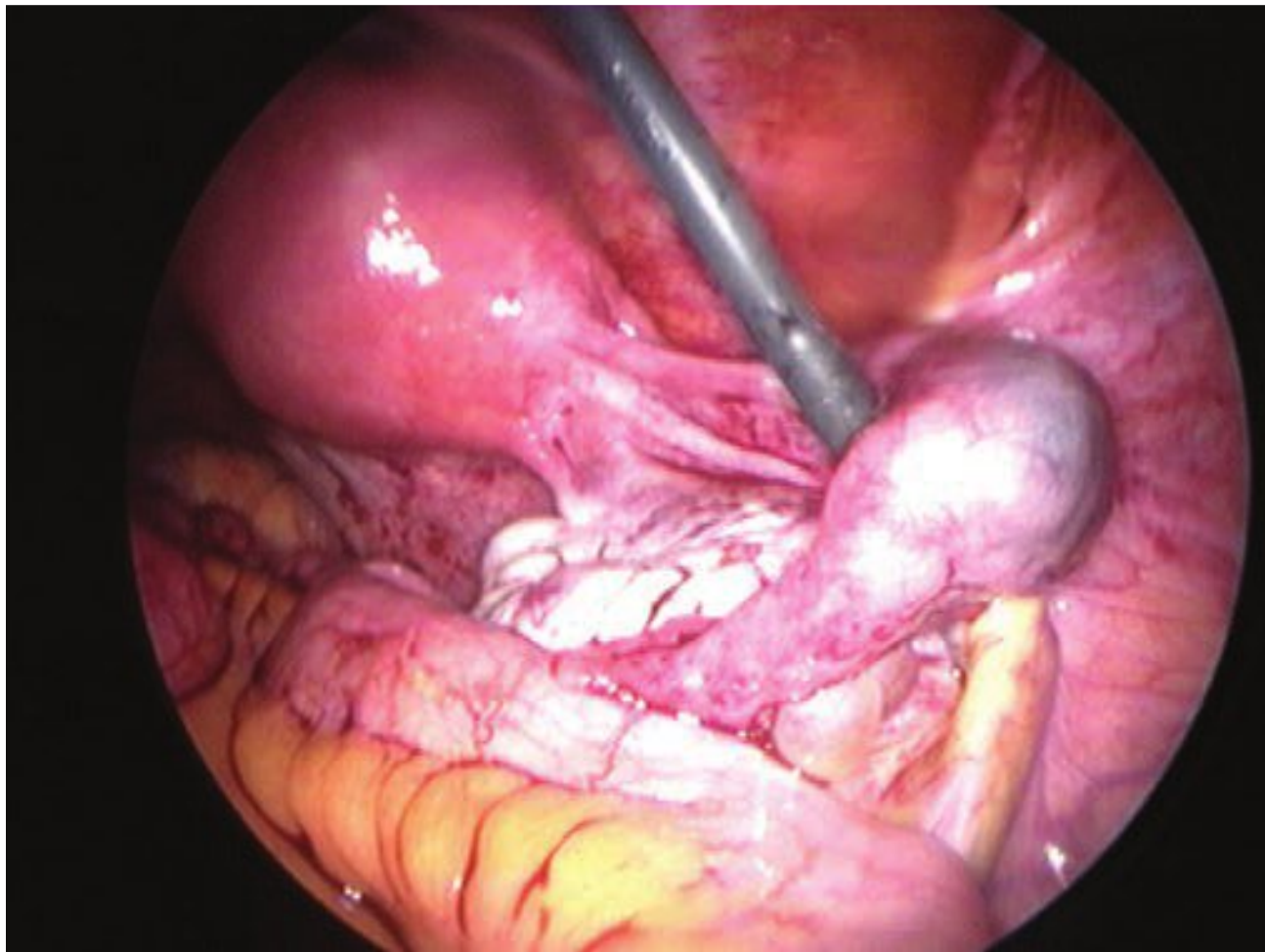


- a. Cervix
- b. Uterine isthmus
- c. Intrauterine cavity
- d. Adjacent to an ovary containing a cyst

7–17. The large cystic mass with the internal reticular pattern seen in Question 7–16 most likely represents which of the following?

- a. Endometrioma
- b. Theca lutein cyst
- c. Corpus luteum cyst
- d. Serous cystadenoma

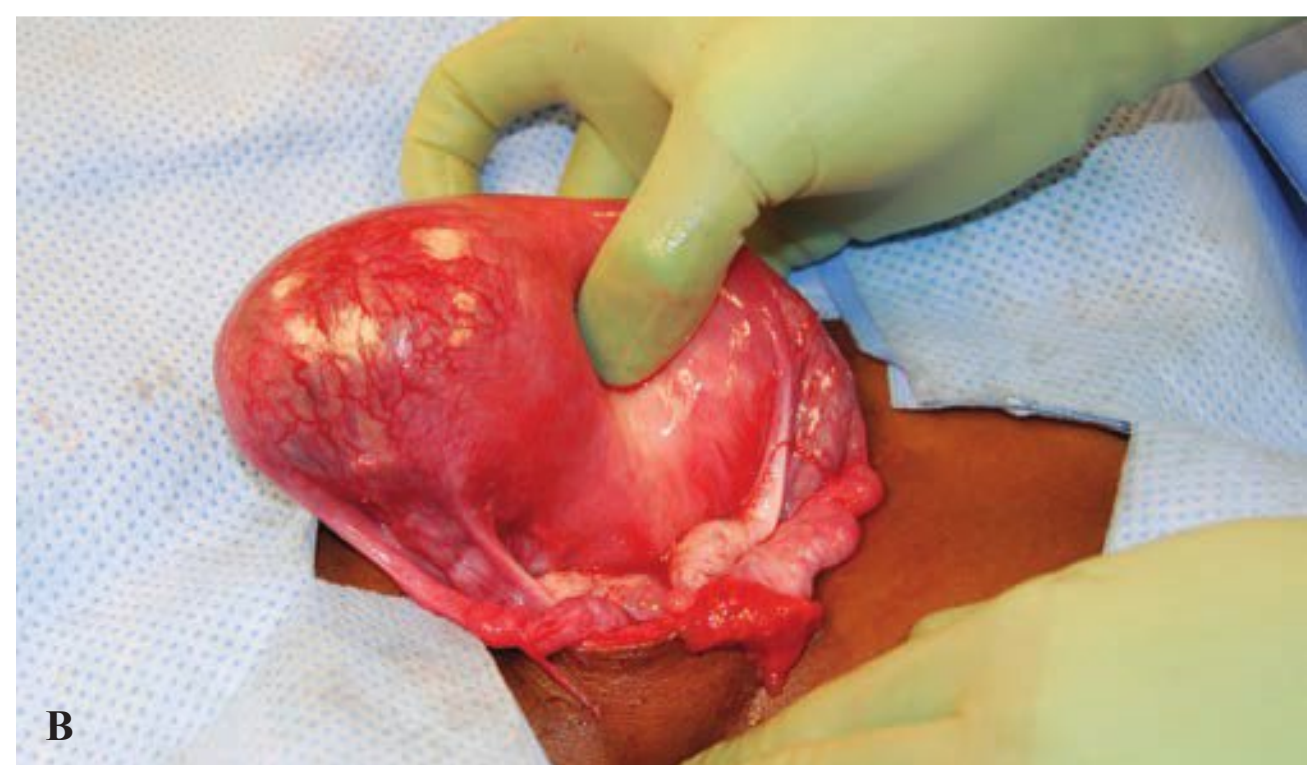
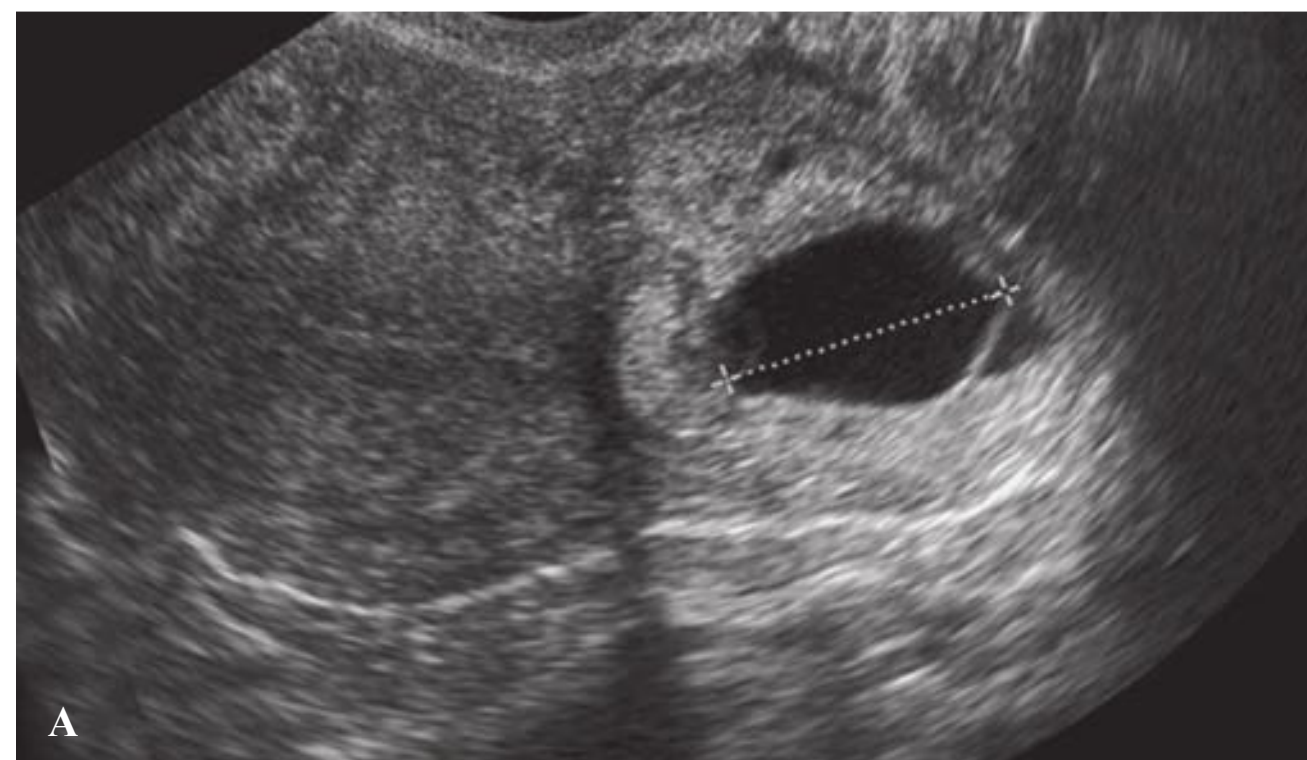
- 7-18.** A 26-year-old multigravida presents with a serum β -human chorionic gonadotropin (hCG) level exceeding 2500 mIU/mL, vaginal bleeding, and abdominal pain. This laparoscopic photograph illustrates which of the following?



Used with permission from Dr Kevin Doody.

- a.** A right ovarian mass
b. An intrauterine pregnancy
c. A right interstitial pregnancy
d. A distended right tubal ampulla
- 7-19.** Without intervention, an ectopic tubal pregnancy can lead to which of the following?
a. Tubal rupture
b. Spontaneous resolution
c. Expulsion of products of conception through the fimbriated end of the tube (tubal abortion)
d. All of the above
- 7-20.** In the medical management of ectopic pregnancy, a predictor of success for the use of single-dose methotrexate includes which of the following?
a. Fetal cardiac activity
b. Concomitant use of folinic acid
c. An ectopic mass greater than 3.5 cm
d. An initial serum β -human chorionic gonadotropin (hCG) value < 5000 mIU/mL
- 7-21.** Methotrexate is often used in the medical management of selected ectopic pregnancies. What is its mechanism of action?
a. Protease inhibitor
b. Monoclonal antibody
c. Folic acid antagonist
d. Vascular endothelial growth factor agonist
- 7-22.** The use of methotrexate to treat ectopic pregnancy is contraindicated in which of the following settings?
a. Renal dysfunction
b. Intrauterine pregnancy
c. Hemodynamic instability
d. All of the above
- 7-23.** Which is the most common side effect of methotrexate?
a. Myelosuppression
b. Pulmonary damage
c. Anaphylactoid reaction
d. Transient liver dysfunction
- 7-24.** For carefully selected patients, medical management of ectopic pregnancy using methotrexate is associated with what overall resolution rate?
a. 30 percent
b. 50 percent
c. 90 percent
d. 95 percent
- 7-25.** In patients receiving single-dose methotrexate for the medical treatment of ectopic pregnancy, serial serum β -human chorionic gonadotropin (hCG) values are obtained prior to methotrexate administration and then repeated on days 4 and 7 following injection. Comparing days 4 and 7, a minimum decline in serum β -hCG level of what percentage allows further weekly serum β -hCG monitoring?
a. 5 percent
b. 10 percent
c. 15 percent
d. 20 percent
- 7-26.** During the first few days following methotrexate administration, up to what percentage of women experience abdominal pain that is controlled by mild analgesics?
a. 5 percent
b. 20 percent
c. 50 percent
d. 80 percent

- 7–27.** A 24-year-old woman receives a single intramuscular dose of methotrexate followed by successful resolution of her ectopic pregnancy. She is eager to attempt pregnancy again. You recommend her to use contraception for at least 3 to 6 months before conceiving again. For up to how many months is methotrexate retained within human tissue?
- 2 months
 - 4 months
 - 8 months
 - 16 months
- 7–28.** Studies have compared laparotomy with laparoscopic surgery for the management of ectopic pregnancy. If the number of subsequent intrauterine pregnancies is the measure, which surgical method is superior?
- Laparotomy is better than the laparoscopic approach.
 - Laparotomy is inferior to the laparoscopic approach.
 - Laparotomy is equivalent to the laparoscopic approach.
 - No valid clinical studies have compared these two approaches.
- 7–29.** Clinical studies comparing single-dose intramuscular methotrexate and laparoscopic salpingostomy have shown most clearly their equivalency with respect to which of the following?
- Treatment complication rates
 - Health-related quality-of-life factors
 - Tubal patency and subsequent uterine pregnancy
 - None of the above
- 7–30.** In a woman who is hemodynamically stable, medical or surgical management plans for ectopic pregnancy have similar outcomes if which of the following is present?
- Small tubal diameter
 - Fetal cardiac activity noted
 - Serum β -human chorionic gonadotropin (hCG) concentration > 5000 mIU/mL
 - All of the above
- 7–31.** Incomplete eradication of an ectopic pregnancy allows continued growth of trophoblastic tissue. This leads to tubal rupture in up to what percentage of women?
- 1 percent
 - 20 percent
 - 40 percent
 - 60 percent
- 7–32.** Criteria for the diagnosis of an ovarian ectopic pregnancy include which of the following?
- The ipsilateral tube is incorporated into the pregnancy mass.
 - The ectopic pregnancy is connected by the broad ligament to the uterus.
 - Histologically, ovarian tissue can be demonstrated in the placental tissue.
 - All of the above
- 7–33.** Pregnancies that implant in the proximal tubal segment that lies within the muscular uterine wall are termed which of the following?
- Cornual
 - Angular
 - Ampullar
 - Interstitial
- 7–34.** Although this location for an ectopic pregnancy is rare, risk factors compared with other ectopic pregnancy sites are generally similar. However, what is a specific risk factor for this type (location) of ectopic pregnancy?



Reproduced with permission from Horsager R, Roberts SW, Rogers VL, et al: Williams Obstetrics, 24th ed. Study Guide, New York, McGraw-Hill Education, 2015. Photo contributor: Dr Jennifer Muller.

- Prior medical abortion
- Prior cesarean delivery
- Prior intrauterine device use
- Prior ipsilateral salpingectomy

7–35. The incidence of cervical pregnancy appears to be rising because of increasing use of in vitro fertilization and embryo transfer procedures. A specific risk factor for cervical pregnancy, seen in nearly 70 percent of such cases, is a history of which of the following?

- a. Dilation and curettage
- b. Use of intrauterine device
- c. Repeat cesarean delivery
- d. Loop electrical excision procedure

7–36. For most hemodynamically stable women with a first-trimester cervical pregnancy, nonsurgical management with systemic methotrexate can be offered. Resolution and uterine preservation are achieved with methotrexate regimens for gestations less than 12 weeks in what percentage of cases?

- a. 61 percent
- b. 71 percent
- c. 81 percent
- d. 91 percent

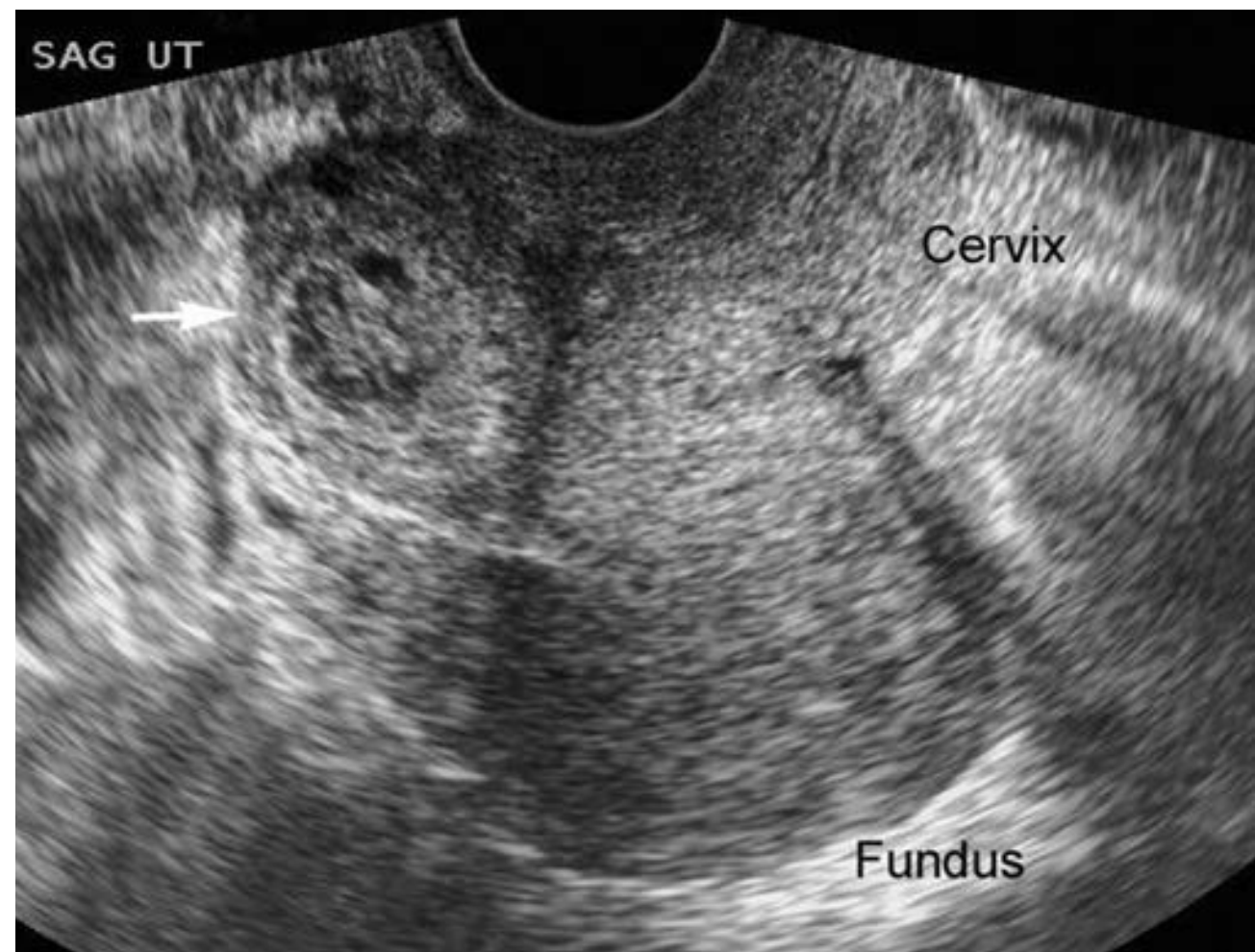
7–37. Conservative management is feasible for many women with cervical pregnancies. However, in those patients with advanced gestation or with bleeding uncontrolled by conservative methods, hysterectomy is typically required. Patients are counseled that there is a particularly increased risk for which of the following?

- a. Small-bowel injury
- b. Large-bowel injury
- c. Ovarian compromise
- d. Urinary tract injury

7–38. A uterine pregnancy in conjunction with an extrauterine pregnancy is termed a heterotopic pregnancy and has an estimated incidence of 1 in 30,000 pregnancies. However, in pregnancies resulting from assisted reproductive technology, the heterotopic pregnancy rate approximates what percentage?

- a. 90 percent
- b. 9.0 percent
- c. 0.9 percent
- d. 0.09 percent

7–39. A 28-year-old multigravida presents with abdominal pain, history of two prior cesarean deliveries, and a β -human chorionic gonadotropin (hCG) level of 39,900 mIU/mL. Shown below, transvaginal sonography detected a cesarean scar pregnancy (*arrow*). Management may include which of the following strategies?



- a. Hysterectomy
- b. Methotrexate administration alone
- c. Methotrexate administration followed by suction curettage
- d. All of the above

Chapter 7 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
7-1	c	p. 161	Epidemiology	7-21	c	p. 170	Methotrexate
7-2	d	p. 161	Epidemiology	7-22	d	p. 170	Methotrexate
7-3	b	p. 162	Table 7-1	7-23	d	p. 170	Methotrexate
7-4	a	p. 161	Risk Factors	7-24	c	p. 171	Methotrexate
7-5	c	p. 161	Risk Factors	7-25	c	p. 171	Single-Dose Methotrexate
7-6	a	p. 161	Risk Factors	7-26	c	p. 171	Single-Dose Methotrexate
7-7	d	p. 164	Clinical Manifestations	7-27	c	p. 172	Surveillance
7-8	d	p. 164	Clinical Manifestations	7-28	c	p. 172	Laparotomy versus Laparoscopy
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7-10	c	p. 164	Diagnosis	7-30	a	p. 172	Medical versus Surgical Therapy
7-11	b	p. 165	Serum β -hCG Measurements	7-31	b	p. 173	Persistent Ectopic Pregnancy
7-12	b	p. 165	Serum Progesterone Levels	7-32	c	p. 173	Ovarian Pregnancy
7-13	a	p. 165	Sonography	7-33	d	p. 173	Interstitial Pregnancy
7-14	a	p. 165	Sonography	7-34	d	p. 173	Interstitial Pregnancy
7-15	d	p. 165	Sonography	7-35	a	p. 174	Cervical Pregnancy
7-16	d	p. 165	Sonography	7-36	d	p. 174	Cervical Pregnancy
7-17	c	p. 165	Sonography	7-37	d	p. 174	Cervical Pregnancy
7-18	d	p. 168	Summary of Diagnostic Evaluation	7-38	d	p. 175	Heterotopic Pregnancy
7-19	d	p. 168	Management	7-39	d	p. 175	Cesarean Scar Pregnancy
7-20	d	p. 168	Medical Management				

CHAPTER 8

Abnormal Uterine Bleeding

- 8–1.** Which of the following definitions of abnormal uterine bleeding is **incorrect**?
- Intermenstrual bleeding is bleeding that occurs between cycles.
 - Oligomenorrhea refers to cycles with intervals shorter than 35 days.
 - Hypomenorrhea refers to menses with diminished flow or shortened interval.
 - Heavy menstrual bleeding is defined as prolonged or heavy cyclic menstruation, with menses lasting longer than 7 days or exceeding 80 mL of blood loss.
- 8–2.** Which of the following tools is **NOT** clinically useful to estimate menstrual blood loss?
- Pad counts
 - Hemoglobin and hematocrit
 - Pictorial blood assessment chart
 - Sodium hydroxide extraction of hemoglobin
- 8–3.** In premenarchal girls, which of the following is the most common source of abnormal bleeding?
- Ovary
 - Uterus
 - Vagina
 - Urethra
- 8–4.** Age groups have been correctly paired with their most common etiology of abnormal genital tract bleeding in all of the following **EXCEPT**:
- Adolescence—ano ovulation
 - Childhood—vulvovaginitis
 - Perimenopause—ano ovulation
 - Menopause—endometrial carcinoma
- 8–5.** Which layer of the endometrium sloughs and therefore is responsible for observed menstrual discharge?
- Spiral
 - Radial
 - Basalis
 - Functionalis
- 8–6.** Control of blood loss during menses involves which of the following mechanisms?
- Trombus formation
 - Platelet aggregation
 - Vasoconstriction of endometrial arteries
 - All of the above
- 8–7.** A 30-year-old patient presents to your office complaining of heavy menstrual bleeding. With additional questioning, she reports new onset dysmenorrhea. Given this additional symptom, which of the following etiologies for her abnormal bleeding is **LEAST** likely?
- Infection
 - Anovulation
 - Pregnancy complication
 - Structural abnormality of the uterus
- 8–8.** All of the following diagnostic tests are typically obtained during the initial evaluation of abnormal uterine bleeding **EXCEPT**:
- Pap test
 - Pregnancy test
 - Liver function tests
 - Complete blood count with platelets
- 8–9.** Which of the laboratory criteria listed below is consistent with iron-deficiency anemia?
- Low serum ferritin level
 - Normal hemoglobin and hematocrit
 - Low total iron-binding capacity (TIBC)
 - Increase in mean corpuscular hemoglobin (MCV)
- 8–10.** According to the American College of Obstetricians and Gynecologists (2013), endometrial sampling to assess abnormal uterine bleeding is **NOT** recommended for a woman with which of the following characteristics?
- Is 35 years old
 - Has failed medical management
 - Has persistent abnormal uterine bleeding
 - Has history of unopposed estrogen exposure

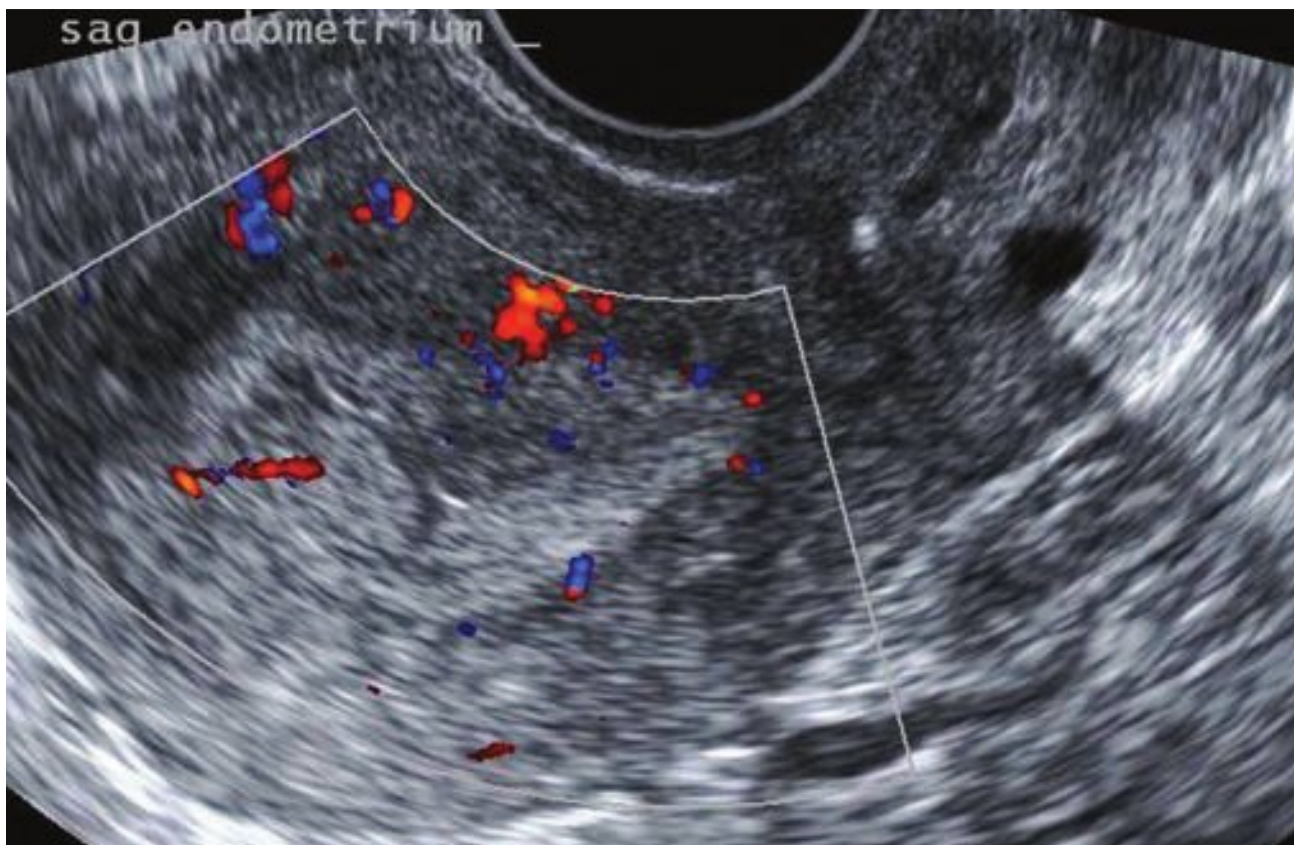
- 8–11.** Which of the following is a limitation of Pipelle samplers used for endometrial biopsy to evaluate abnormal uterine bleeding?
- Rate of inadequate sampling that exceeds 50 percent
 - Inability to be performed in an office setting
 - Greater patient discomfort compared with a stiff metal curette
 - Low sensitivity and high false-negative rate for focal endometrial pathology
- 8–12.** An advantage of transvaginal sonography for the evaluation of abnormal uterine bleeding includes which of the following?
- Reduced use of endometrial biopsy
 - Simultaneous assessment of myometrium and endometrium
 - Greater patient comfort compared with endometrial biopsy or hysteroscopy
 - All of the above
- 8–13.** What is the primary advantage of saline infusion sonography compared with transvaginal sonography?



- Less patient discomfort
- Superior detection of intracavitary masses
- Ability to perform at any time of the cycle
- Simultaneous assessment of myometrium and endometrium

- 8–14.** In the evaluation of abnormal uterine bleeding, what is the primary advantage of hysteroscopy compared with saline infusion sonography?
- Hysteroscopy is less painful.
 - Hysteroscopy is less expensive.
 - Hysteroscopy is more accurate in identifying global endometrial pathology.
 - Hysteroscopy permits simultaneous identification and removal of focal endometrial lesions.
- 8–15.** A 60-year-old postmenopausal woman presents for evaluation of genital tract bleeding, which is confirmed as uterine in origin by physical examination. Which diagnostic procedure is a logical first step in her evaluation?
- Colposcopy
 - Diagnostic hysteroscopy
 - Transvaginal sonography
 - Saline infusion sonography
- 8–16.** Which cause of abnormal uterine bleeding is **NOT** represented in the International Federation of Gynecology and Obstetrics (FIGO) classification acronym PALM-COEIN?
- Leiomyoma
 - Pregnancy
 - Iatrogenic
 - Coagulopathy

- 8–17.** Pelvic sonography with applied color Doppler reveals an intrauterine growth with a single feeder vessel. Which statement is true regarding this abnormality?



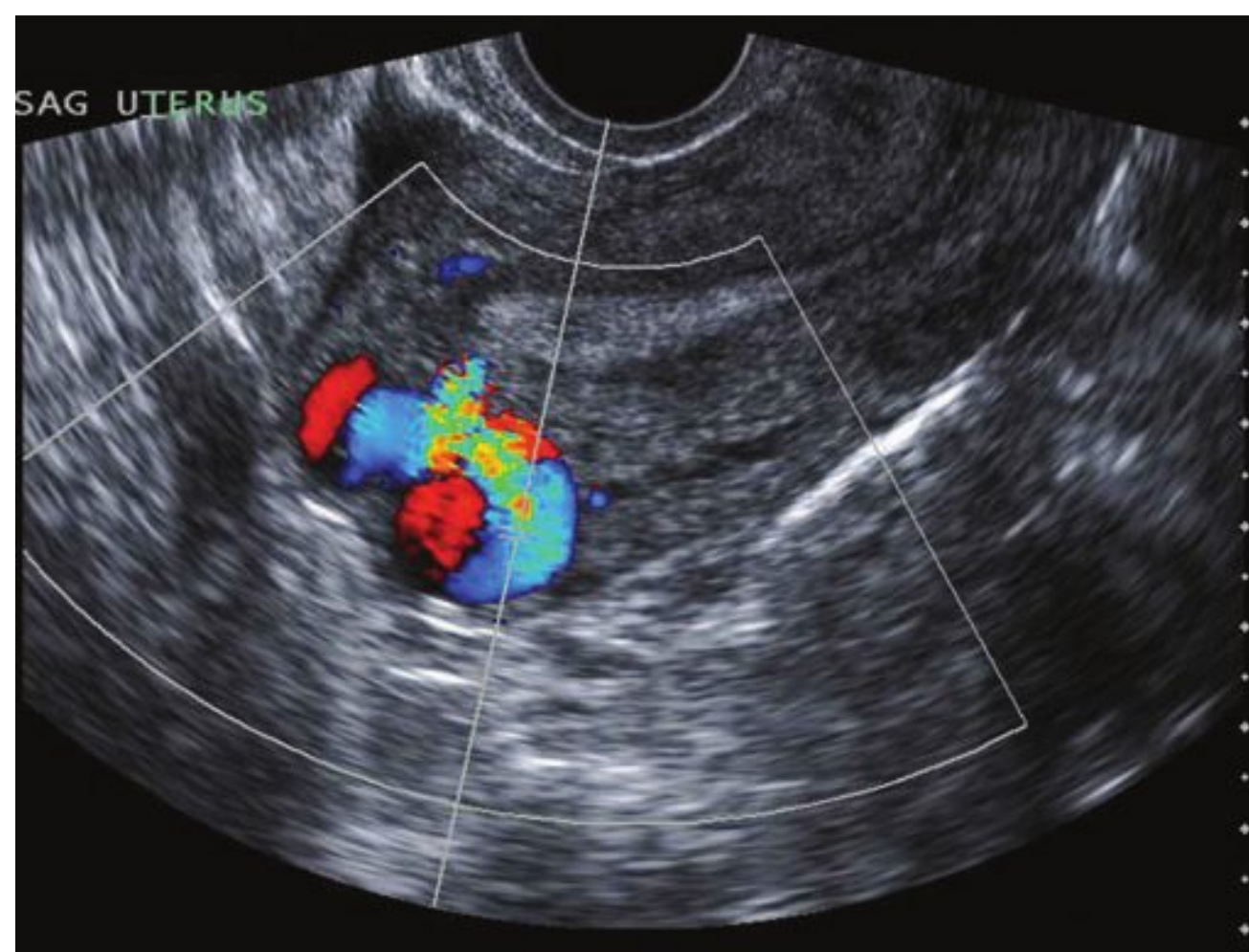
- a. The main diagnostic tool is the Pap test.
 - b. It is an uncommon cause of abnormal uterine bleeding.
 - c. Infertility has been linked directly to this condition.
 - d. Use of oral contraceptive pills appears to be protective.
- 8–18.** The lesion in Question 8–17 is seen hysteroscopically. Risk factors for malignant transformation of this lesion include which of the following?



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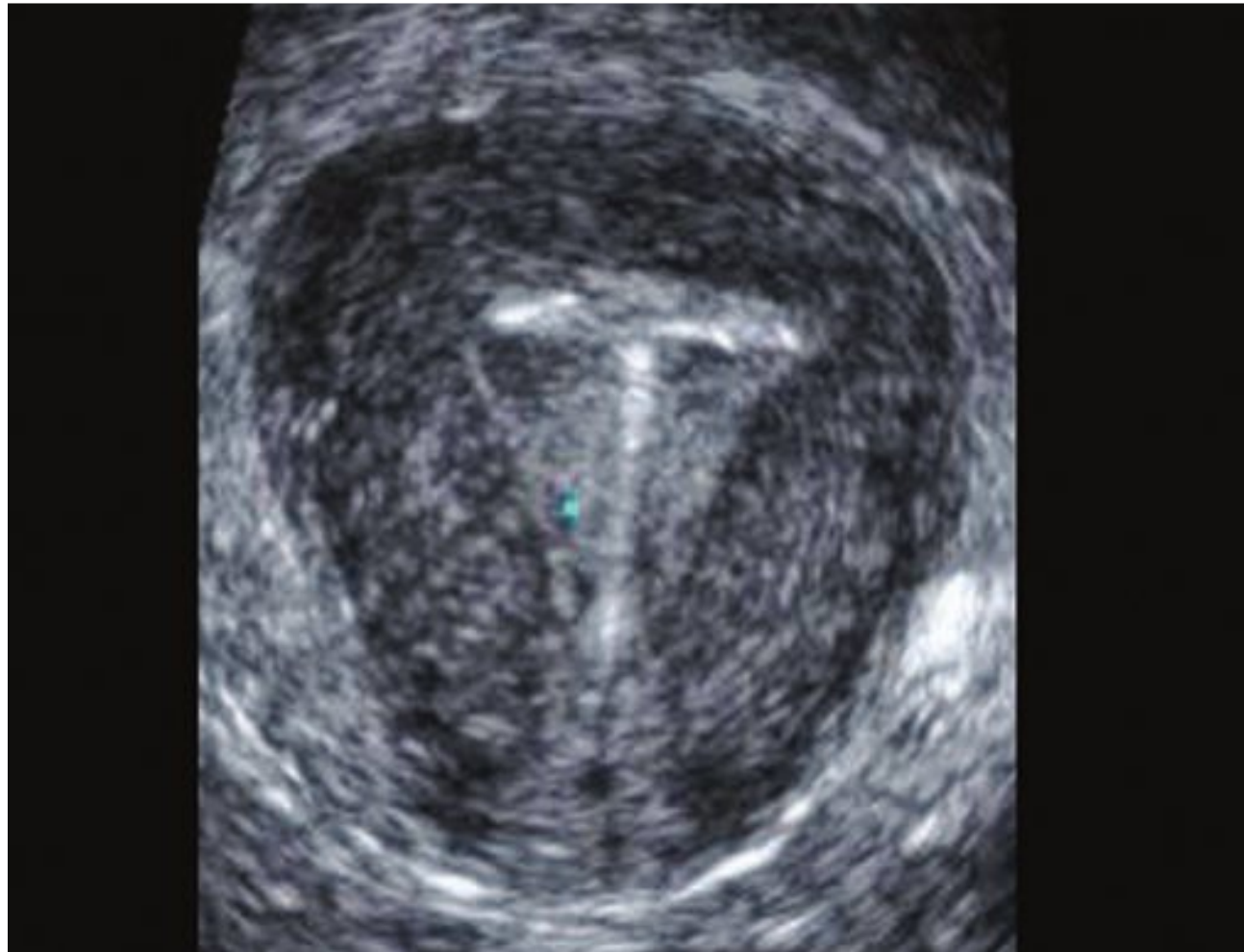
- a. Tamoxifen use
- b. Postmenopausal status
- c. Size greater than 1.5 cm
- d. All of the above

- 8–19.** A 27-year-old woman who previously underwent dilatation and curettage for an incomplete abortion presents with new-onset heavy menstrual bleeding. Transvaginal sonography first reveals a hypoechoic tubular structure within the myometrium. With application of color Doppler, large-caliber vessels are seen in the second image. What is the most appropriate next step in her evaluation?



- a. Angiography
- b. Hysteroscopy
- c. Saline infusion sonography
- d. Pelvic computed tomography (CT) with contrast

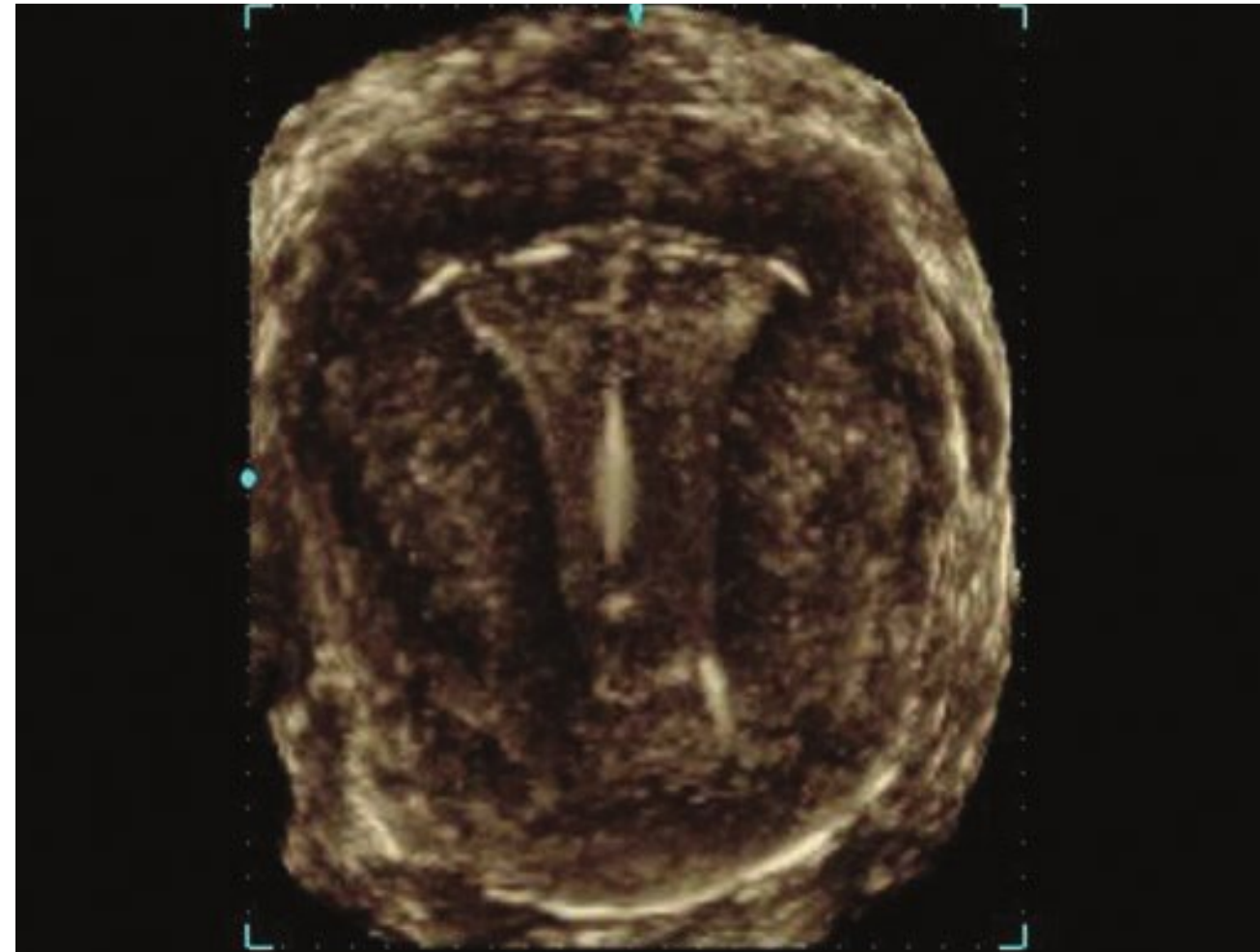
- 8–20.** Suggested etiologies for abnormal uterine bleeding associated with use of the device shown below in this three-dimensional (3-D) sonogram include which of the following?



- a. Malpositioned device
 - b. Unbalanced ratio of prostaglandin to thromboxane levels
 - c. Increased endometrial vascularity, congestion, and degeneration
 - d. All of the above
- 8–21.** A patient for whom you initiated combination oral contraceptive pills (COCs) 3 months ago returns to the office for a routine COC re-evaluation. She complains of light, irregular bleeding during this time but states that it is diminishing. What is your diagnosis and plan of care?
- a. COC intolerance requiring method discontinuation
 - b. Breakthrough bleeding requiring counseling and reassurance
 - c. Endometrial pathology necessitating transvaginal sonography
 - d. Hormonal imbalance requiring selection of a different COC formulation
- 8–22.** A patient using the progestin-only implant (Nexplanon) complains of unscheduled light bleeding since her implant was placed 4 months ago. Which of the following treatment options would be **LEAST** likely to correct the bleeding?
- a. Single dose of depot medroxyprogesterone acetate (DMPA)
 - b. Addition of combination oral contraceptives for 1 month
 - c. Use of a nonsteroidal anti-inflammatory medication for 1 week
 - d. Use of a daily estrogen-only supplement such as ethinyl estradiol or conjugated equine estrogen for 1 month
- 8–23.** When should irregular spotting or bleeding be evaluated in a postmenopausal patient using hormone replacement therapy (HRT)?
- a. History of endometrial polyps
 - b. Continued bleeding after 6 months of HRT use
 - c. Abnormal bleeding that develops after initial amenorrhea
 - d. All of the above
- 8–24.** Which of the following statements regarding tamoxifen is true?
- a. It acts as an estrogen agonist in the breast and uterus.
 - b. Tamoxifen use has been linked to endometrial polyps, hyperplasia, and carcinoma but not to uterine sarcomas.
 - c. Women using tamoxifen should undergo evaluation for endometrial cancer only if abnormal bleeding develops.
 - d. It is a selective estrogen-receptor modulator (SERM) used as an adjunct for treatment of estrogen-receptor-negative breast cancer.
- 8–25.** A 60-year-old patient with breast cancer taking oral anticoagulants for recent deep-vein thrombosis is admitted for acute heavy menstrual bleeding. Which of the following management options is **LEAST** suitable for this patient?
- a. Reversal of anticoagulation
 - b. High-dose estrogen (intravenous Premarin)
 - c. Intrauterine cavity insertion of a Foley catheter
 - d. All are suitable for this woman.
- 8–26.** Systemic causes of abnormal uterine bleeding include which of the following?
- a. Liver disease
 - b. Severe renal dysfunction
 - c. Hypo- and hyperthyroidism
 - d. All of the above
- 8–27.** A patient with heavy menstrual bleeding reveals a personal history of frequent gingival bleeding and excessive bleeding during a recent tooth extraction. You screen her for a coagulation disorder. Which of the following laboratory tests is **LEAST** likely to be informative?
- a. Bleeding time
 - b. Prothrombin time (PT)
 - c. Partial thromboplastin time (PTT)
 - d. Complete blood count (CBC) with platelets

- 8–28.** Which is an effective first-line treatment for women with heavy menstrual bleeding and von Willebrand disease?
- Endometrial ablation
 - Dilatation and curettage
 - Nonsteroidal anti-inflammatory drugs
 - Combination oral contraceptive pills
- 8–29.** Which of the following statements regarding abnormal uterine bleeding-ovulatory (AUB-O) is true?
- Since ovulation does not occur, a secretory endometrium persists.
 - At the cellular level, the availability of arachidonic acid is increased, altering prostaglandin production.
 - Women with anovulation may be amenorrheic for long periods of time, which are followed by irregular, prolonged, heavy bleeding episodes.
 - At the tissue level, the endometrial vascular structure is altered and contains increased spiral arteriole density and constricted venous capillaries.
- 8–30.** A patient presents to the Emergency Department with a 1-day history of heavy vaginal bleeding. She is tachycardic but not hypotensive, and postural vital signs are stable with change from a supine to sitting position. Physical examination demonstrates bleeding from above the external cervical os and continued pooling of blood in the vagina. Laboratory studies reveal she is anemic. Which of the following is the most appropriate first-line agent to attempt control of her acute uterine bleeding?
- Intravenous estrogen
 - Oral tranexamic acid
 - Gonadotropin-releasing hormone (GnRH) agonist
 - Combination oral contraceptive pill taper
- 8–31.** Which of the following medications used to treat abnormal uterine bleeding-endometrial (AUB-E) is correctly paired with its mechanism of action?
- Tranexamic acid—increases plasmin levels
 - Nonsteroidal antiinflammatory drugs (NSAIDs)—stimulate cyclooxygenase (COX-1 and 2) production
 - Oral progestins—inhibit endometrial growth and promote organized sloughing following their withdrawal
 - Combination oral contraceptive pills (COCs)—induce endometrial atrophy but promote increased prostaglandin synthesis and endometrial fibrinolysis

- 8–32.** For the treatment of dysfunctional uterine bleeding, evidence supports which of the following statements regarding the efficacy of the device shown in this three-dimensional (3-D) sonogram?



- It reduces menstrual loss by more than 75 percent after 3 months of use.
 - Compared with endometrial ablation, this method has similar therapeutic effects up to 2 years after treatment.
 - It is more effective than nonsteroidal anti-inflammatory drugs or oral progestins in decreasing uterine blood loss.
 - All of the above
- 8–33.** Which of the following statements regarding tranexamic acid is true?
- To be most effective, it requires administration for 2 weeks before and during menses.
 - Contraindications to its use include a history or intrinsic risk of thromboembolic disease.
 - It affects blood coagulation parameters, such as platelet count, prothrombin time (PT), and partial thromboplastin time (PTT).
 - It is an antifibrinolytic drug that permanently blocks lysine binding sites on plasminogen, thereby increasing plasmin levels and fibrinolytic activity.

- 8–34.** When counseling a patient for endometrial ablation, which of the following points are discussed?
- a.** Three fourths of women experience significantly decreased menstrual volume after ablation.
 - b.** Approximately 25 percent of women will need a hysterectomy by 5 years subsequent to ablation.
 - c.** Following ablation, evaluation of the endometrium for recurrent abnormal bleeding can be difficult due to resultant distortion of the endometrial cavity.
 - d.** All of the above

- 8–35.** Which of the following is **NOT** a contraindication to endometrial ablation?
- a.** Postmenopausal status
 - b.** Prior classical cesarean delivery
 - c.** Anatomically normal endometrial cavity
 - d.** Desire to preserve fertility potential

Reference

American College of Obstetricians and Gynecologists: Management of acute abnormal uterine bleeding in nonpregnant reproductive-aged women. Committee Opinion No. 557, April 2013.

Chapter 8 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
8-1	b	p. 180	Definitions	8-19	a	p. 190	Arteriovenous Malformation (AVM)
8-2	d	p. 180	Definitions	8-20	d	p. 190	Intrauterine Device (IUD)
8-3	c	p. 180	Incidence	8-21	b	p. 191	Hormonal Therapy
8-4	d	p. 180	Incidence	8-22	a	p. 191	Hormonal Therapy
8-5	d	p. 181	Pathophysiology	8-23	d	p. 191	Hormonal Therapy
8-6	d	p. 181	Pathophysiology	8-24	c	p. 191	Hormonal Therapy
8-7	b	p. 182	History and Physical Examination	8-25	b	p. 191	Anticoagulants
8-8	c	p. 183	β -hCG and Hematologic Testing, Figure 8-4	8-26	d	p. 192	Systemic Causes; Kidney, Liver, and Thyroid Disease
8-9	a	p. 184	β -hCG and Hematologic Testing	8-27	a	p. 192	Coagulopathy
8-10	a	p. 184	Endometrial Biopsy; Indications	8-28	d	p. 193	Von Willebrand Disease (vWD)
8-11	d	p. 184	Sampling Methods	8-29	c	p. 194	Ovulatory Disorders
8-12	d	p. 185	Sonography; Transvaginal Sonography	8-30	a	p. 194	Acute Hemorrhage Management; Table 8-3
8-13	b	p. 186	Saline-Infusion Sonography	8-31	c	p. 195	Primary Endometrial Dysfunction
8-14	d	p. 187	Hysteroscopy	8-32	d	p. 195	Levonorgestrel-Releasing Intrauterine System (LNG-IUS)
8-15	c	p. 188	Summary of Diagnostic Procedures	8-33	b	p. 196	Tranexamic Acid
8-16	b	p. 188	Etiology Classification	8-34	d	p. 197	Uterine Procedures
8-17	d	p. 188	Endometrial Polyp	8-35	c	p. 197	Table 8-5
8-18	d	p. 188	Endometrial Polyp				

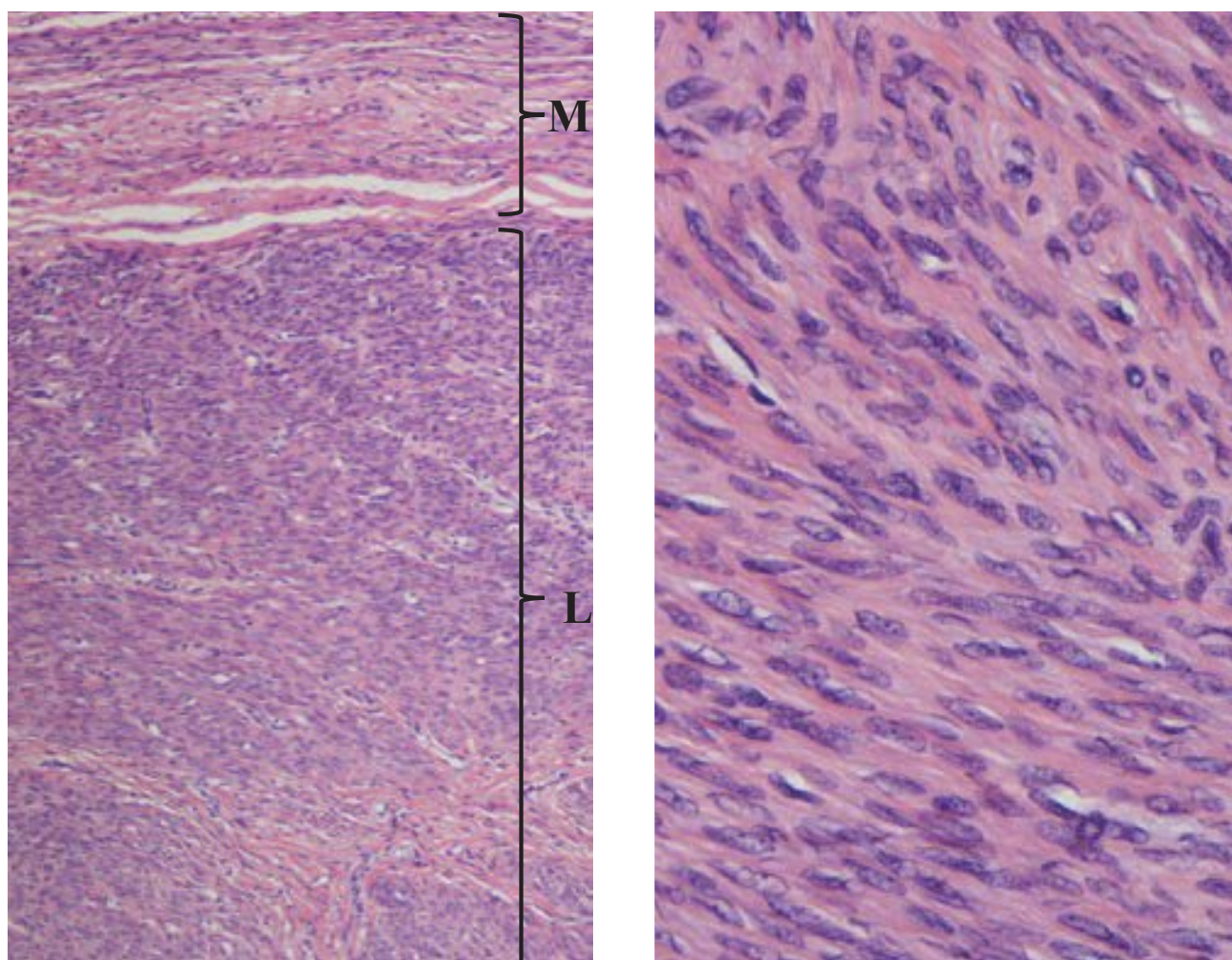
CHAPTER 9

Pelvic Mass

9–1. Age has the greatest influence on the evaluation of a pelvic mass. Which of the following statements regarding demographic factors and pelvic masses is true?

- a. Malignant ovarian tumors in children and adolescents are common.
- b. Most gynecologic pelvic masses in prepubertal and adolescent girls involve the ovary.
- c. Malignancy is a more frequent cause of pelvic masses in reproductive-aged women than in postmenopausal women.
- d. None of the above

9–2. Which of the following statements regarding the pathophysiology of leiomyomas is true? Typical leiomyoma histology is shown in these low- and high-power photomicrographs.



Used with permission from Dr Kelley Carrick.

- a. Each leiomyoma is derived from multiple progenitor myocytes.
- b. Mitotic activity in their elongated smooth-muscle bundles is common.
- c. Leiomyomas possess a distinct autonomy from their surrounding myometrium.
- d. Necrosis and degeneration develop infrequently in leiomyomas because of their abundant and well-organized blood supply.

9–3. Compared with normal myometrial cells, leiomyoma cells have which of the following mechanism to create a hyperestrogenic environment requisite for myoma growth and maintenance?

- a. They convert less estradiol to estrone.
- b. They contain a greater density of estrogen receptors.
- c. They contain higher levels of cytochrome P450 aromatase, which converts androgens to estrogen.
- d. All of the above

9–4. Which of the following factors decreases the risk for leiomyoma development?

- a. Early menarche
- b. Cigarette smoking
- c. Elevated body mass index
- d. Polycystic ovarian syndrome

9–5. Leiomyomas carry a higher progesterone receptor density compared with the surrounding myometrium. As a result, all of the following statements regarding responses of leiomyomas to hormones are true **EXCEPT**:

- a. Higher doses of medroxyprogesterone acetate are associated with leiomyoma growth.
- b. Hormone replacement therapy in postmenopausal women can stimulate leiomyoma growth.
- c. Antiprogesterin agents, such as mifepristone and ulipristal acetate, cause leiomyoma growth.
- d. In women treated with gonadotropin-releasing agonists, leiomyomas typically decrease in size.

9–6. Which of the following statements regarding factors associated with leiomyoma development is **FALSE**?

- a. Higher rates of leiomyomas are linked with pregnancy.
- b. Leiomyomas are more common in African-American women.
- c. Gene mutations play a key role in leiomyoma development.
- d. In reproductive-aged women, the risk of leiomyoma development increases with age.

- 9-7. What type of leiomyoma is shown in this sonographic image?



- a. Intramural
- b. Subserosal
- c. Submucosal, type 0
- d. Submucosal, type 1

- 9-8. Which of the following terms regarding leiomyomatosis is correctly paired with its definition?

- a. Benign metastasizing leiomyomas—venous dissemination of leiomyomas
- b. Intravenous leiomyomatosis—extension of leiomyomas into uterine and other pelvic arteries
- c. Disseminated peritoneal leiomyomatosis—leiomyomas that appear as multiple small peritoneal nodules within the abdominal cavity
- d. All of the above

- 9-9. Which symptom of leiomyomas is **NOT** correctly paired with its common pathophysiology?

- a. Asymptomatic—prolapsing fibroid
- b. Menorrhagia—dilatation of venules
- c. Pelvic pressure—mechanical compression
- d. Acute pelvic pain—leiomyoma degeneration

- 9-10. Leiomyomas account for 1 to 3 percent of infertility cases. Which of the following describes the putative mechanism by which leiomyomas may disrupt fertility?

- a. Occlusion of tubal ostia
- b. Disruption of normal uterine contractions
- c. Disruption of implantation secondary to distortion of the endometrial cavity and/or endometrial inflammatory and vascular changes
- d. All of the above

- 9-11. Rare complications of leiomyomas include all of the following **EXCEPT**:

- a. Leiomyomatosis
- b. Cystic degeneration
- c. Pseudo-Meigs syndrome
- d. Myomatous erythrocytosis syndrome

- 9-12. Cystic degeneration, shown here, is one possible sonographic feature of leiomyomas. Which of the following is another possible finding?



- a. Round hypoechoic mass
- b. Hypoechoic mass with echogenic foci
- c. Discrete borders with acoustic shadowing
- d. All of the above

- 9-13. A 40-year-old woman presents with complaints of heavy menstrual bleeding. Transvaginal sonography of the uterus reveals a heterogeneous central endometrial echo (shown below). Which of the following would be **LEAST** helpful to further clarify the diagnosis?



- a. Hysteroscopy
- b. Computed tomography
- c. Magnetic resonance (MR) imaging
- d. Saline infusion sonography with three-dimensional (3-D) imaging

- 9–14.** A 45-year-old woman complains of worsening heavy menstrual bleeding. She was previously treated with nonsteroidal antiinflammatory drugs (NSAIDs). She has no other medical problems. Three-dimensional sonographic evaluation reveals the type 0 submucosal leiomyoma shown here. All of the following are suitable next choices for medical treatment in this patient **EXCEPT**:



- a.** Combination oral contraceptives
b. Depot medroxyprogesterone acetate
c. Gonadotropin-releasing hormone agonist
d. Levonorgestrel-containing intrauterine system
- 9–15.** Which of the following statements describes a limitation of antiprogestin use for leiomyoma treatment?
a. Almost half of patients complain of vasomotor symptoms.
b. The antiprogestational effects expose the endometrium to unopposed estrogen.
c. Mifepristone is manufactured in a dose well above that needed for leiomyoma therapy.
d. All of the above
- 9–16.** Which of the following is a proposed mechanism of action of gonadotropin-releasing hormone (GnRH) agonists on leiomyomas?
a. GnRH agonists downregulate estrogen and progesterone receptors on the leiomyomas themselves.
b. GnRH agonists upregulate receptors on ovarian gonadotropes, thereby increasing estrogen and progesterone effects.
c. GnRH agonists downregulate receptors on pituitary gonadotropes, thereby suppressing estrogen and progesterone levels.
d. None of the above
- 9–17.** A 47-year-old woman presents with complaints of heavy menstrual bleeding, dysmenorrhea, and anemia. Evaluation confirms that her condition is secondary to intramural leiomyomas. After thorough discussion of the various medical and surgical options, she wishes to proceed with gonadotropin-releasing hormone (GnRH) agonist treatment. Which of the following statements is important to include in counseling before initiating this therapy?
a. Treatment can result in loss of trabecular bone, which may not be recouped following therapy discontinuation.
b. Side effects of GnRH agonists include vasomotor symptoms, libido changes, and vaginal dryness that may promote dyspareunia.
c. Anticipated clinical benefits are reduced leiomyoma volume and diminished bleeding and pain. However, once therapy is stopped, leiomyomas regrow and regain pretreatment sizes within 3 to 4 months.
d. All of the above
- 9–18.** Which of the following statements is true regarding “add-back therapy” to complement gonadotropin-releasing hormone (GnRH) agonist treatment?
a. Add-back therapy is typically begun immediately with GnRH agonist initiation.
b. Add-back therapy includes estrogen combined with a progestin in a preparation equivalent to that found in high-dose combination oral contraceptives.
c. The goal of add-back therapy is to counter side effects of GnRH agonist treatment without mitigating the shrinking action on leiomyoma volume.
d. None of the above
- 9–19.** Relative contraindications to uterine artery embolization include all of the following **EXCEPT**:
a. Desire for future fertility
b. Pedunculated submucosal leiomyomas
c. Concurrent gonadotropin-releasing hormone (GnRH) use
d. History of treated (resolved) *Neisseria gonorrhoeae* or *Chlamydia trachomatis* infection
- 9–20.** Compared with hysterectomy, uterine artery embolization is associated with which of the following?
a. Longer hospitalization
b. Postembolization syndrome
c. Equivalent time frame for return to work
d. Higher 24-hour postprocedural pain scores

- 9–21.** Frequent complications associated with uterine artery embolization include which of the following?
- Groin hematoma
 - Leiomyoma tissue passage
 - Prolonged vaginal discharge
 - All of the above
- 9–22.** A 35-year-old nulligravida presents for counseling regarding uterine artery embolization (UAE). Her heavy menstrual bleeding due to uterine leiomyomas has been refractory to all attempts at medical management. She desires future fertility. Which of the following complications of pregnancy is she at increased risk for after UAE?
- Miscarriage
 - Cesarean delivery
 - Postpartum hemorrhage
 - All of the above
- 9–23.** All of the following statements regarding magnetic resonance imaging-guided focused ultrasound therapy (MRgFUS) are true **EXCEPT**:
- Long-term data regarding the duration of symptom relief are limited.
 - Less than 10 percent of women seek alternative treatments for their symptoms by 12 months following MRgFUS.
 - This technique focuses ultrasound energy to a degree that heats targeted leiomyomas to incite necrosis.
 - Contraindications include abdominal wall scars, contraindications to magnetic resonance imaging, uterine size greater than 24 weeks, and desire for future fertility.
- 9–24.** Laparoscopic myomectomy, compared with open myomectomy, is characterized by which of the following?
- More febrile morbidity
 - Less adhesion formation
 - Improved pregnancy rates
 - Equivalent hospital stays
- 9–25.** When used as the sole technique for myoma-related bleeding, which of the following surgical therapies is least effective?
- Myomectomy
 - Hysterectomy
 - Endometrial ablation
 - Hysteroscopic resection of submucous leiomyomas

- 9–26.** A 32-year-old woman presents to the Emergency Department with complaints of progressively worsening midline lower pelvic pain during the last few months. She denies fever or vaginal discharge. Her last menstrual period (LMP) was 2 years ago. She states that she had a procedure done for heavy uterine bleeding, and after that, she “never had a period again.” Physical examination demonstrates a normal-sized but tender uterus, her β -human chorionic gonadotropin (β -hCG) test is negative for pregnancy, and sonographic evaluation reveals the findings shown below. What is the most likely etiology for her condition?



- Radiation treatment
 - Endometrial ablation
 - Congenital uterine anomaly
 - Prolonged hypoenestrogenism with atrophy
- 9–27.** Theories regarding the pathogenesis of adenomyosis include which of the following?
- Increased aromatase expression and higher tissue estrogen levels
 - Invagination of the endometrial basalis layer into the myometrium
 - Myometrial weakness caused by pregnancy, uterine surgery, or compromised immunological activity at the endometrial–myometrial junction
 - All of the above

- 9–28.** All of the following statements regarding the symptomatology of adenomyosis are true **EXCEPT**:
- Approximately one third of women with adenomyosis have symptoms.
 - Symptom severity correlates with increasing number of ectopic foci and extent of invasion.
 - Heavy menstrual bleeding and dysmenorrhea are the most common complaints in women with adenomyosis.
 - Dysmenorrhea stems primarily from distention of the ectopic foci of glands found in the myometrium.

- 9–29.** Sonographic characteristics of diffuse adenomyosis include which of the following?



- Small, hypoechoic myometrial cysts
 - Myometrial wall thickening and heterogeneous texture
 - Ill-defined endometrial echo and striated projections extending into the myometrium
 - All of the above
- 9–30.** Which of the following is **NOT** an appropriate medical treatment for adenomyosis?
- Copper intrauterine device
 - Combination oral contraceptives
 - Nonsteroidal anti-inflammatory drugs
 - Levonorgestrel-releasing intrauterine system

- 9–31.** All of the following statements regarding the use of endometrial ablation for the treatment of adenomyosis are true **EXCEPT**:
- Complete eradication of deep adenomyosis may be limited.
 - Injury to the endometrial lining caused by ablation may worsen adenomyosis.
 - Computed tomography is recommended prior to ablation to identify deep adenomyotic lesions.
 - Adenomyosis has been found in approximately 50 percent of hysterectomy specimens with poor symptom relief from ablation.

- 9–32.** Which of the following tumor antigens is correctly paired with its ovarian tumor or malignancy?

- α -fetoprotein (AFP)—dysgerminoma
- β -human chorionic gonadotropin—granulosa cell tumor
- Cancer antigen 19-9 (CA19-9)—mucinous epithelial ovarian carcinoma
- Lactate dehydrogenase—yolk sac tumor and embryonal cell carcinoma

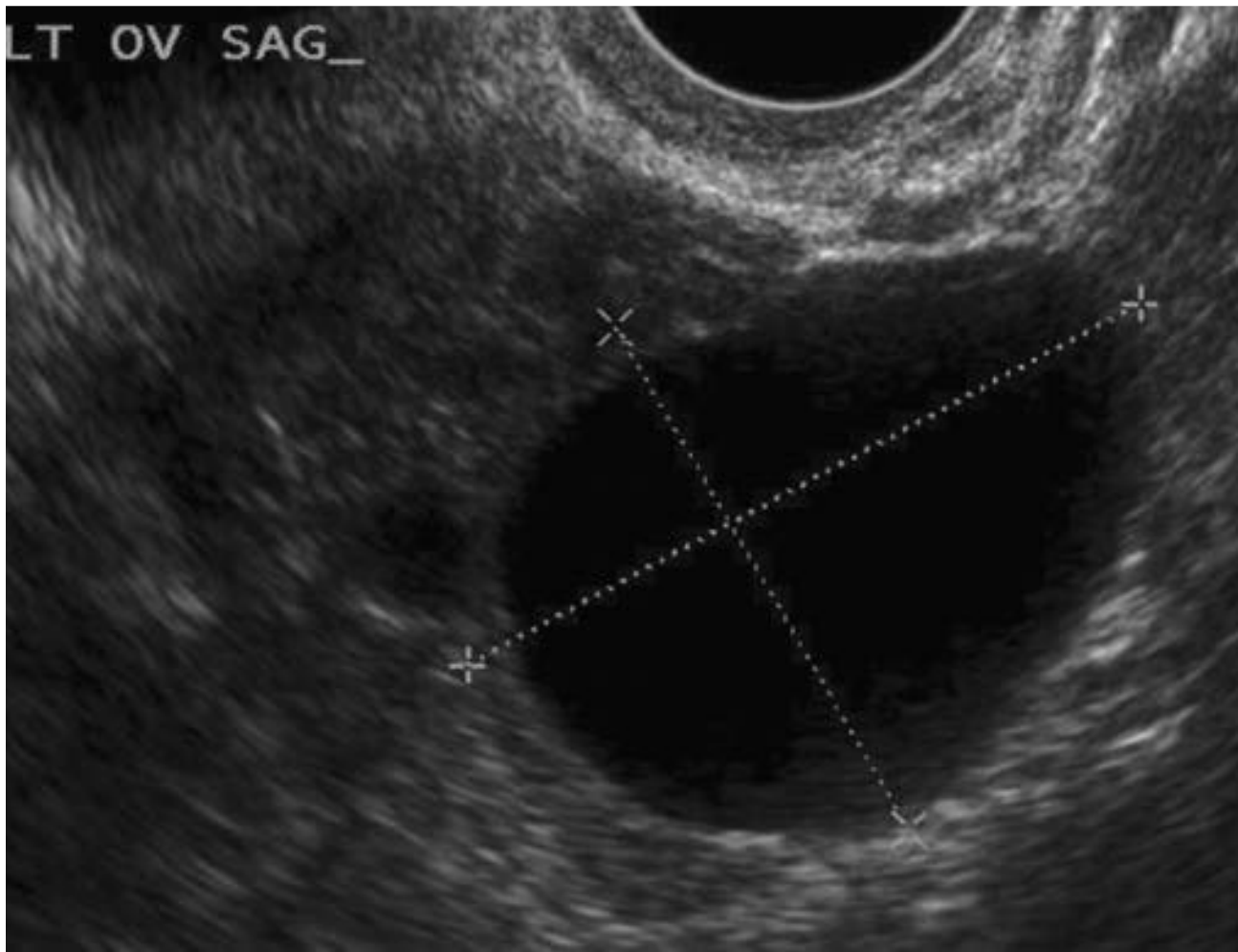
- 9–33.** During the annual visit of a 56-year-old postmenopausal patient, you detect a right adnexal fullness during bimanual examination. Transvaginal sonography reveals a 3-cm, thin-walled, unilocular cyst of the right ovary. She is asymptomatic. Which of the following is the most appropriate initial course of management?

- Gynecologic oncology referral
- Diagnostic laparoscopy with cystectomy
- Expectant periodic surveillance if her cancer antigen 125 (CA125) level is normal
- Prescription of combination oral contraceptive pills to hasten cyst resolution

- 9–34.** With a newly diagnosed pelvic mass in a premenopausal woman, which of the following clinical criteria should prompt referral to a gynecologic oncologist?

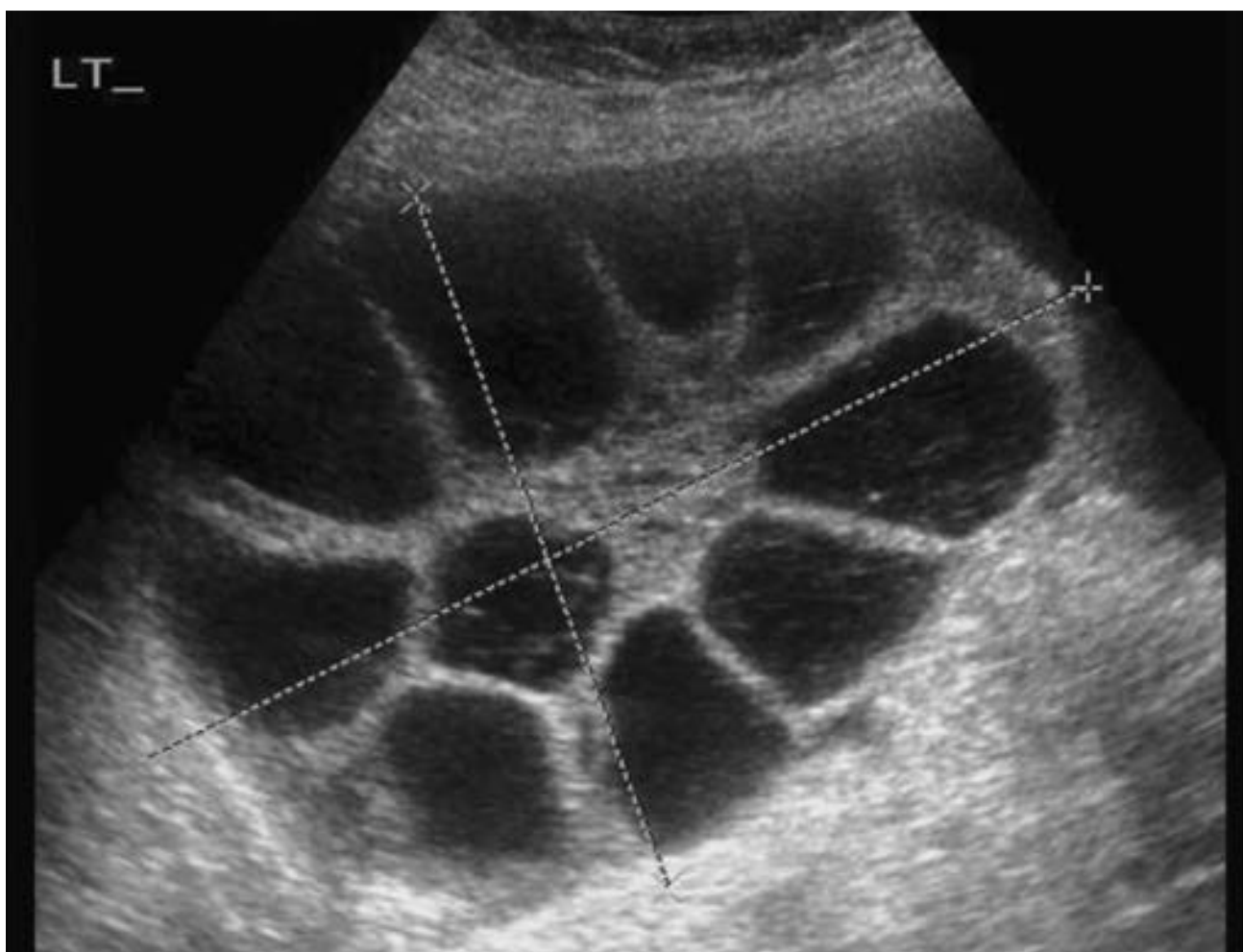
- Ascites
- Patient's history of breast cancer
- Cancer antigen 125 (CA125) level of 40 U/mL (normal < 35 U/mL)
- All of the above

9–35. Which of the following is **NOT** a risk factor for development of the ovarian lesion shown here?



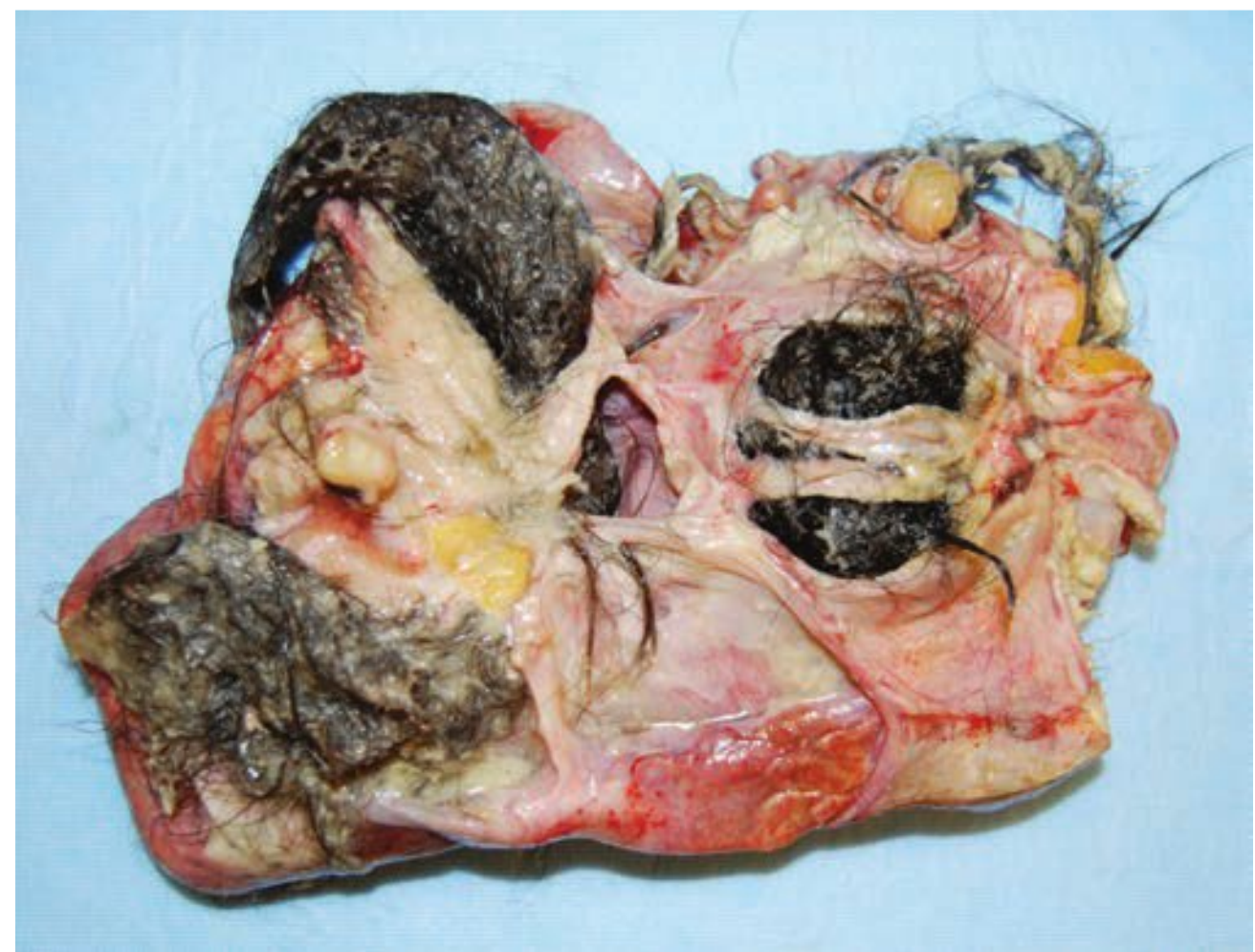
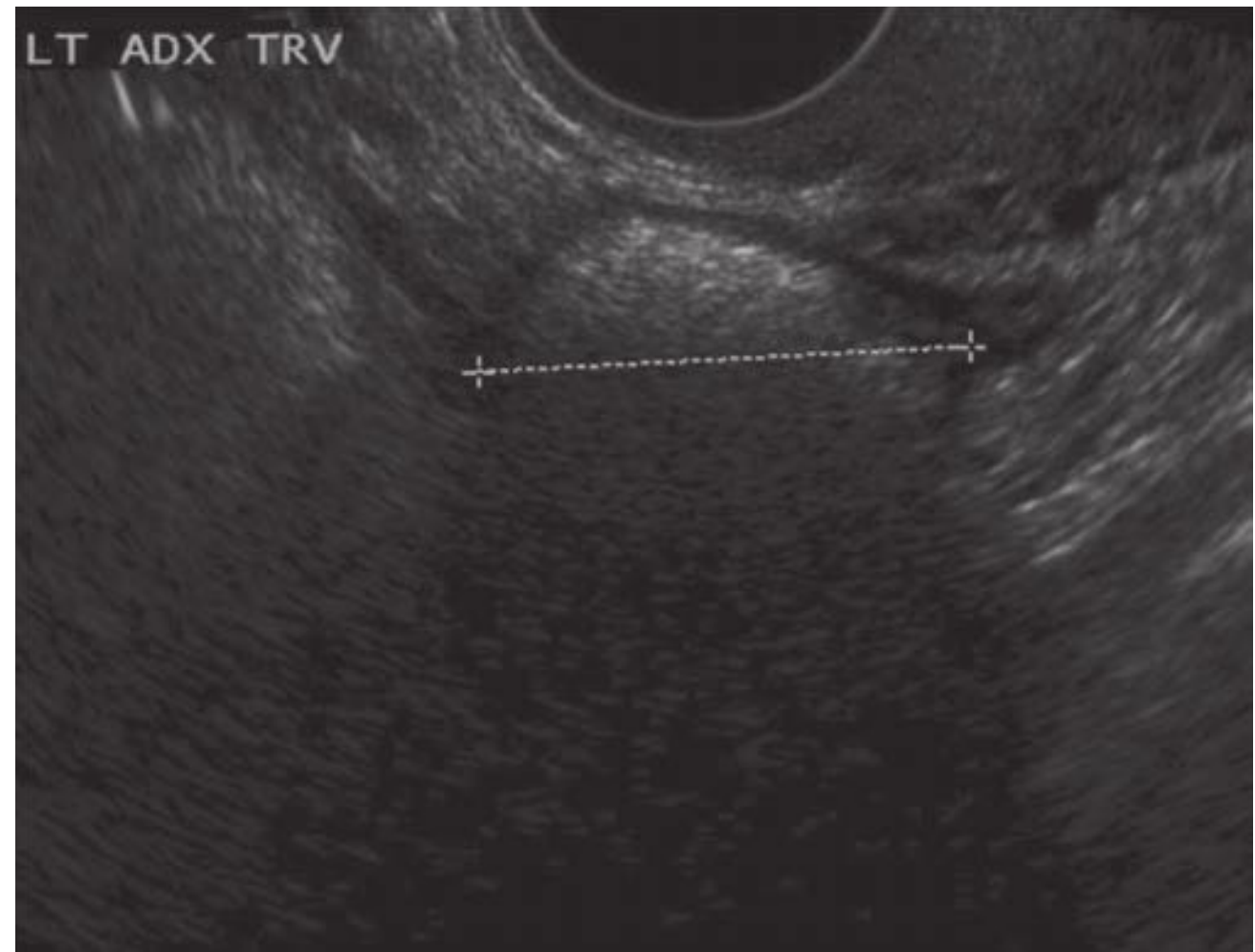
- a. Smoking
- b. Tamoxifen
- c. Combination oral contraceptives
- d. Levonorgestrel-containing intrauterine device

9–36. A 25-year-old gravida with a 14-week gestation by last menstrual period presents to the Emergency Department complaining of pelvic pain. Transabdominal sonography reveals bilateral multilocular cystic ovarian masses, and one of the ovaries is shown here. Which of the following commonly associated conditions must be excluded in pregnancies with this finding?



- a. Fetal hydrops
- b. Multifetal gestation
- c. Gestational trophoblastic disease
- d. All of the above

9–37. The sonographic “tip of the iceberg” sign corresponds to the site within a mature cystic teratoma where the most varied tissue types, such as hair and fatty secretions, are found. Pathologically, what is the name of this area?

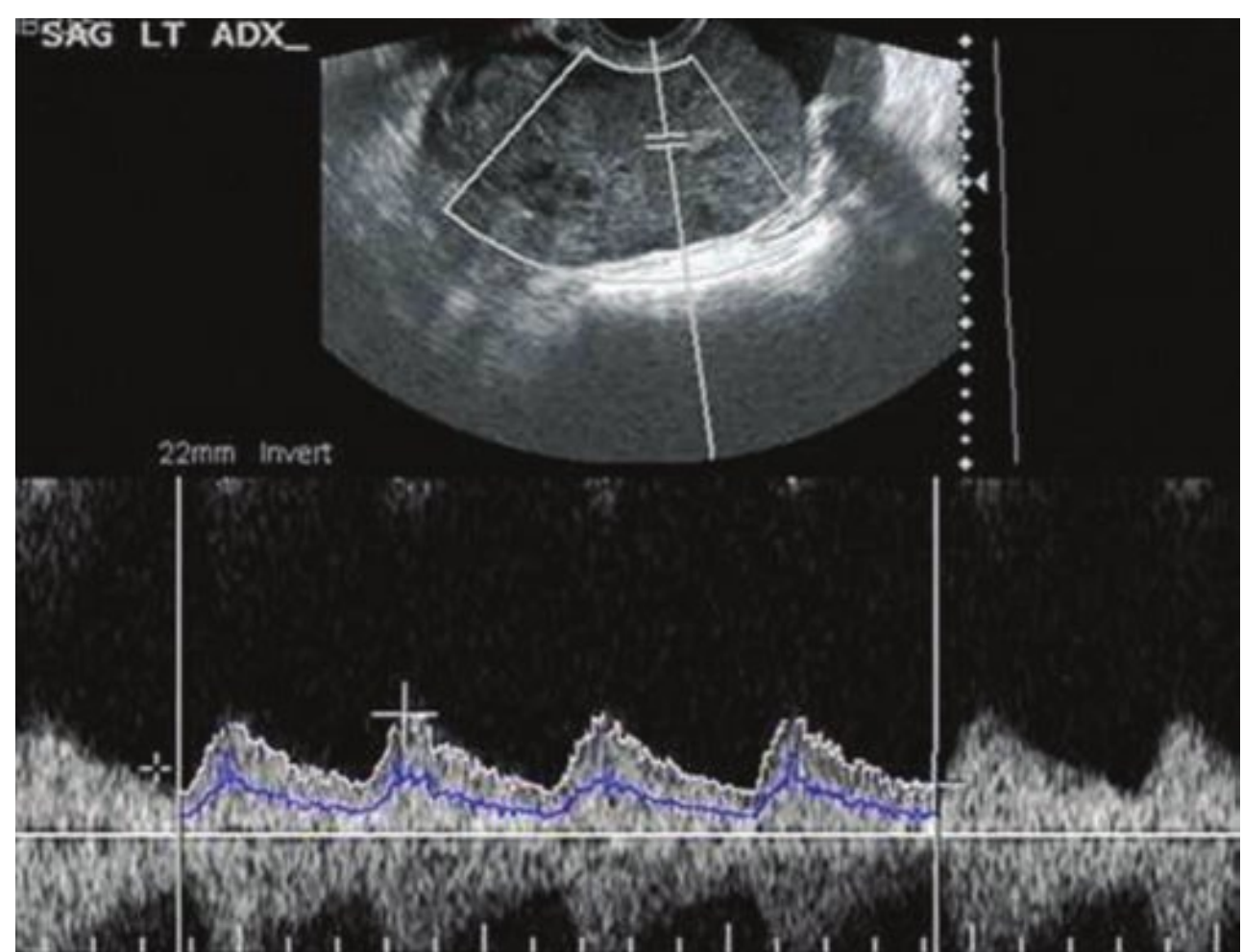
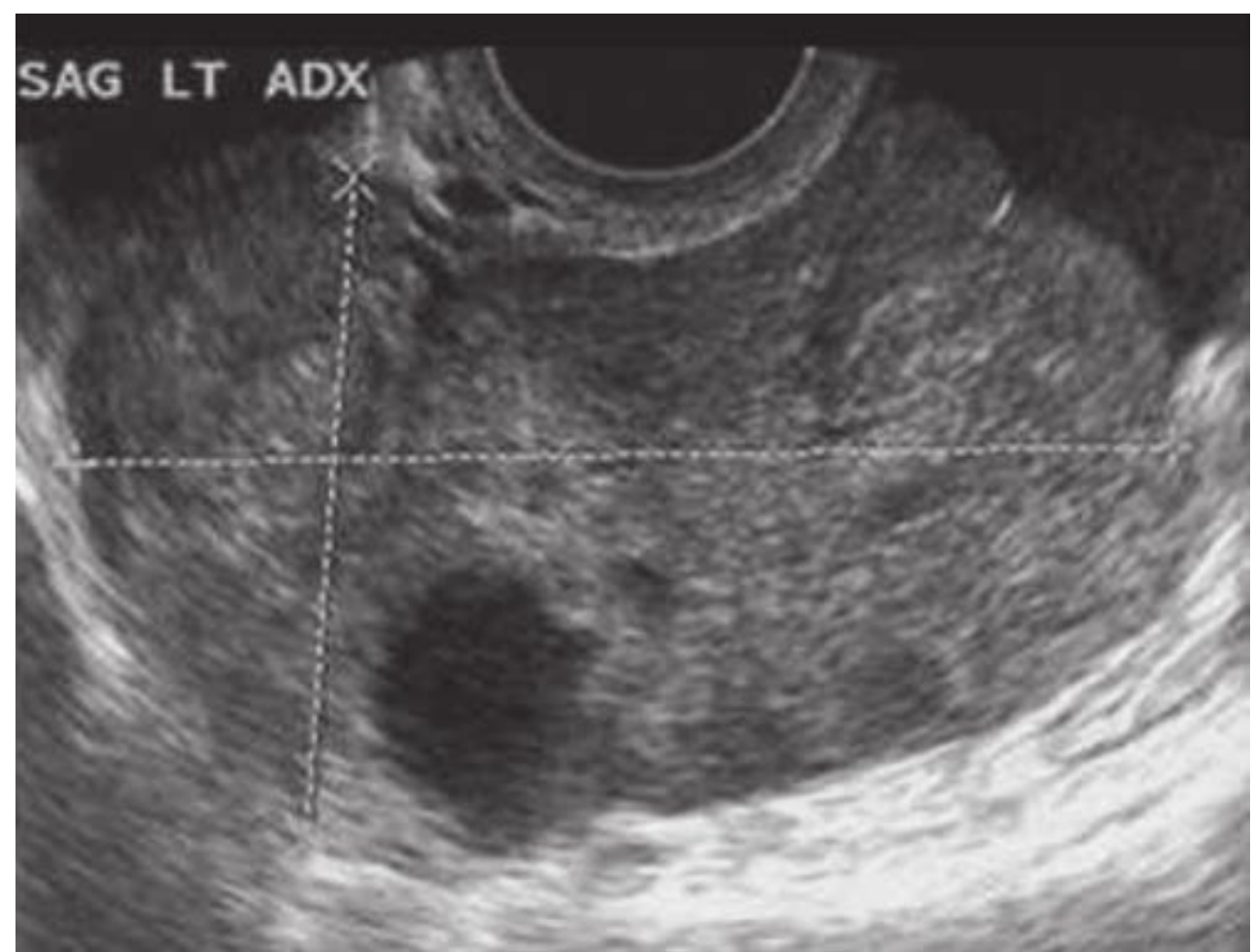


- a. Homunculus
- b. Struma ovarii
- c. Hydatid of Morgagni
- d. Rokitansky protuberance

9–38. Mature ovarian cystic teratomas account for approximately one in five ovarian neoplasms. Which of the following statements regarding this ovarian tumor is true?

- Mature cystic teratomas often undergo torsion, but cyst rupture is rare.
- Mature solid teratomas are malignant tumors that arise from the proliferation of multiple germ cell lines.
- Teratomas frequently cause immune-mediated encephalitis, a complication due to tumor-produced antibodies against N-methyl-D-aspartate receptors.
- Microscopically, endodermal elements predominant, creating a tumor that contains sebaceous and sweat glands, hair, and fatty secretions, which are responsible for their classic sonographic appearance.

9–39. A 29-year-old multipara with a last menstrual period 3 weeks ago presents to the Emergency Department with complaints of worsening right pelvic pain. She states that she had a sudden onset of sharp pain after bending over to pick up one of her children. She experienced intense nausea with the pain. The pain did not respond to acetaminophen and has intermittently worsened during the last several hours. No adnexal masses were detected during physical examination, but the patient was guarding. Transvaginal sonography demonstrates an 8-cm enlarged right ovary without a dominant mass or cyst, and there is no free fluid. High-impedance arterial flow of the ovary is noted during color Doppler interrogation. These findings are most consistent with which of the following clinical diagnoses?



- Appendicitis
- Ovarian torsion
- Hemorrhagic cyst
- Ruptured corpus luteum cyst

9–40. Which of the following management plans is most appropriate for the patient in Question 9–39?

- General surgery consultation
- Laparoscopy with adnexectomy
- Laparoscopy with detorsion of the ovary
- Close observation with serial examinations

- 9-41. Which of the following statements regarding the pathology depicted here is true?



- a. It can be associated with chronic pelvic pain.
- b. It is the result of chronic swelling of the fallopian tube.
- c. Women with this condition who undergo in vitro fertilization (IVF) have approximately half the pregnancy rate of other women undergoing IVF.
- d. All of the above

- 9-42. A 20-year-old nulligravida with a last menstrual period 5 days ago presents to the Emergency Department with generalized lower abdominal pain and fever. She reports a new sexual partner. Physical examination demonstrates guarding and bilateral adnexal fullness. Laboratory studies show leukocytosis, and transvaginal sonography reveals no visible ovaries but bilateral adnexal masses. One mass is shown here. The diagnosis most consistent with these findings is which of the following?



- a. Endometriosis
- b. Ovarian torsion
- c. Tubo-ovarian abscess
- d. Malignant ovarian neoplasm

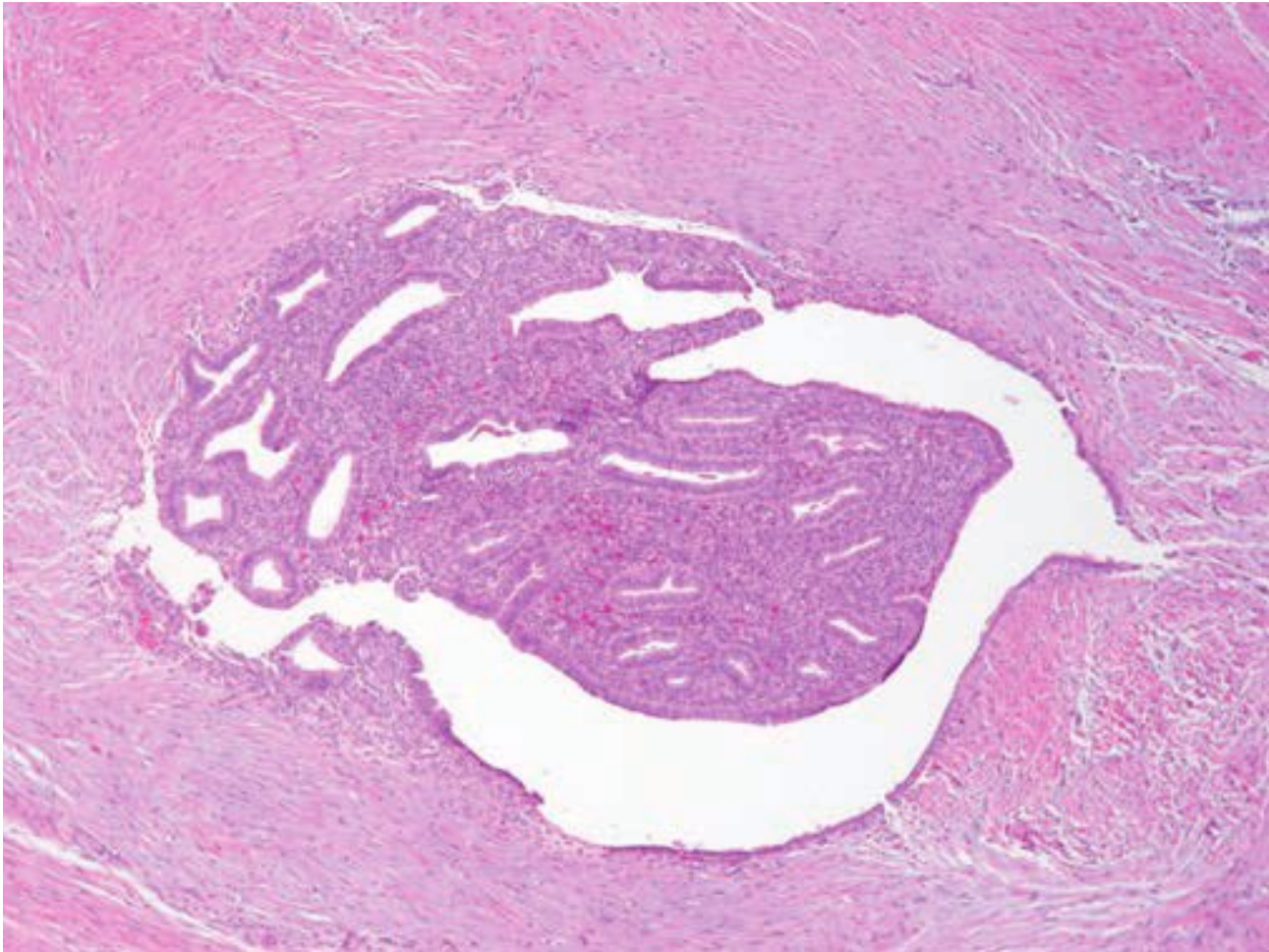
Chapter 9 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
9-1	b	p. 202	Demographic Factors	9-21	d	p. 209	Radiologic Interventions
9-2	c	p. 202	Pathology	9-22	d	p. 209	Radiologic Interventions
9-3	d	p. 203	Pathogenesis	9-23	b	p. 209	Radiologic Interventions
9-4	b	p. 203	Pathogenesis	9-24	b	p. 211	Myomectomy
9-5	c	p. 203	Pathogenesis	9-25	c	p. 212	Endometrial Ablation
9-6	a	p. 203	Pathogenesis	9-26	b	p. 212	Hematometra
9-7	b	p. 204	Uterine Leiomyoma Classification	9-27	d	p. 213	Pathophysiology
9-8	c	p. 204	Leiomyomatosis	9-28	d	p. 213	Diagnosis
9-9	a	p. 205	Symptoms	9-29	d	p. 213	Diagnosis
9-10	d	p. 205	Infertility and Pregnancy Wastage	9-30	a	p. 214	Management
9-11	b	p. 205	Other Clinical Manifestations	9-31	c	p. 214	Management
9-12	d	p. 206	Diagnosis	9-32	c	p. 213	Diagnosis
9-13	b	p. 206	Diagnosis	9-33	c	p. 216	Observation; Table 9-3
9-14	d	p. 207	Sex Steroid Hormones	9-34	a	p. 218	Table 9-4
9-15	d	p. 207	Sex Steroid Hormones	9-35	c	p. 218	Associated Factors
9-16	c	p. 208	GnRH Receptor Agents	9-36	d	p. 219	Theca Lutein Cysts
9-17	d	p. 208	GnRH Receptor Agents	9-37	d	p. 219	Ovarian Teratoma
9-18	c	p. 208	GnRH Receptor Agents	9-38	a	p. 219	Ovarian Teratoma
9-19	d	p. 210	Table 9-2	9-39	b	p. 222	Diagnosis
9-20	b	p. 209	Radiologic Interventions	9-40	c	p. 223	Management
				9-41	d	p. 224	Hydrosalpinx
				9-42	c	p. 225	Tubo-ovarian Abscess

CHAPTER 10

Endometriosis

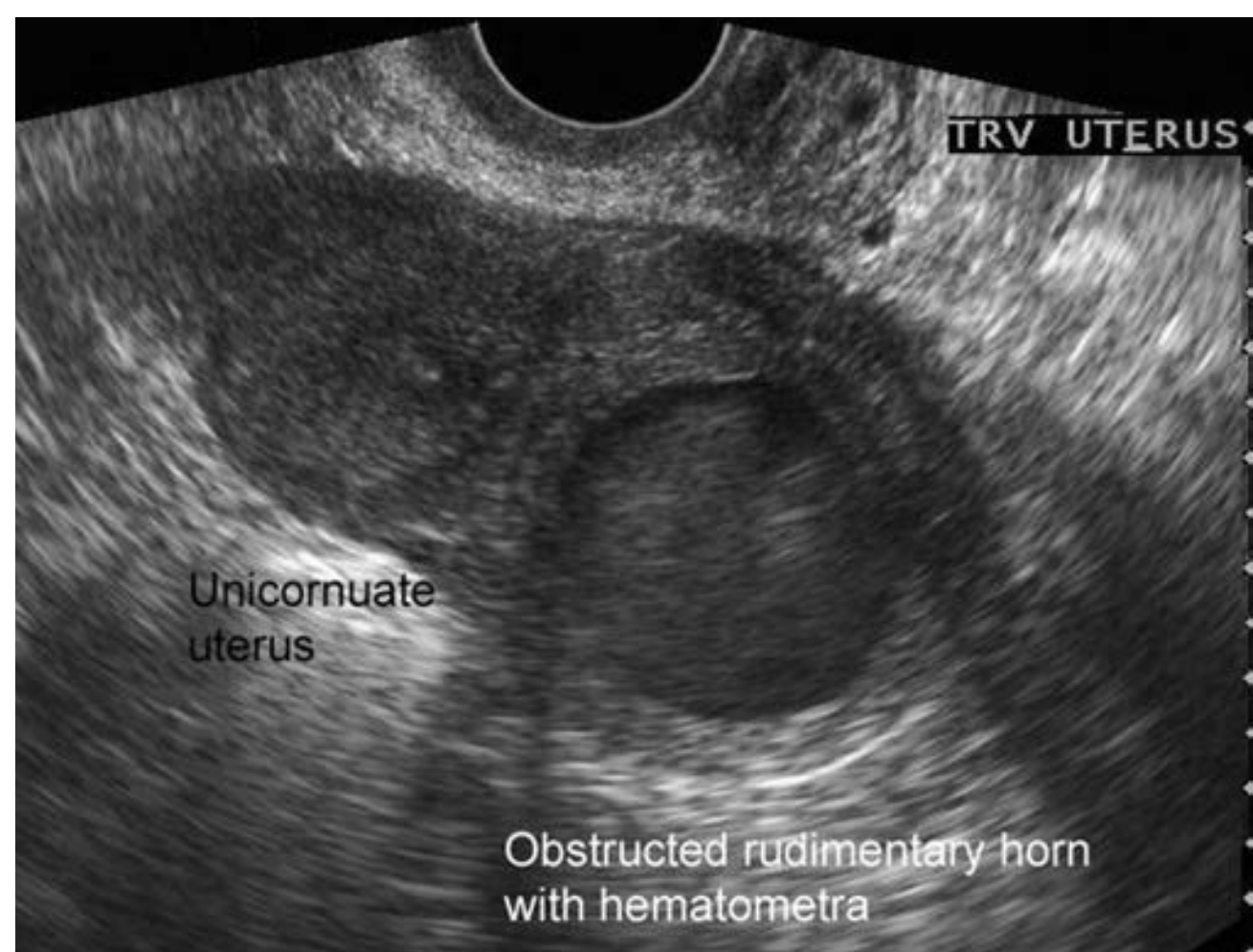
- 10–1.** As shown here, with endometriosis, which of the following is ectopically located?



Reproduced with permission from Hoffman BL. Endometriosis. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr Kelley Carrick.

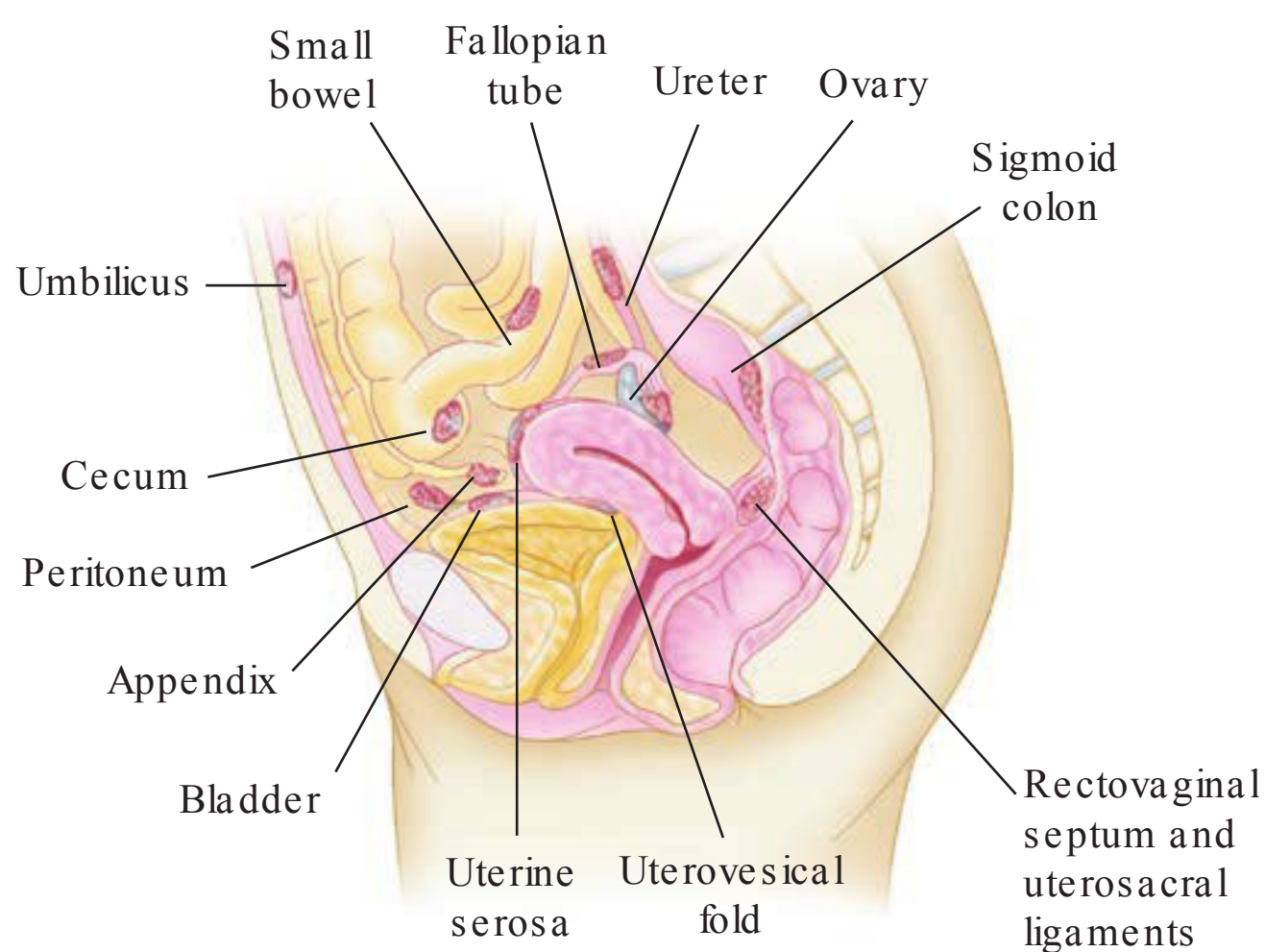
- a. Myometrial cells
 - b. Ectocervical cells
 - c. Endometrial glands and stroma
 - d. Endocervical glands and stroma
- 10–2.** Compared with the general population, the prevalence of endometriosis is higher in women with which of the following characteristics?
- a. Pelvic pain
 - b. Infertility
 - c. Affected family member
 - d. All of the above
- 10–3.** Which of the following is a more favored theory to explain the development of endometriosis?
- a. Lymphatic spread
 - b. Coelomic metaplasia
 - c. Retrograde menstruation
 - d. Abnormal differentiation of müllerian remnants

- 10–4.** A 19-year-old nulligravida presents with worsening dysmenorrhea and chronic pelvic pain during the last year. Transvaginal sonography is completed and shows a unicornuate uterus and an obstructed cavitory rudimentary horn, as shown here. Of other müllerian anomalies, which of the following is **LEAST** likely to pose a similar risk for endometriosis development?



- a. Imperforate hymen
- b. Bicornuate uterus
- c. Transverse vaginal septum
- d. Obstructed hemivagina ipsilateral renal agenesis (OHVIRA)

- 10-5.** Of the following locations, where is endometriosis **LEAST** likely to be found?



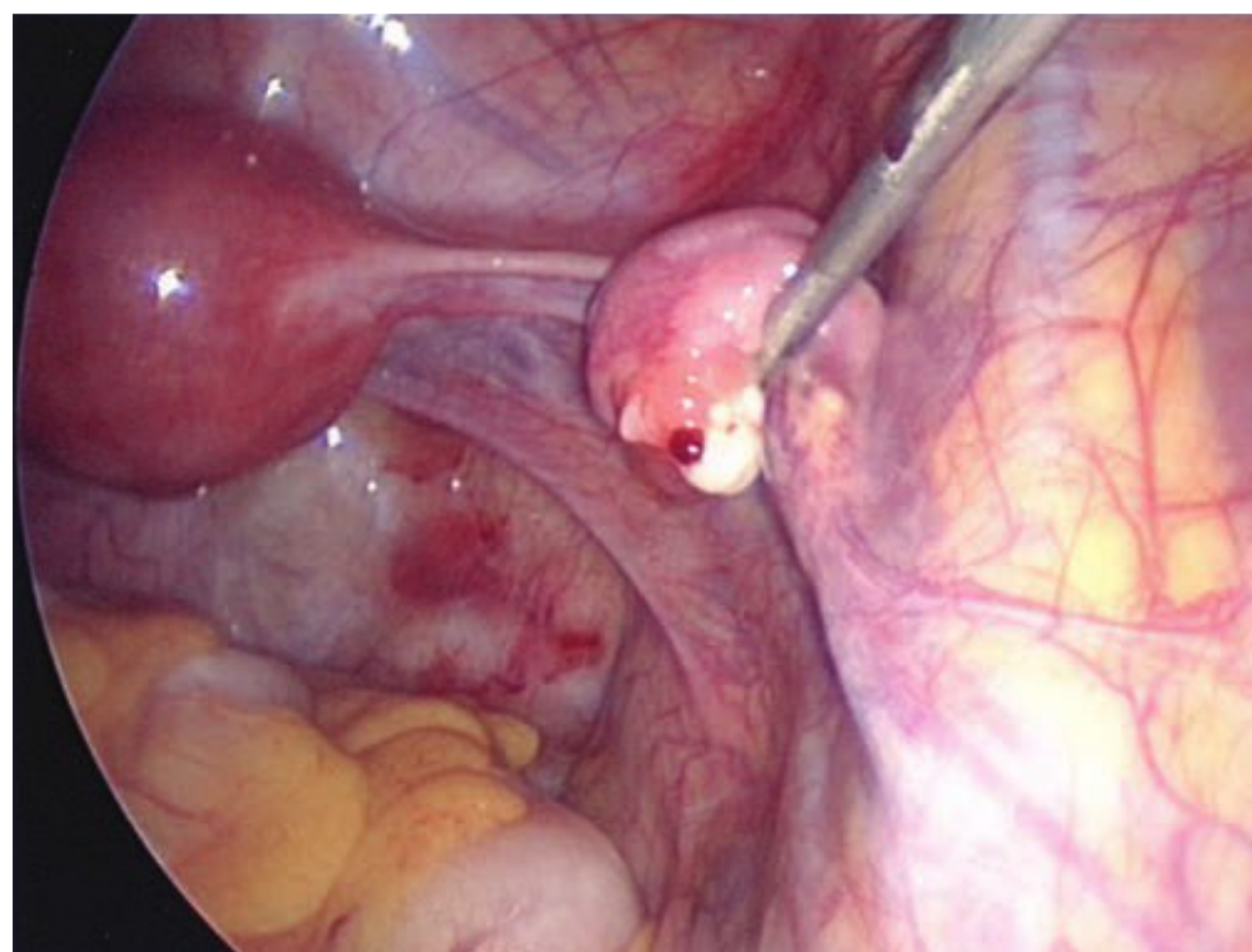
Reproduced with permission from Carr BR: Endometriosis. In Schorge JO, Schaffer JI, Halvorson LM, et al (eds): Williams Gynecology, 1st ed. New York, McGraw-Hill, 2008, Figure 10-3.

- a. Pleura
 - b. Ureter
 - c. Rectovaginal septum
 - d. Posterior-cul-de sac peritoneum
- 10-6.** Of the following locations, where is endometriosis **MOST** likely to be found?
- a. Pleura
 - b. Ureter
 - c. Rectovaginal septum
 - d. Posterior-cul-de sac peritoneum
- 10-7.** An enzyme important in creating a unique estrogenic environment within endometriotic implants includes which of the following?
- a. Aromatase
 - b. 17 α -hydroxylase
 - c. 11 β -hydroxylase
 - d. 17 β -hydroxysteroid dehydrogenase type 2
- 10-8.** Which of the following is a potent inducer of aromatase and is thought to create a feed-forward loop to potentiate the estrogenic environment of endometriotic implants?
- a. Prostaglandin E₂
 - b. Matrix metalloproteinase 3
 - c. Cyclooxygenase type 2 inhibitor
 - d. 17 β -hydroxysteroid dehydrogenase type 2

- 10-9.** Which of the following is the focus of the classification system developed by the American Society for Reproductive Medicine?

- a. Pelvic pain severity
- b. Degree of infertility
- c. Anatomic extent of endometriosis
- d. All of the above

- 10-10.** At the time of laparoscopy, this patient was noted to have endometriotic surface lesions limited to the locations shown here. According to the American Society for Reproductive Medicine classification, which of the following stages is assigned?



Used with permission from Dr Karen Bradshaw.

- a. Stage I
- b. Stage II
- c. Stage III
- d. Stage IV

- 10–11.** At the time of laparoscopy, your patient was noted to only have bilateral adnexal cysts. Incision of one of the surgical specimens is seen here. Prior to laparoscopy, the ovarian cysts were measured by sonography and found to be 4 cm on the right and 7 cm on the left. According to the American Society for Reproductive Medicine classification, this degree of endometriosis would be assigned which stage?



Reproduced with permission from Hoffman BL. Endometriosis. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr Roxanne Pero.

- a. Stage I
 - b. Stage II
 - c. Stage III
 - d. Stage IV
- 10–12.** Of the following, which is the more likely complaint from a woman with endometriosis?
- a. Dysuria
 - b. Dyschezia
 - c. Dyspareunia
 - d. Anterior abdominal wall pain
- 10–13.** When evaluating a woman with endometriosis, which of the following gynecologic conditions may appropriately be considered in the differential diagnosis?
- a. Adenomyosis
 - b. Interstitial cystitis
 - c. Chronic tubo-ovarian abscess
 - d. All of the above
- 10–14.** Which of the following is the most likely etiology for infertility in a woman with endometriosis?
- a. Tubal obstruction
 - b. Implantation defect
 - c. Ovulatory dysfunction
 - d. Poor embryo development

- 10–15.** Of deep infiltrating lesions involving the bowel, which of the following sites is more commonly affected?
- a. Cecum
 - b. Appendix
 - c. Small bowel
 - d. Rectosigmoid colon

- 10–16.** A 24-year-old woman with endometriosis diagnosed laparoscopically during late adolescence complains of worsening dysmenorrhea, dyspareunia, dysuria, and urinary urgency. Each of several urinalyses and urine cultures has been negative for infection. Which of the following would be the **LEAST** suitable to further evaluate this patient?
- a. Cystoscopy
 - b. Computed tomography
 - c. Transvaginal sonography
 - d. Magnetic resonance imaging

- 10–17.** A 35-year-old woman presents with a large, firm, fixed mass shown here along a prior Pfannenstiel incision. It has become more painful and tender during menses. Which of the following is **NOT** true regarding the typical management of such abdominal wall masses?



Used with permission from Dr David Rogers.

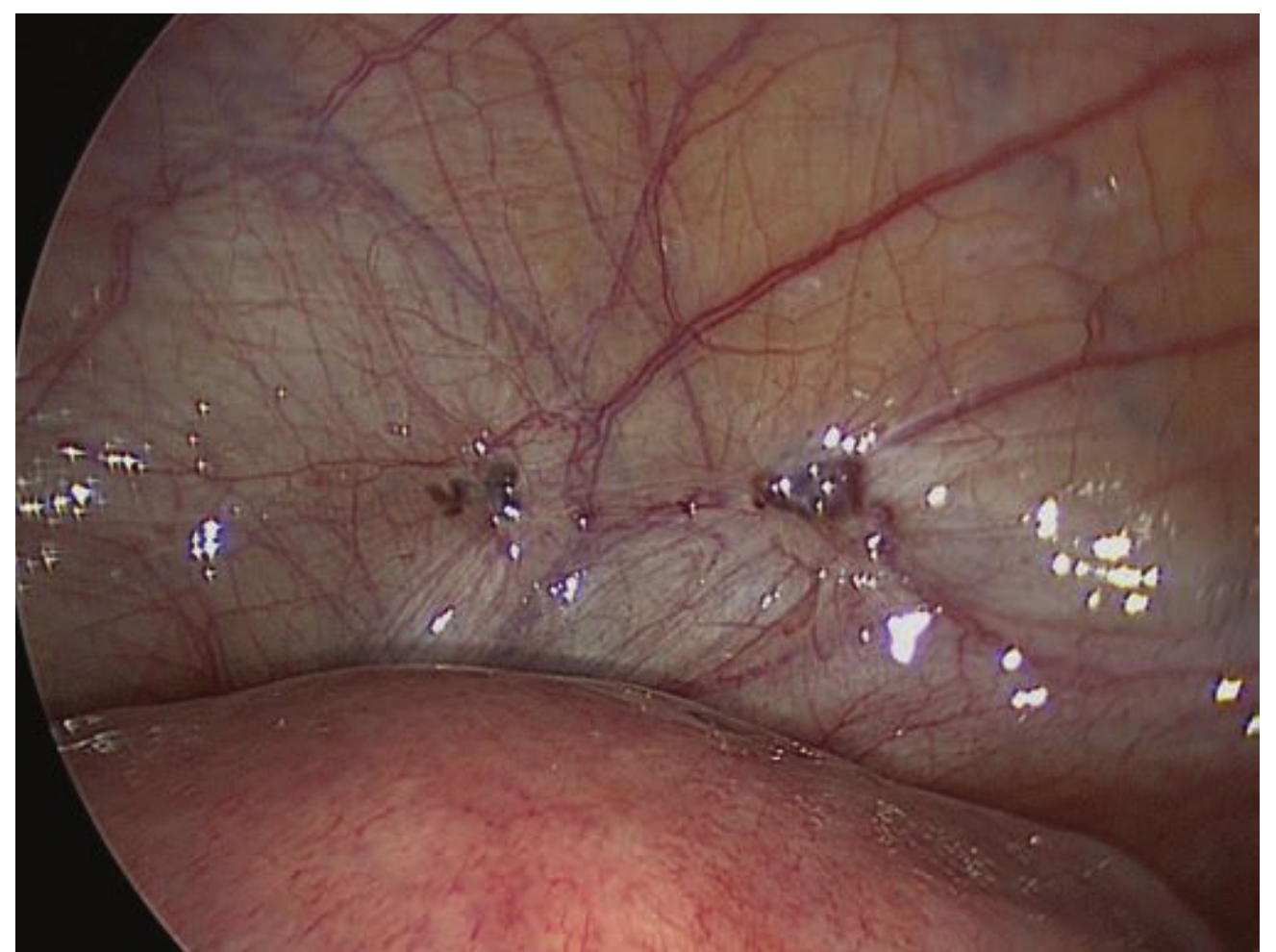
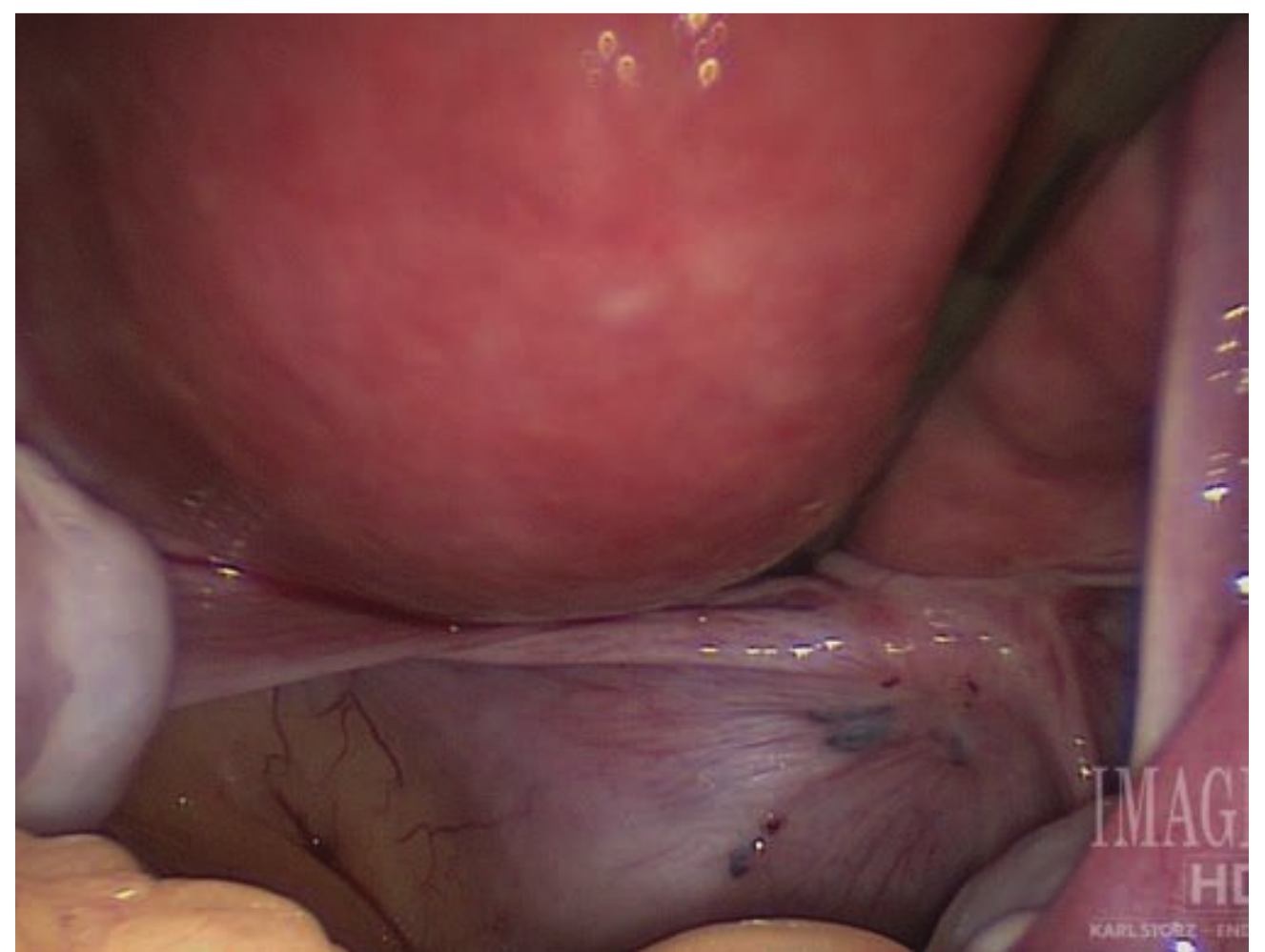
- a. Mesh may be needed to close a large fascial defect.
- b. Excision is offered to provide a diagnosis and symptom relief.
- c. Such masses are typically managed conservatively with hormonal suppression.
- d. Computed tomography can delineate involvement of the mass with the anterior rectus sheath or with the rectus abdominis muscle.

- 10–18.** Which of the following manifestations is **LEAST** likely to be encountered during the physical examination of a patient with endometriosis?
- Fixed, immobile uterus during bimanual examination
 - Uterosacral ligament nodularity during bimanual examination
 - Exophytic, fungating cervical lesion during speculum examination
 - Single, firm nodule palpated at a point along the length of a prior Pfannenstiel incision
- 10–19.** Which of the following is true regarding laboratory testing during evaluation of suspected endometriosis?
- It should rarely be performed.
 - It identifies most cases of endometriosis.
 - It is used mainly to exclude other conditions.
 - Of tests, elevated cancer antigen 125 (CA125) levels are pathognomonic for endometriosis.
- 10–20.** Sonographically, endometriomas are typically described by which of the following?
- Solid with intracystic blood flow
 - Solid with diffuse internal low-level echoes
 - Cystic with focal hyperechoic internal echoes
 - Cystic with diffuse internal low-level echoes
- 10–21.** As demonstrated in the pelvic sonogram here, endometriomas often have an appearance similar to which of the following?



- Tubo-ovarian abscess
- Pedunculated leiomyoma
- Mature cystic teratoma
- Hemorrhagic corpus luteum cyst

- 10–22.** Which of the following peritoneal implant colorings most commonly correlates with histologic findings of endometriosis?
- Red
 - Blue
 - Black
 - Clear
- 10–23.** A 22-year-old nulligravida undergoes diagnostic laparoscopy for dysmenorrhea and chronic pelvic pain. The extent of her endometriosis is shown here, and these lesions are ablated. She desires future fertility but is not currently seeking conception. Which of the following is the most appropriate postoperative treatment?



Used with permission from Dr David Rogers.

- Androgens
- Aromatase inhibitors
- Combination oral contraceptives
- Gonadotropin-releasing hormone antagonist

- 10–24.** Which of the following combination oral contraceptive formulations is most effective for endometriosis management?
- Monophasic
 - Multiphasic
 - Low dose (20 µg ethinyl estradiol)
 - All are equally effective.
- 10–25.** Which of the following progestins is a suitable option to treat a woman recently diagnosed with stage I endometriosis who has associated pain but is not currently seeking conception?
- Norethindrone acetate
 - Depot medroxyprogesterone acetate
 - Levonorgestrel-releasing intrauterine system
 - All are suitable options.
- 10–26.** Which of the following is a suitable gonadotropin-releasing hormone agonist choice for treatment of endometriosis?
- Leuprolide acetate as a 11.25-mg, 3-month intramuscular injection
 - Nafarelin as a 200-mg twice daily nasal spray
 - Goserelin as a 10.8-mg, 3-month subcutaneous implant
 - All of the above
- 10–27.** A 25-year-old nulligravida with stage II endometriosis refractory to initial medical options is now pain free after administration of a gonadotropin-releasing hormone agonist 1 month ago. However, she now complains of poor sleep due to vasomotor symptoms, decreased libido, and dyspareunia secondary to vaginal dryness. Which of the following agents taken orally daily might be **LEAST** effective for this patient?
- Fluoxetine
 - Norethindrone
 - Norethindrone plus conjugated equine estrogen
 - Medroxyprogesterone acetate plus transdermal estradiol
- 10–28.** Which of the following are suitable times to begin add-back therapy during the course of gonadotropin-releasing hormone agonist treatment?
- At 1 month
 - At 6 months
 - At initiation of therapy
 - Each one is suitable
- 10–29.** All of the following are side effects of aromatase inhibitors **EXCEPT**:
- Hyperglycemia
 - Vaginal atrophy
 - Vasomotor symptoms
 - Ovarian cyst formation
- 10–30.** All of the following are side effects of danazol **EXCEPT**:
- Hirsutism
 - Voice deepening
 - Breast hypertrophy
 - Vasomotor symptoms
- 10–31.** Stage I endometriosis is found at the time of diagnostic laparoscopy. Which of the following surgical treatments of endometriotic implants is suitable to achieve symptom relief?
- Excision
 - Laser ablation
 - Electrosurgical ablation
 - All are suitable.
- 10–32.** With deeply infiltrating endometriosis, which of the following surgical approaches may most likely benefit the patient?
- Laser ablation
 - Radical excision
 - Bipolar electrosurgical ablation
 - Monopolar electrosurgical ablation
- 10–33.** For surgical treatment of endometriomas, which of the following approaches is superior in lowering endometrioma recurrence rates?
- Drainage
 - Cystectomy
 - Cyst wall ablation
 - None is superior.
- 10–34.** Which of the following statements is true regarding presacral neurectomy?
- It effectively treats lateral adnexal pain.
 - It is a procedure that excises the uterosacral ligaments.
 - Postoperative side effects may include constipation and voiding dysfunction.
 - It should be recommended to most women with endometriosis undergoing surgery.

- 10–35.** A 35-year-old woman is scheduled to undergo laparoscopic hysterectomy for endometriosis refractory to multiple medical management regimens. Which of the following is a correct counseling point regarding concurrent bilateral salpingo-oophorectomy (BSO)?
- a.** Choosing BSO eliminates recurrent pain.
 - b.** Choosing BSO eliminates reoperation rates.
 - c.** Ovaries should routinely be removed during hysterectomy for endometriosis.
 - d.** Her ovaries may be retained if normal appearing and if her anticipated hypoestrogenic effects outweigh persistent pain and reoperation risks.
- 10–36.** Which of the following is a concern with the use of estrogen replacement therapy following bilateral salpingo-oophorectomy for endometriosis?
- a.** Recurrence of endometriotic lesions
 - b.** Persistence of endometriotic lesions
 - c.** Cancer development within endometriotic lesions
 - d.** All of the above

Chapter 10 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
10-1	c	p. 230	Endometriosis	10-20	d	p. 236	Diagnostic Imaging
10-2	d	p. 230	Incidence; Genetics	10-21	d	p. 236	Diagnostic Imaging
10-3	c	p. 230	Pathogenesis	10-22	a	p. 237	Diagnostic Laparoscopy
10-4	b	p. 230	Pathogenesis	10-23	c	p. 237	Treatment
10-5	a	p. 231	Anatomic Sites	10-24	d	p. 239	Combination Oral Contraceptives
10-6	d	p. 231	Anatomic Sites	10-25	d	p. 239	Progestins
10-7	a	p. 231	Estrogen and Progesterone	10-26	d	p. 240	GnRH Agonists
10-8	a	p. 232	Inflammation	10-27	a	p. 240	Add-Back Therapy
10-9	c	p. 233	Classification System	10-28	d	p. 240	Add-Back Therapy
10-10	a	p. 233	Classification System	10-29	a	p. 241	Aromatase Inhibitors
10-11	c	p. 233	Classification System	10-30	c	p. 241	Androgens
10-12	c	p. 233	Symptoms	10-31	d	p. 242	Lesion Removal and Adhesiolysis
10-13	d	p. 233	Pain	10-32	b	p. 242	Lesion Removal and Adhesiolysis
10-14	a	p. 234	Infertility	10-33	b	p. 242	Endometrioma Resection
10-15	d	p. 234	Rectosigmoid Lesions	10-34	c	p. 242	Presacral Neurectomy
10-16	b	p. 235	Urinary Tract Lesions	10-35	d	p. 243	Oophorectomy
10-17	c	p. 235	Anterior Abdominal Wall	10-36	d	p. 243	Postoperative Hormone Replacement
10-18	c	p. 236	Physical Examination				
10-19	c	p. 236	Laboratory Testing				

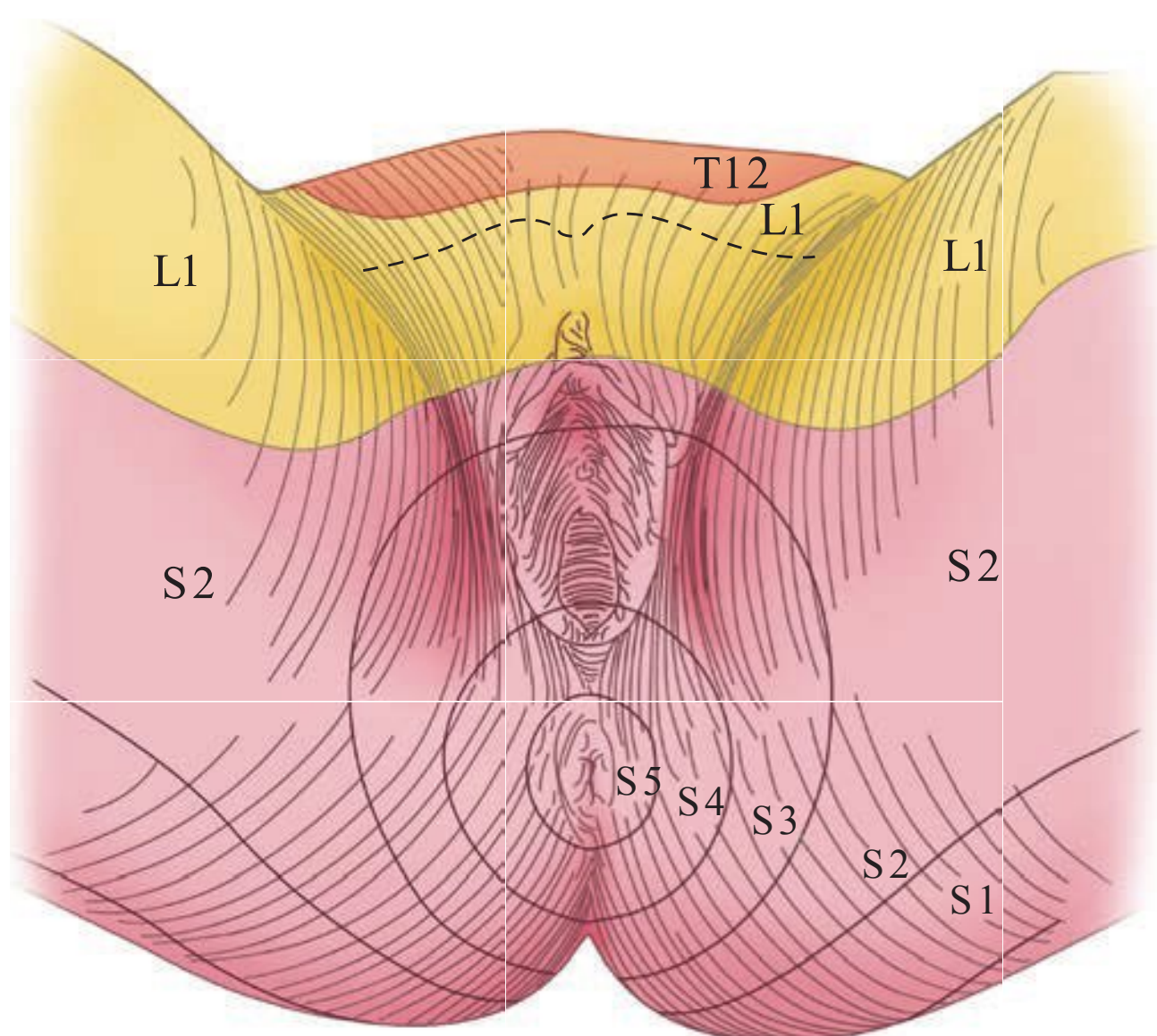
CHAPTER 11

Pelvic Pain

11-1. Pain may be categorized as visceral or somatic depending upon the type of afferent nerve fibers involved. Which of the following structures derive pain from nerve afferents of the somatic nervous system?

- a. Muscle
- b. Parietal peritoneum
- c. Subcutaneous tissue and skin
- d. All of the above

11-2. The illustration below is a dermatome map that describes which of the following?



Adapted with permission from Steege JF, Metzger DA, Levy BS (eds): Chronic Pelvic Pain: an Integrated Approach, Philadelphia: WB Saunders, 1998.

- a. Central sensitization
- b. Peripheral sensitization
- c. Viscerosomatic convergence
- d. Areas of skin supplied by single spinal nerves

11-3. Afferent nerve fibers of the autonomic nervous system transmit information from the viscera and visceral peritoneum. Visceral pain is characterized as which of the following?

- a. Sharp
- b. Stabbing
- c. Localized
- d. Generalized, dull ache

11-4. Peripheral somatic and visceral nerves often synapse in the spinal cord at the same dorsal horn neurons. These neurons, in turn, relay sensory information to the brain. The cerebral cortex recognizes the signal as coming from the same dermatome regardless of its visceral or somatic nerve origin. This leads to difficulty distinguishing internal organ pain from abdominal wall or pelvic floor pain. What is this phenomenon termed?

- a. Relay delay
- b. Cortex blend
- c. Dermatome scatter
- d. Viscerosomatic convergence

11-5. If tissues are injured, inflammation usually follows with vasodilation and increased capillary permeability. Chemical mediators of this process are prostaglandins and cytokines. Cytokines include which of the following?

- a. Interferons
- b. Interleukins
- c. Tissue necrosis factors
- d. All of the above

11-6. Sustained noxious stimuli can lead to persistent central sensitization and a permanent loss of neuronal inhibition. As a result, a decreased threshold to painful stimuli remains despite resolution of the inciting stimulus. This persistence characterizes which type of pain?

- a. Acute
- b. Neuropathic
- c. Inflammatory
- d. All of the above

11-7. Acute lower abdominal pain and acute pelvic pain are common patient complaints. Acute pain is generally defined as lasting what duration?

- a. 8 hours or less
- b. Less than 7 days
- c. Up to 6 consecutive months
- d. Up to 3 consecutive months or less

- 11–8.** There are many etiologies of acute lower abdominal and acute pelvic pain. Common etiologies of right lower quadrant pain include all of the following **EXCEPT**:
- Hepatitis
 - Urolithiasis
 - Ovarian torsion
 - Ectopic pregnancy
- 11–9.** In addition to a thorough medical and surgical history, a detailed description of pain and its associated factors is essential. As an example, pain without diarrhea, constipation, or rectal bleeding lowers the probability of which of the following sources?
- Urinary
 - Neurologic
 - Psychosomatic
 - Gastrointestinal
- 11–10.** A 23-year-old G2P2 sexually inactive, afebrile woman complains of the abrupt onset of severe left lower pelvic pain with acute vomiting during a yoga class. Physical examination reveals a tender left lower abdomen with palpable adnexal fullness. Her pregnancy test is negative. Which diagnosis is most likely?
- Diverticulosis
 - Pyelonephritis
 - Ovarian torsion
 - Chronic ectopic pregnancy
- 11–11.** The initial evaluation of pain includes the assessment of vital signs. If intravascular hypovolemia is suspected, pulse and blood pressure assessment for orthostatic changes is indicated. Between lying and assisted standing, after 1 minute, which of the following values best reflects hypovolemia?
- A pulse decline of 15 beats per minute and a systolic blood pressure decline of 10 mm Hg
 - A pulse increase of 15 beats per minute and an unchanged systolic blood pressure
 - A pulse increase of 30 beats per minute and a systolic blood pressure decline of 20 mm Hg
 - An unchanged pulse and a systolic blood pressure decline of 10 mm Hg
- 11–12.** A 26-year-old sexually active woman with a past history of gonorrhea complains of severe abdominal pain. The findings of rebound tenderness and involuntary guarding during physical examination most strongly indicate which of the following?
- Psychosomatic pain
 - Severe endometriosis
 - Peritoneal irritation
 - Ovarian cancer with peritoneal seeding
- 11–13.** Which of the following are common causes of uterine enlargement noted during pelvic examination?
- Pregnancy, uterine leiomyomas, and adenomyosis
 - Pregnancy, uterine leiomyomas, and cervical dysplasia
 - Pregnancy, uterine leiomyomas, and endometrial hyperplasia
 - None of the above
- 11–14.** Cervical motion tenderness is associated with peritoneal irritation and is commonly found with which of the following nongynecologic disorders?
- Appendicitis
 - Pancreatitis
 - Liver disease
 - Pyelonephritis
- 11–15.** Less common causes of acute pain amenable to sonographic diagnosis are perforation of the uterine wall by an intrauterine device (IUD) or hematometra due to obstruction from müllerian anomalies. For these, which sonography method is particularly informative?
- Transabdominal sonography
 - Standard transvaginal sonography
 - Three-dimensional transvaginal sonography
 - Transvaginal sonography with applied color Doppler
- 11–16.** Computed tomography (CT) and multidetector computed tomography (MDCT) are increasingly used to evaluate acute abdominal pain in adults. The increased use appears to decrease the false-positive rate of what diagnosis most dramatically?
- Appendicitis
 - Diverticulitis
 - Ectopic pregnancy
 - Ureteral obstruction
- 11–17.** For evaluating most acute pelvic disorders, magnetic resonance (MR) imaging offers little advantage than three-dimensional sonography or computed tomography. However, MR imaging is an important tool for evaluating women with acute pelvic pain when initial sonography is nondiagnostic. MR imaging is also favored for pelvic imaging in which of these groups due to its lack of ionizing radiation?
- Pregnant patients
 - Claustrophobic patients
 - Patients with good health insurance
 - Family history of premature ovarian failure

11–18. Chronic pelvic pain (CPP) is a common gynecologic problem. Which of the following estimated percentages represents CPP prevalence in reproductive-aged women?

- a. 0.15 percent
- b. 3 percent
- c. 15 percent
- d. 30 percent

11–19. Although no definition is universally accepted, chronic pelvic pain is often defined as which of the following?

- a. Noncyclic pain that persists for 6 or more months
- b. Pain sufficiently severe to cause functional disability or lead to medical intervention
- c. Pain that localizes to the anatomic pelvis, to the anterior abdominal wall at or below the umbilicus, or to the lumbosacral back or buttocks
- d. All of the above

11–20. Although causes of chronic pelvic pain fall within a broad spectrum, which of the following is commonly diagnosed?

- a. Endometriosis
- b. Interstitial cystitis
- c. Irritable bowel syndrome
- d. All of the above

11–21. A 24-year-old diabetic woman undergoes a cesarean delivery of a healthy macrosomic baby girl. In the 2 years following delivery, the patient develops cyclic pain and swelling near her cesarean incision scar. This suggests which of the following?

- a. Vulvodynia
- b. Endometriosis
- c. Pelvic adhesions
- d. Uterine leiomyomas

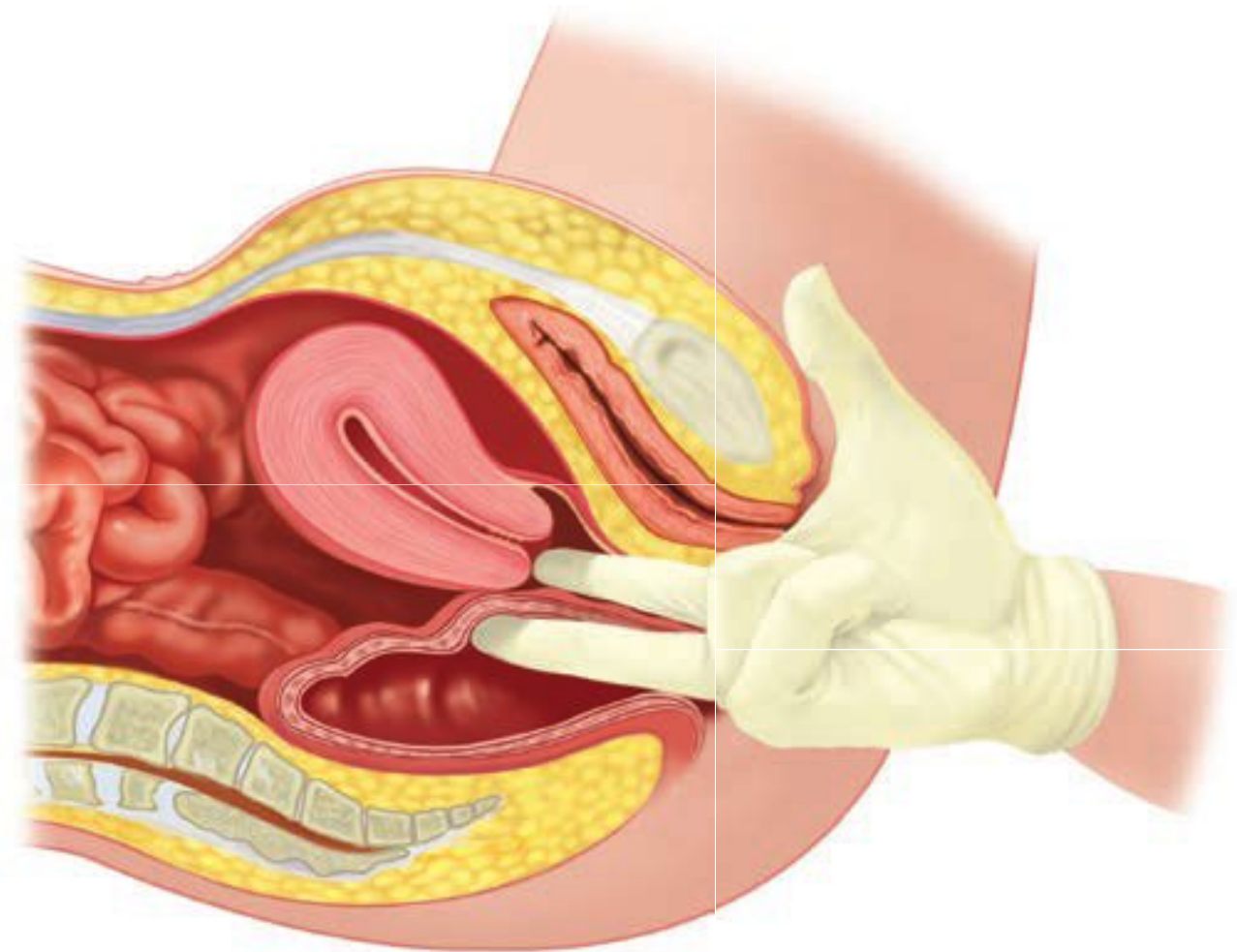
11–22. A detailed history and physical examination are integral to diagnosing the etiology of chronic pelvic pain. A historical survey generally includes all of the following questions **EXCEPT**:

- a. Do you believe you are imagining this pain?
- b. What do you believe or fear is the cause of your pain?
- c. Are you taking any prescription or non-prescription drugs?
- d. Are you now or have you been physically, sexually, or emotionally abused?

11–23. Abdominal pain elicited with elevation of the head and shoulders while tensing the abdominal wall muscles is typical of anterior abdominal wall pathology and is termed which of the following?

- a. Carnett sign
- b. Iliopsoas test
- c. Straight leg test
- d. Trendelenburg test

11–24. During the physical examination for chronic pelvic pain, the examination technique shown here should be included. During this examination, nodularity of the uterosacral ligaments is most commonly palpable with which of the following conditions?



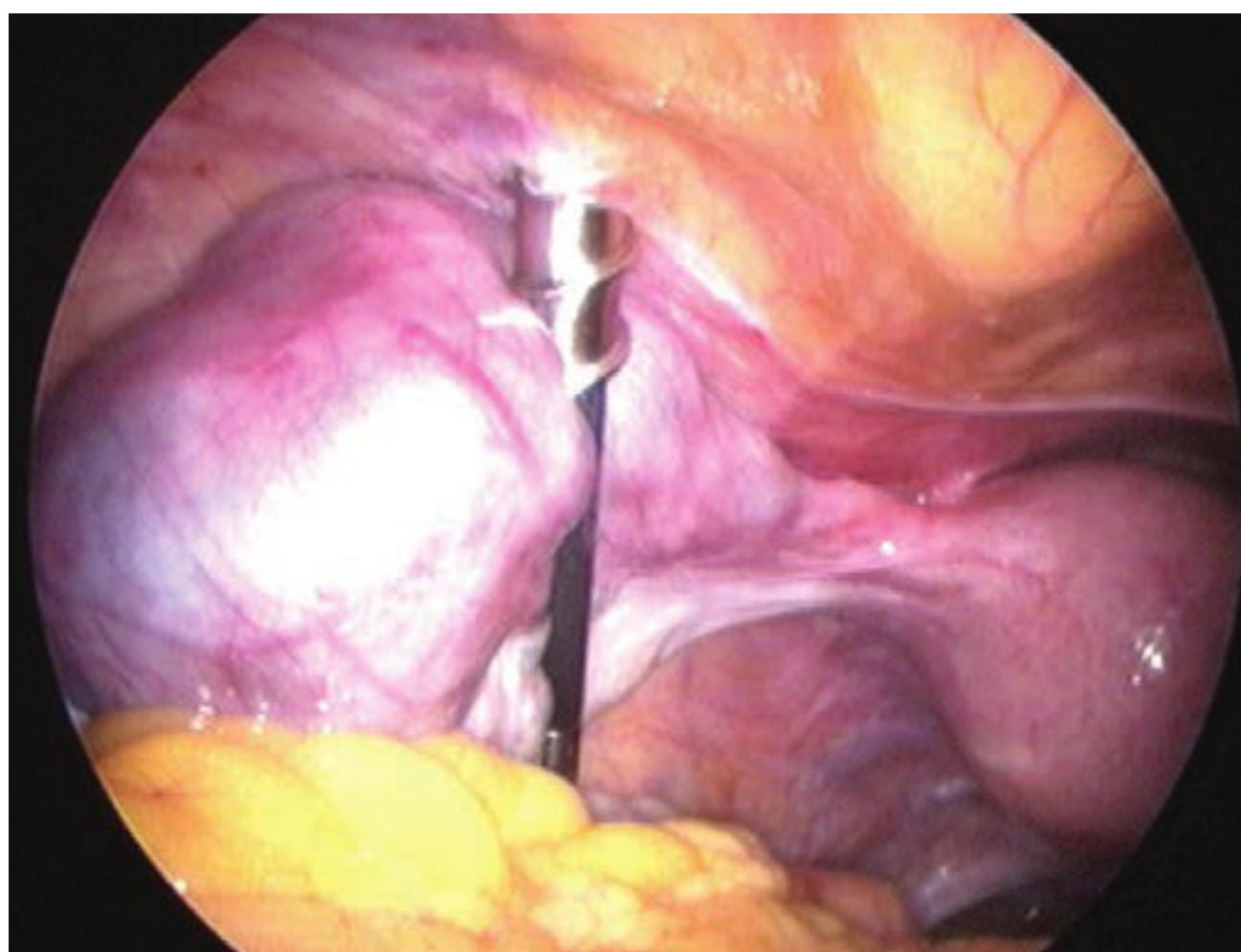
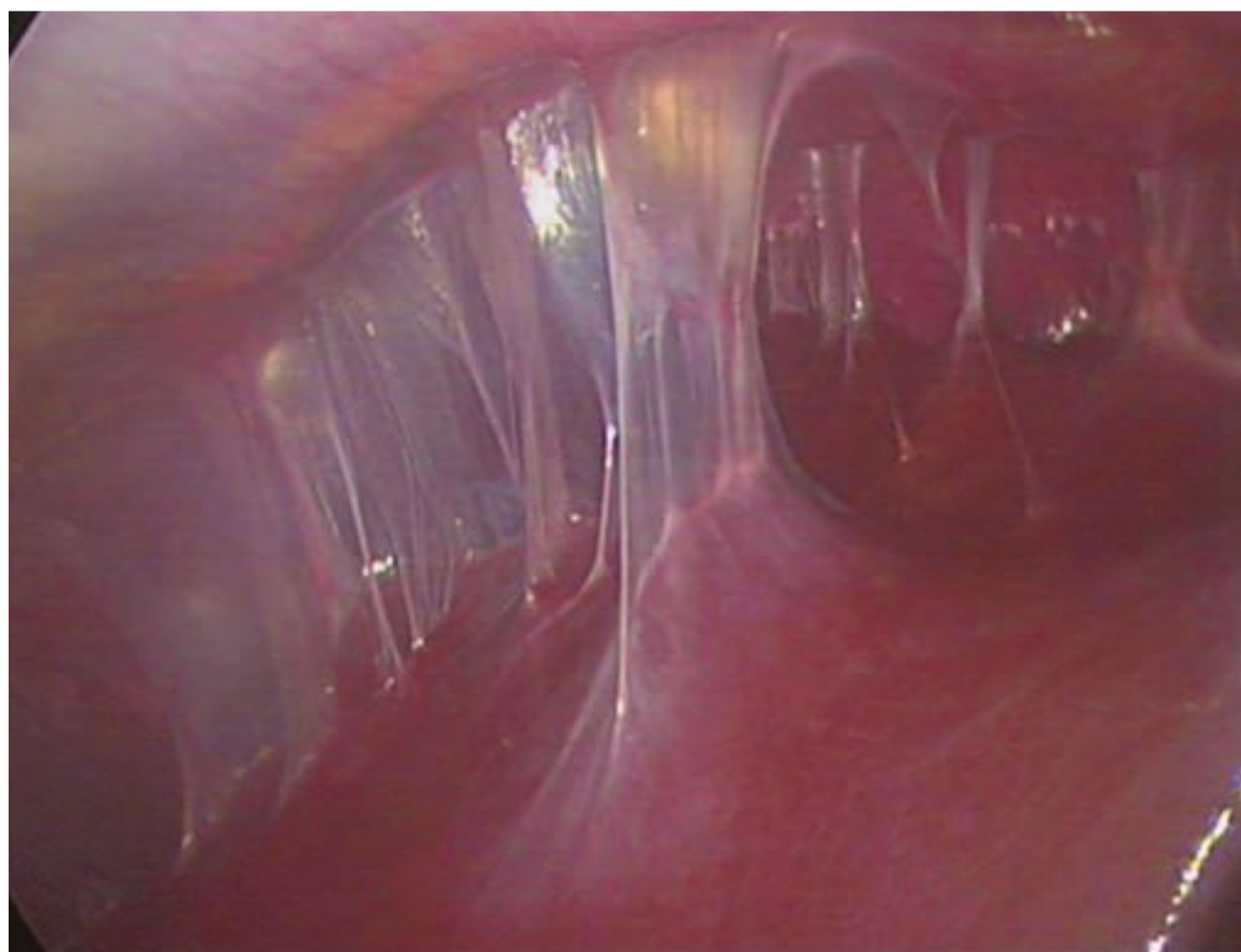
Reproduced with permission from Pearson MJ, Hoffman BL: Well woman care. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 1-9.

- a. Leiomyomas
- b. Endometriosis
- c. Pelvic inflammatory disease
- d. Acute or chronic ectopic pregnancy

11–25. In patients with combined urinary and chronic pelvic pain symptoms, which of the following tests is typically advised?

- a. Cystoscopy
- b. Cystometrics
- c. Retrograde cystourethrography
- d. Abdominopelvic computed tomography

11–26. During laparoscopy for chronic pelvic pain, these findings in the right upper quadrant and pelvis are most consistent with which of the following?



Used with permission from Dr. Kimberly Kho and Dr. Kevin Doody, respectively.

- a. Endometriosis
- b. Chronic appendicitis
- c. Pelvic inflammatory disease
- d. Salpingitis isthmica nodosa

11–27. In patients for whom specific pathology is not identified, medical management of chronic pelvic pain can be directed toward alleviation of dominant symptoms. This may involve the use of which of the following?

- a. Hormonal suppression
- b. Antidepressants and anticonvulsants
- c. Analgesics such as nonsteroidal antiinflammatory drugs
- d. All of the above

11–28. Acetaminophen is a widely used and effective analgesic despite having no significant antiinflammatory properties. Current dosing recommendations limit the maximum total daily acetaminophen dose to which of the following?

- a. 2 grams
- b. 3 grams
- c. 4 grams
- d. 5 grams

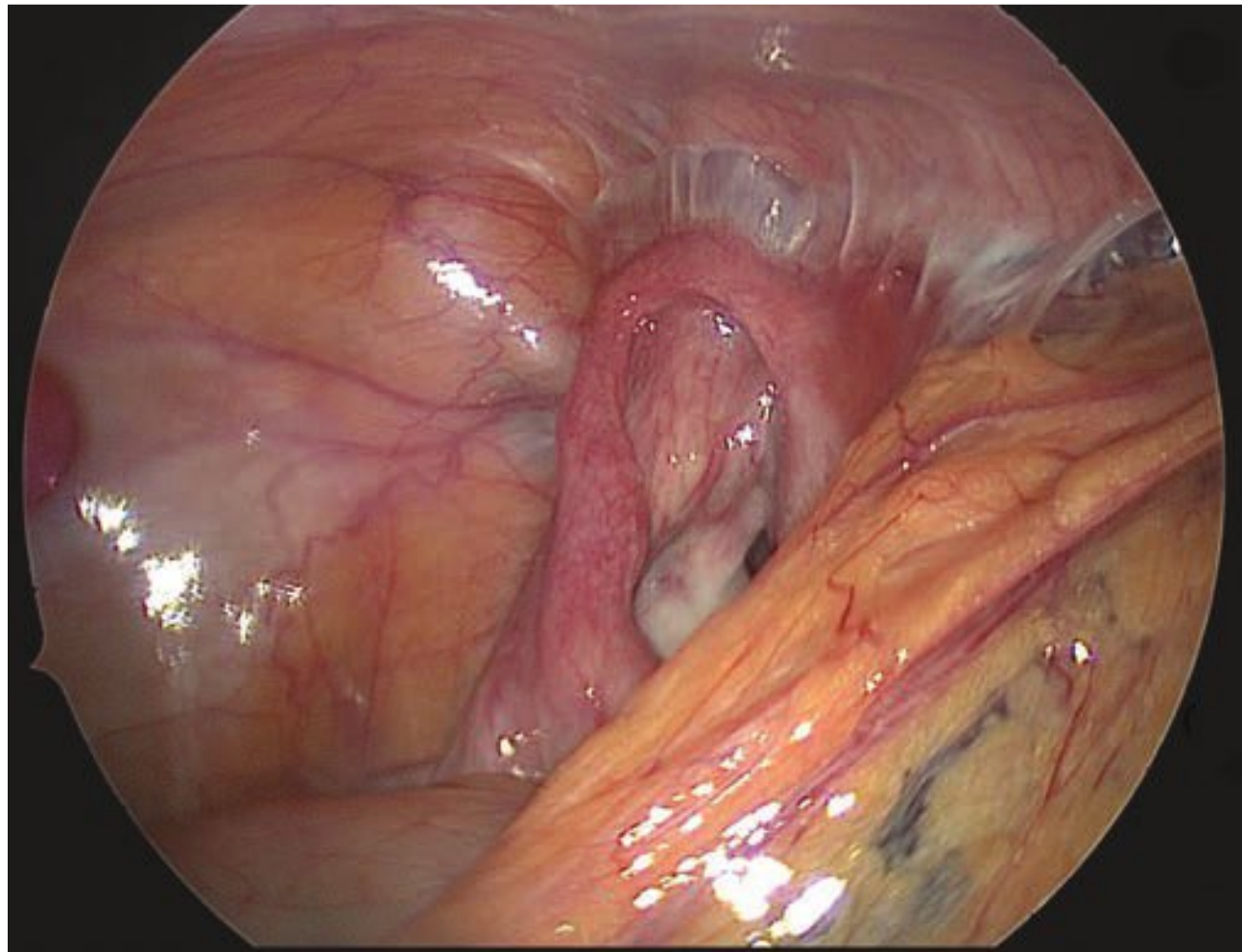
11–29. Following a thorough medical evaluation and after conservative therapies have failed, hysterectomy may be considered for treatment of chronic pelvic pain. However, in patients with no identified pelvic pathology, such definitive surgery fails to resolve pain in up to what percentage of patients?

- a. 0.5 percent
- b. 10 percent
- c. 25 percent
- d. 40 percent

11–30. If hysterectomy is planned for endometriosis, providing concurrent bilateral salpingo-oophorectomy is reasonable. In one analysis of 138 women monitored for 58 months after hysterectomy with ovarian conservation for endometriosis, the relative risk for pain recurrence and reoperation respectively approximated which of the following (Namnoum, 1995)?

- a. 2 and 4
- b. 4 and 6
- c. 6 and 8
- d. 8 and 10

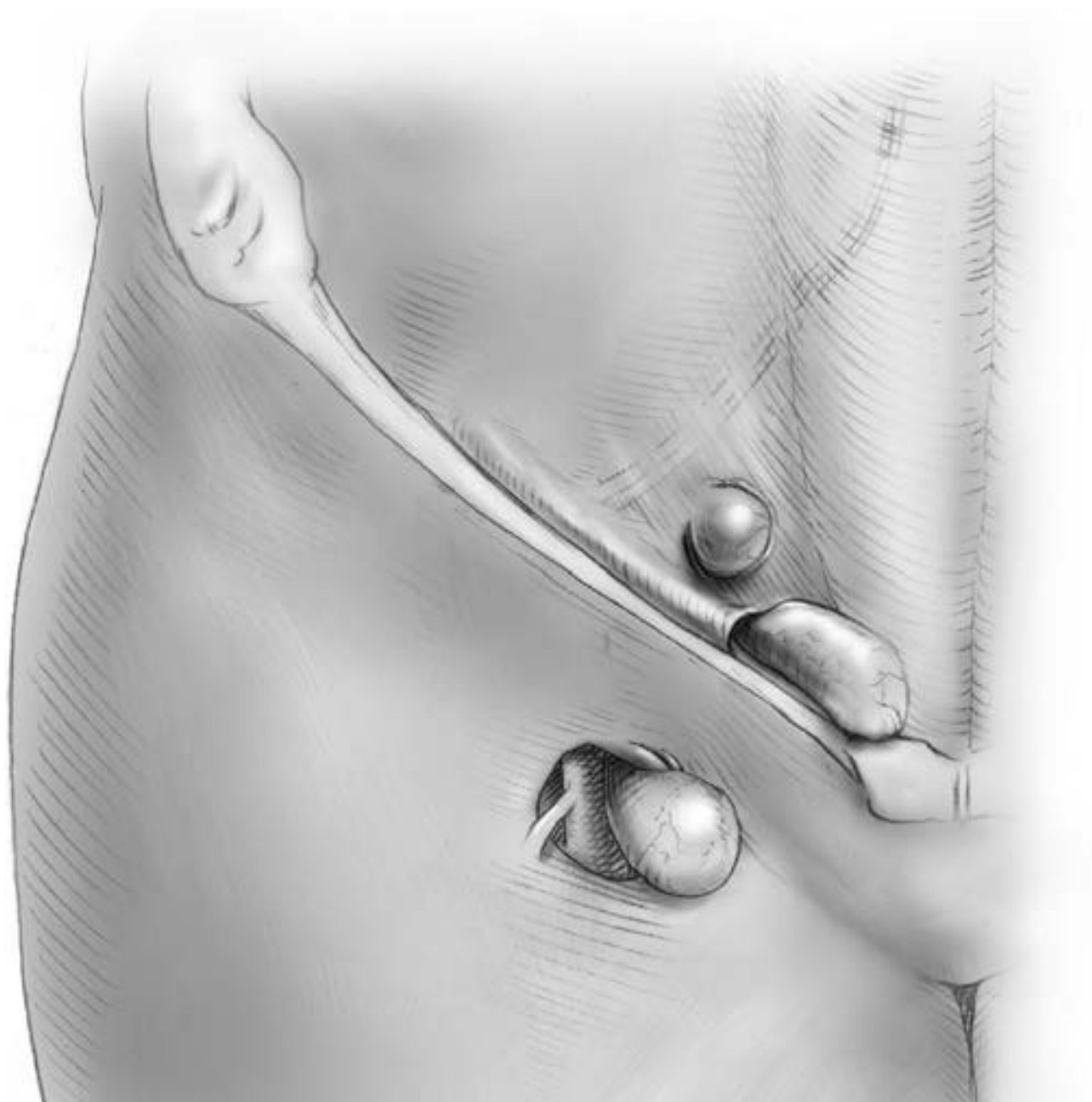
- 11–31.** Chronic pelvic pain may be caused by adhesions, such as these between abdominal wall and the fallopian tube, ovary, and omentum. In those with pain, adhesions are believed to stretch the peritoneum or organ serosa as they move. Which of the following are risks for the development of intraabdominal and pelvic adhesions?



Used with permission from Dr. David Rogers.

- a.** Chemical irritation
b. Foreign-body reaction
c. Radiation inflammation
d. All of the above
- 11–32.** A 38-year-old G2P2 reports cramping and low back pain during menses since menarche at age 12. Thorough evaluation fails to reveal any specific pelvic abnormality or other cause of pain. Which of the following terms best describes her cyclic menstrual pain in the absence of identifiable pathology?
- a.** Adenomyosis
b. Primary dysmenorrhea
c. Secondary dysmenorrhea
d. Menstrual outlet obstruction
- 11–33.** Primary dysmenorrhea is positively associated with which of the following?
- a.** Increasing parity
b. Early age at menarche
c. Decreased body mass index
d. All of the above
- 11–34.** The pathophysiology of primary dysmenorrhea is initiated by endometrial sloughing with release of a substance that stimulates myometrial contractions and ischemia. What is this substance?
- a.** Estriol
b. Oxytocin
c. Prostaglandin
d. 17-hydroxyprogesterone
- 11–35.** Dyspareunia is a frequent gynecologic complaint reported by up to 20 percent of reproductive-aged U.S. women. It can be subclassified as *insertional* or *deep*. Which of the following is most commonly associated with deep dyspareunia?
- a.** Vaginitis
b. Endometriosis
c. Uterine malposition
d. Insufficient vaginal lubrication
- 11–36.** The term *primary dyspareunia* refers to the onset of painful intercourse coincident with coitarche. Along with sexual abuse and female genital mutilation, which of the following is also a common etiology of primary dyspareunia?
- a.** Congenital anomalies
b. Vulvar contact dermatitis
c. Insufficient vaginal lubrication
d. Otherwise asymptomatic adenomyosis
- 11–37.** Patient complaints suggestive of interstitial cystitis commonly include all of the following **EXCEPT**:
- a.** Pelvic pain
b. Urinary urgency
c. Urinary frequency
d. Stress urinary incontinence
- 11–38.** Considered diagnostic of interstitial cystitis during cystoscopy, this reddish-brown mucosal lesion can have small vessels radiating from a central scar. What is this typical lesion called?
- a.** Hunner ulcer
b. Vesicovasculitis
c. Submucosal hemorrhage
d. Bladder wall glomerulation

- 11–39.** Gastrointestinal disorders, particularly diverticular disease, commonly cause chronic pelvic pain. With a specificity approaching 100 percent, what is the sensitivity of computed tomography for diagnosing diverticular disease?
- 60 percent
 - 70 percent
 - 80 percent
 - 90 percent
- 11–40.** Celiac disease is a common, inherited autoimmune disease with an incidence in the general population approaching 1 percent. Ingesting which of the following creates an immune-mediated reaction that damages the small intestine mucosa, leading to varying degrees of symptomatic malabsorption?
- Gluten
 - Peanuts
 - Corn starch
 - All of the above
- 11–41.** Shown here along with direct and femoral hernias, indirect hernias are those in which herniated contents pass through which of the following?



Reproduced with permission from Rogers D, Owens D, Hoffman BL. Pelvic pain. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 11-9.

- Inguinal canal
- External inguinal ring
- Internal inguinal ring
- All of the above

- 11–42.** With myofascial pain, a hyperirritable area within a muscle promotes persistent fiber contraction. This primary reactive area within the muscle is termed a trigger point. Treatment options for this pain include all of the following **EXCEPT**:
- Biofeedback
 - Surgical release
 - Muscle relaxants
 - Trigger point dry needling

- 11–43.** Chronic lower anterior abdominal wall pain may follow this incision type. This has been linked to entrapment of all of the following nerves **EXCEPT**:



- Pudendal
- Ilioinguinal
- Genitofemoral
- Iliohypogastric

Reference

Namnoum AB, Hickman TN, Goodman SB, et al: Incidence of symptom recurrence after hysterectomy for endometriosis. *Fertil Steril* 64(5):898, 1995.

Chapter 11 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
11-1	d	p. 249	Somatic or Visceral Pain	11-23	a	p. 256	Sitting and Supine
11-2	d	p. 250	Figure 11-1	11-24	b	p. 257	Lithotomy
11-3	d	p. 249	Somatic or Visceral Pain	11-25	a	p. 258	Testing
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11-6	b	p. 250	Neuropathic Pain	11-28	c	p. 258	Treatment
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11-8	a	p. 251	Table 11-1	11-30	c	p. 259	Surgery
11-9	d	p. 251	History	11-31	d	p. 260	Pelvic Adhesions
11-10	c	p. 251	Physical Examination	11-32	b	p. 262	Dysmenorrhea
11-11	c	p. 251	Physical Examination	11-33	b	p. 262	Dysmenorrhea
11-12	c	p. 251	Physical Examination	11-34	c	p. 262	Dysmenorrhea
11-13	a	p. 251	Physical Examination	11-35	b	p. 262	Dyspareunia
11-14	a	p. 251	Physical Examination	11-36	a	p. 262	Dyspareunia
11-15	c	p. 252	Sonography	11-37	d	p. 263	Interstitial Cystitis/Painful Bladder Syndrome
11-16	a	p. 252	Computed Tomography	11-38	a	p. 264	Diagnosis
11-17	a	p. 253	Other Imaging	11-39	d	p. 265	Colonic Diverticular Disease
11-18	c	p. 253	Chronic Pelvic Pain	11-40	a	p. 265	Celiac Disease
11-19	d	p. 253	Chronic Pelvic Pain	11-41	d	p. 267	Figure 11-9
11-20	d	p. 253	Chronic Pelvic Pain	11-42	b	p. 268	Myofascial Pain Syndrome
11-21	b	p. 253	History	11-43	a	p. 269	Neurologic Etiologies
11-22	a	p. 253	History				

CHAPTER 12

Breast Disease

- 12-1.** Which of the following is the **LEAST** common presentation of breast disease in women?
- Breast pain
 - Palpable mass
 - Nipple discharge
 - Skin abnormalities
- 12-2.** The normal saccular dilation of the largest breast ducts beneath the nipple is referred to by what name?
- Ductal lacuna
 - Lactiferous sinus
 - Infraareolar plexus
 - Areolar ductal plexus
- 12-3.** The areola contains numerous lubricating sebaceous glands referred to as which of the following?
- Areolar glands
 - Montgomery glands
 - Mammosebaceous units
 - Mammolactiferous glands
- 12-4.** Which group of lymph nodes receives most of the lymphatic drainage from the breasts and are therefore most often involved by breast cancer metastases?
- Axillary
 - Supraclavicular
 - External mammary
 - Internal mammary
- 12-5.** The primordial breast develops from which of the following tissues?
- Mesoderm
 - Primitive fat lobules
 - Basal layer of the epidermis
 - Multipotent cells within the dermis
- 12-6.** Final histologic differentiation of breast tissue is not completed until which of the following occurs?
- Menarche
 - Onset of puberty
 - First full-term pregnancy
 - Breastfeeding for several months
- 12-7.** Most benign and malignant breast diseases occur within the breast structures that are most sensitive to ovarian hormones and prolactin. Which structures are these?
- Lobular fat
 - Collecting ducts
 - Collagenous stroma
 - Terminal ducts and acini
- 12-8.** A 26-year-old woman complains of cyclic breast pain the week before each menstrual period for the past year. The onset of this problem coincided with discontinuing a continuous hormonal contraceptive method, which she had used for years. What physiologic, cyclic breast change resulting from estrogen-receptor activation accounts for this symptom?
- Lobular proliferation
 - Accumulation of intraductal fluid
 - Increased water content of the extracellular matrix
 - All of the above
- 12-9.** After menopause, in the absence of estrogen, what is the collagenous stroma replaced with?
- Fat
 - Denser collagen stroma
 - Fibrous connective tissue
 - None of the above
- 12-10.** Which of the following describes the physiology of the breast in menopause?
- Involution of lobular units
 - Increased estrogen-receptor expression
 - Conversion of adrenal androgens to estrogen by aromatase
 - All of the above
- 12-11.** The “triple test” guides the management of breast abnormalities and does **NOT** include which of the following evaluation modalities?
- Imaging
 - Pathology
 - Genetic markers
 - Clinical examination

12–12. A 34-year-old woman complains of a swollen lump of tissue in her right axilla 3 weeks after delivering a term infant. It causes a sense of uncomfortable fullness, but not pain. Physical examination is reassuring. Frequently mistaken for a breast mass, the axillary extension of normal breast tissue (shown here) may become enlarged, particularly with pregnancy and lactation. What is this part of normal breast anatomy referred to?



Used with permission from Dr. William Griffith.

- a. Tail of Spence
- b. Axillary galactocele
- c. Lactational protuberance
- d. Infraaxillary mammary bundle

12–13. A 42-year-old woman presents for a routine examination. Clinical breast examination shows a right breast mass without overlying skin changes, breast contour changes, or nipple discharge. Which characteristics of the palpable mass would further support a benign lesion?

- a. Mobility
- b. Smoothness
- c. Rounded shape
- d. All of the above

12–14. A 40-year-old patient undergoes initial breast screening. A solid mass is detected by mammography. Which of the listed mammographic features of solid breast masses suggests malignancy?

- a. Irregular margins
- b. Absence of internal echoes
- c. Width-to-height ratio of 3 or greater
- d. All of the above

12–15. A screening mammogram result is reported as Breast Imaging-Reporting and Data System (BI-RADS) 5. What percentage risk of malignancy does this result confer?

- a. 35 percent
- b. 55 percent
- c. 75 percent
- d. > 95 percent

12–16. Which of the following initial diagnostic techniques is currently favored because of its minimal invasiveness, lower insufficient-sample rate, and ability to provide superior diagnostic tissue samples?

- a. Core-needle biopsy
- b. Fine-needle aspiration
- c. Open excisional biopsy
- d. Intraductal washings for cytology

12–17. A 29-year-old woman presents with a breast mass. Clinical breast examination reveals a 2-cm, smooth, rounded, mobile mass. Imaging likewise shows benign features, and subsequent needle biopsy is benign. How accurate is this concordant, benign triple test for correctly predicting that her breast mass is indeed benign?

- a. 40 percent
- b. 60 percent
- c. 80 percent
- d. > 99 percent

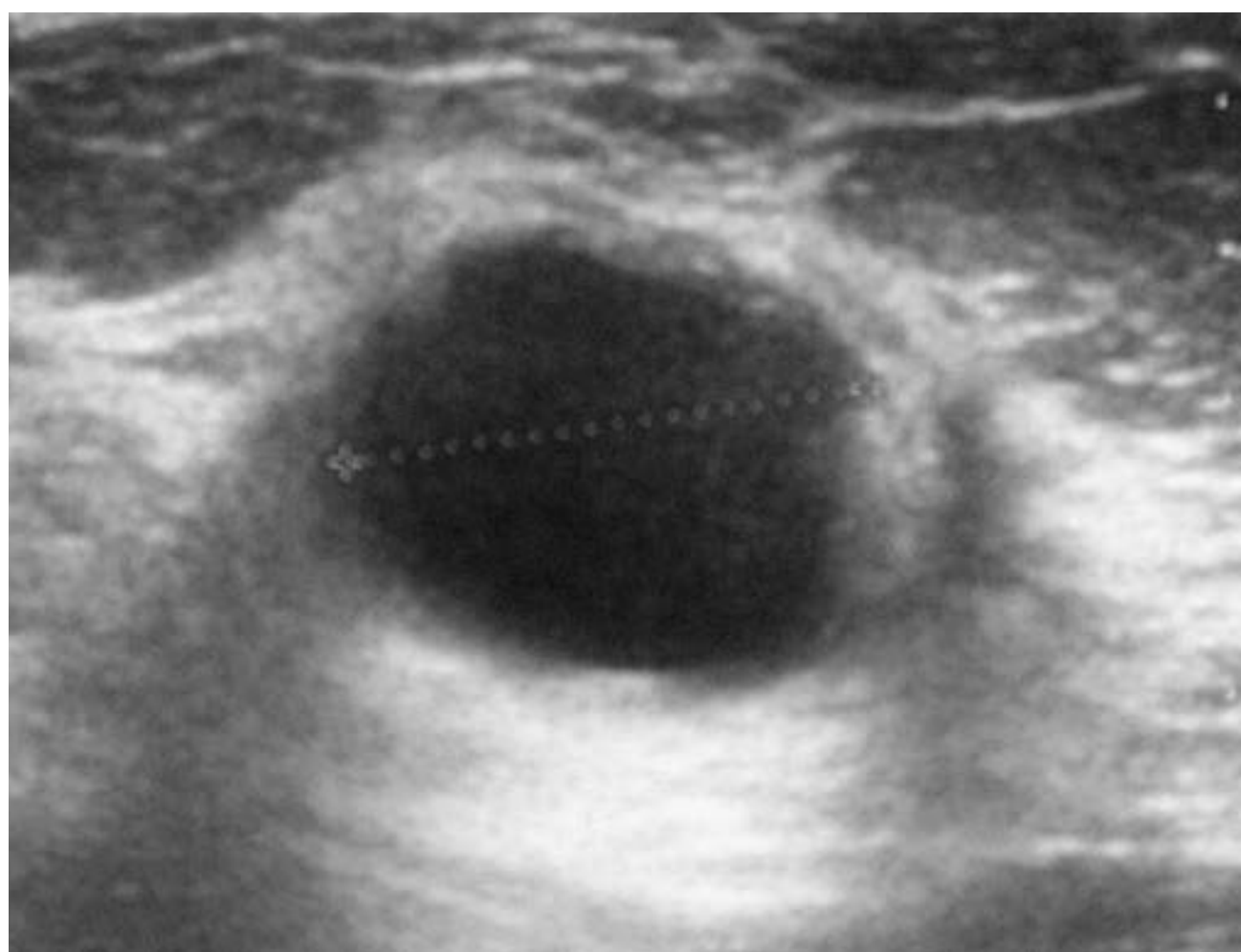
12–18. A 40-year-old woman is evaluated for a self-discovered breast mass. Clinical examination shows a left breast mass that is smooth, mobile, 1.5 cm in greatest diameter, and located at 4 o'clock and 3 cm from the center of the nipple. Diagnostic mammography shows the mass with slightly irregular borders, no calcifications, presence of internal echoes, and a width-to-height ratio of 1. Core-needle biopsy shows benign ductal and lobular structures. Which of the following is the most appropriate clinical management of this mass?

- a. Excision
- b. Breast sonography
- c. Repeat core biopsy in 3 months
- d. Clinical examination at an interval of 6 months

12–19. What is the etiology of most breast cysts?

- a. Unknown
- b. Atypical ductal hyperplasia
- c. Obstructed duct with dilation
- d. Apocrine metaplasia of lobular acini

12–20. A 48-year-old postmenopausal patient presents with a breast mass that she noticed 2 months ago. It is tender, and pain has increased slightly over time. It causes discomfort, even with use of nonprescription analgesics. During examination, the mass is found to be round, mobile, compressible, and approximately 3 cm in diameter. A breast cyst is suspected. Sonographic imaging (shown here) is likewise consistent with a simple cyst. What is the most appropriate initial management of this mass?

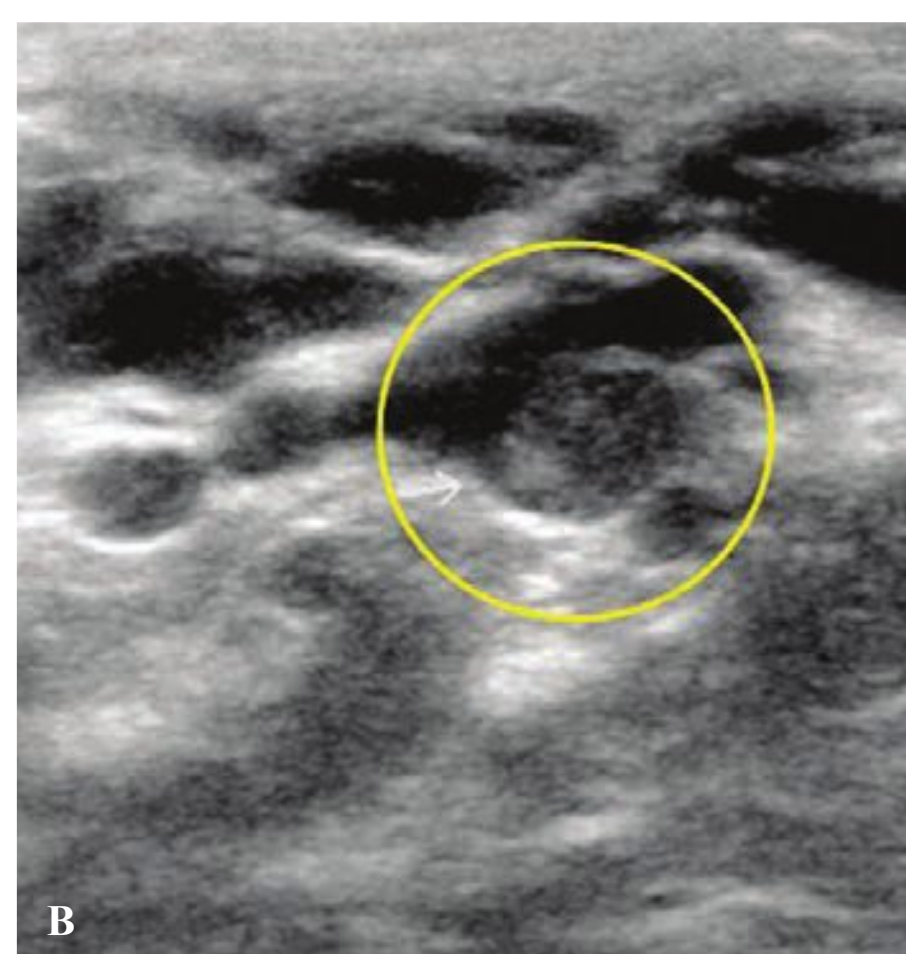
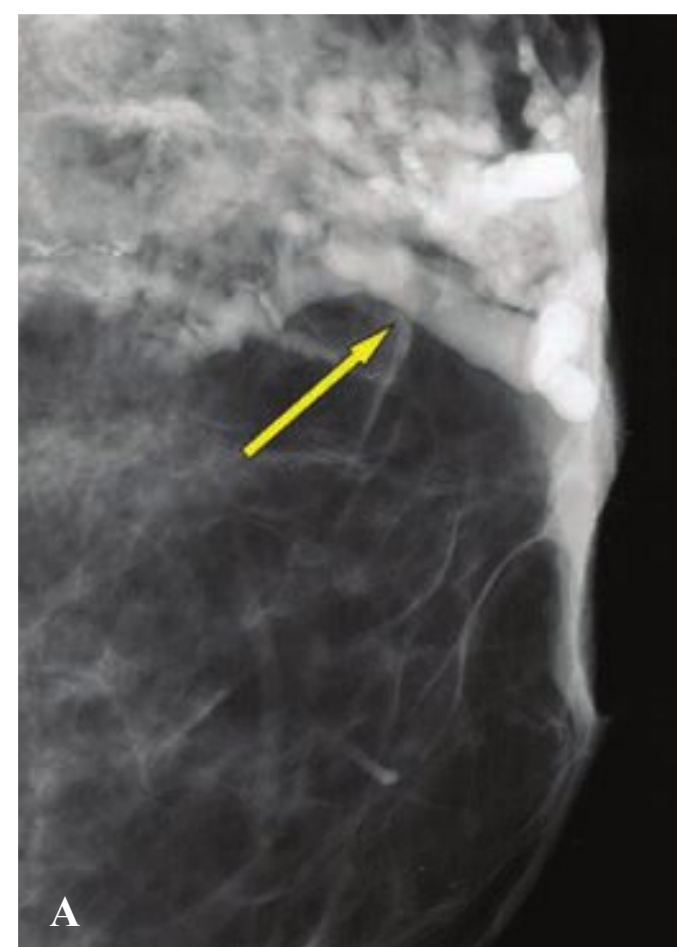


- a. Excision
- b. Needle aspiration
- c. Core-needle biopsy
- d. Reassurance, warm compresses, and reexamination in 3 to 6 months

12–21. The same patient described in Question 12–20 undergoes needle aspiration as an office procedure with immediate resolution of the mass to palpation. Her pain is relieved initially, but she has a recurrence of a mass at that same location 2 months later with similar pain. A recurrent cystic mass is confirmed by examination and repeat imaging. All features are benign. What is the preferred next step?

- a. Excision
- b. Core-needle biopsy
- c. Repeat in-office needle aspiration and cytologic analysis of cyst fluid
- d. Further observation, warm compresses, oral analgesics, and periodic reexamination

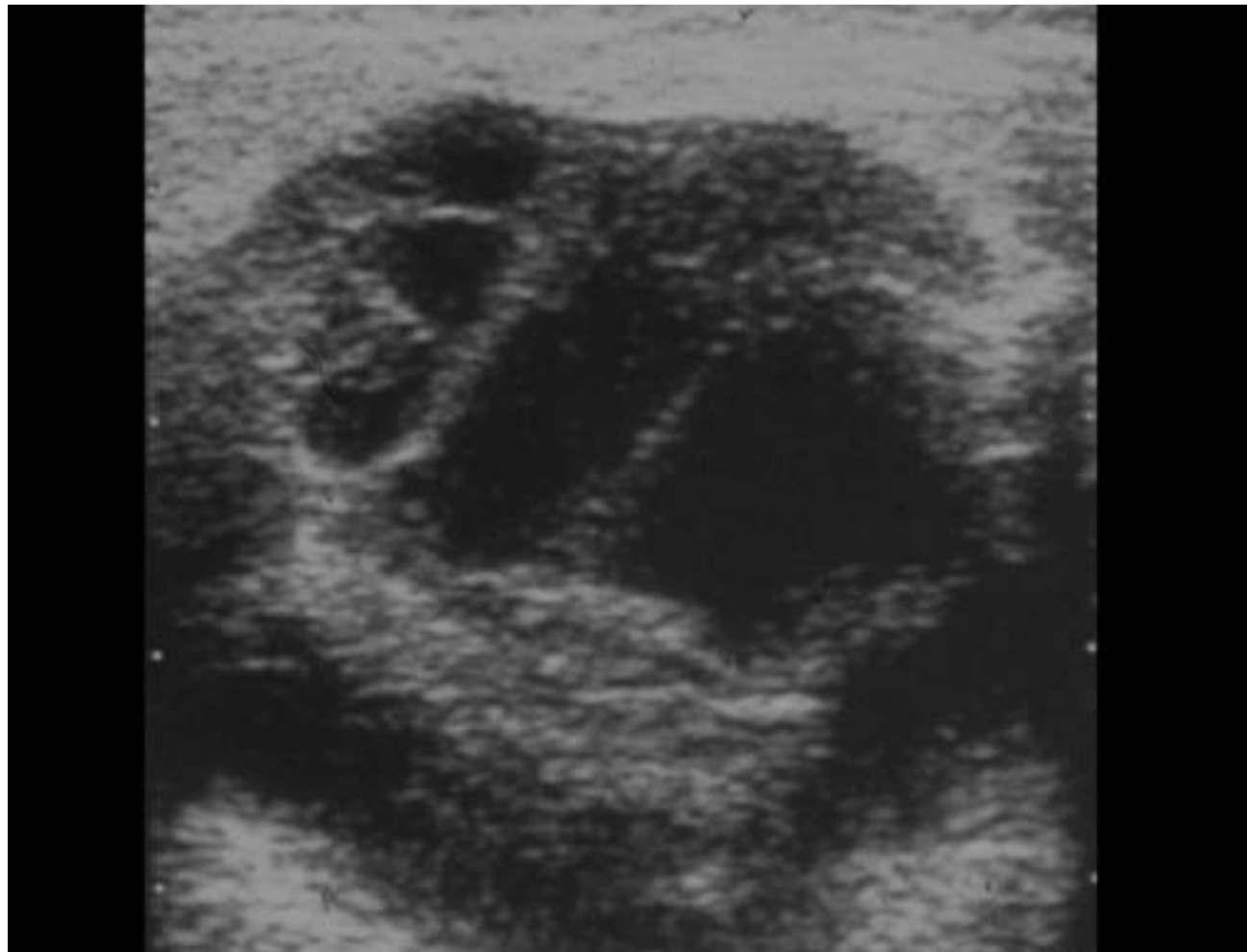
12–22. What benign lesion (shown here) is a common cause of both abnormal breast discharge and intracystic breast masses seen on imaging?



- a. Papilloma
- b. Medullary breast carcinoma
- c. Papillary breast carcinoma
- d. Infiltrating ductal carcinoma

Reproduced with permission from Euhus DM: Breast disease. In Hoffman BL, Schorge JO, Halvorson LM, et al (eds): Williams Gynecology, 2nd ed. New York, McGraw-Hill, 2012, Figure 12-7.

- 12–23.** A 50-year-old woman without any family history of breast or related cancers is found to have a palpable, 4-cm breast cyst with complex sonographic features (shown here). The mass is asymptomatic. Aspiration is performed and it decreases the mass size by approximately half. Repeat sonography is shown below. What is the most reasonable management of this complex mass?



- a. Excision
 - b. Fine-needle biopsy
 - c. Core-needle biopsy
 - d. Repeat examination and imaging in 3 months
- 12–24.** A 17-year-old woman presents with a 1-cm breast mass with a triple-test classification of benign concordant. The diagnosis of fibroadenoma is strongly supported. The mass is asymptomatic. Repeat examinations 6 months and 1 year later show the mass to be unchanged in size and character. What is the best option for further management of this mass?
- a. Excision
 - b. Core-needle biopsy
 - c. Magnetic resonance imaging
 - d. Continued clinical monitoring
- 12–25.** Which statement regarding phyllodes tumors of the breast is **FALSE**?
- a. Lymph node metastasis is rare.
 - b. Lung is the most common site of metastasis.
 - c. Local recurrence is common (> 30 percent) for malignant tumors.
 - d. Primary treatment consists of chemotherapy and radiation.

- 12–26.** Fluid can be expressed from the nipple ducts of at least what percentage of premenopausal women?
- a. 10 percent
 - b. 25 percent
 - c. 40 percent
 - d. 95 percent

- 12–27.** Which of the following scenarios involving unilateral breast nipple discharge is most concerning for an underlying malignancy?
- a. Spontaneous, bloody, multiductal discharge in a 36-year-old pregnant patient
 - b. Spontaneous, single-duct serous discharge in a 29-year-old woman taking oral contraceptive pills
 - c. Greenish, multiductal discharge expressed during routine clinical breast examination of a 50-year-old woman
 - d. Milky white discharge expressed from several ducts during clinical examination of a 40-year-old multipara

- 12–28.** A 24-year-old breastfeeding woman presents with 2 days of worsening, unilateral breast tenderness 3 weeks after a cesarean delivery at term. She has had problems with cracked nipples for which she has consulted the lactation counselor several times. She has had fever, malaise, and chills at home, and is febrile (39°C). Her breast finding is seen here. Her laboratory results show a marked leukocytosis. Which of the following is **NOT** part of the therapeutic approach to puerperal mastitis?



Used with permission from Dr. La'Keisha Demerson.

- a. Antibiotics
- b. Cessation of breastfeeding
- c. Sonography if abscess suspected
- d. Topical treatment of nipple cracks

12–29. Antibiotic therapy for puerperal mastitis should target the most common pathogen, which is a member of what species?

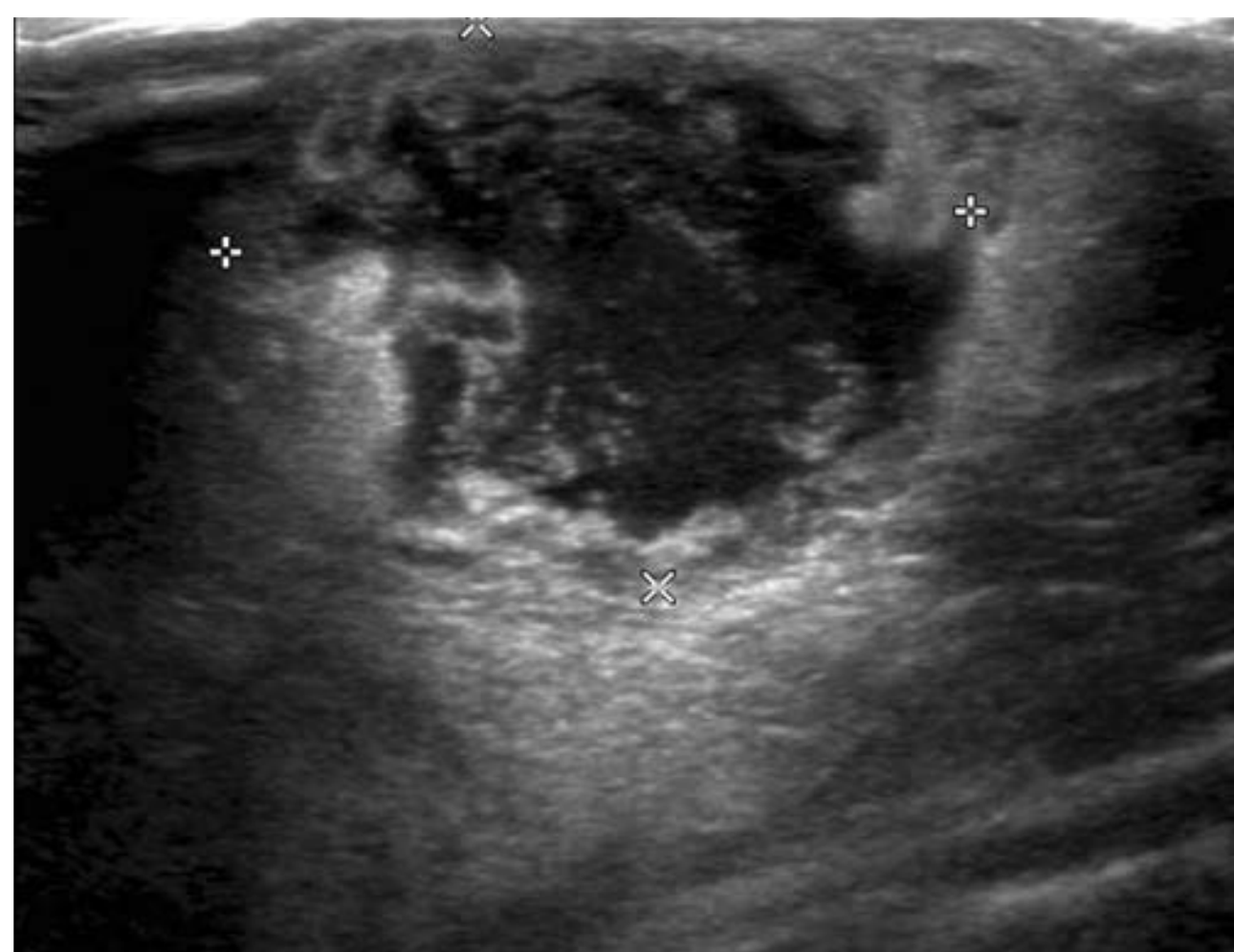
- a. *Klebsiella* spp.
- b. *Escherichia* spp.
- c. *Clostridium* spp.
- d. *Staphylococcus* spp.

12–30. A 50-year-old patient presents with unilateral redness and breast tenderness for 2 weeks. The area (shown here) has been increasing in size. She lacks fever or constitutional symptoms. During examination, the area is warm and firm, consistent with a mild cellulitis. No mass is palpable. Her screening mammogram 5 months ago was BI-RADS 1. What condition is this scenario most worrisome for?



- a. Folliculitis
- b. Inflammatory breast cancer
- c. Nonpuerperal breast abscess
- d. Community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) cellulitis

12–31. A 32-year-old nulligravida presents with a tender breast mass. Pain began a few days ago and is increasing. She is afebrile, but the mass (shown here) is very tender to palpation. Sonography is obtained and findings from the left breast are seen below. What is the most reasonable initial management?

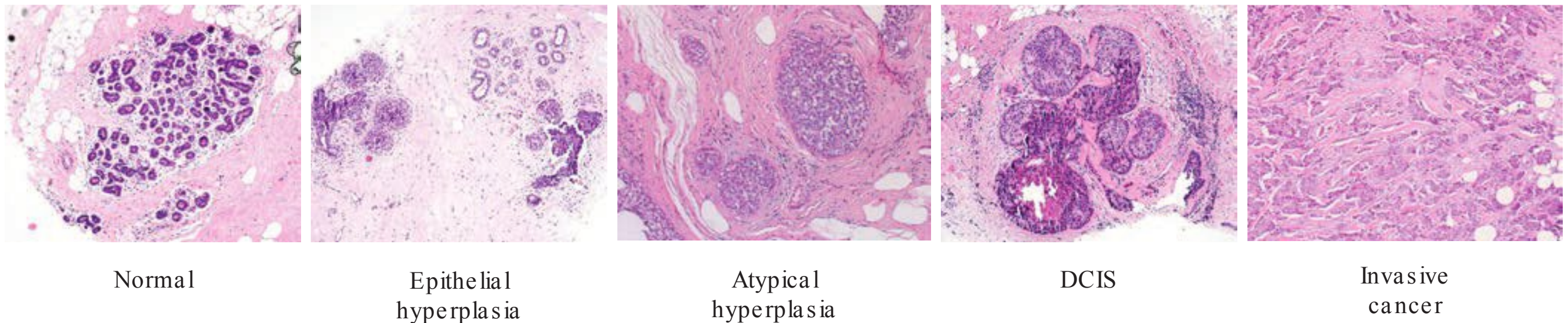


- a. Excision
- b. Drainage and antibiotics
- c. Warm compresses and further observation
- d. Diagnostic mammography, ductography, and biopsy

12–32. Mastalgia is a common complaint, with a prevalence of approximately 60 percent. A 49-year-old woman complains of having cyclic breast pain the week before menses for years. Lately, she has noncyclic, constant pain in the lower, inner quadrant of her right breast. She points to the exact area of pain. Which of the following responses is **NOT** indicated?

- a. Reassurance
- b. Clinical breast examination
- c. Targeted imaging of the area of pain
- d. Biopsy of any palpable or imaging abnormality

12–33. The presence of atypical epithelial hyperplasia carries what approximate increased relative risk of breast cancer?



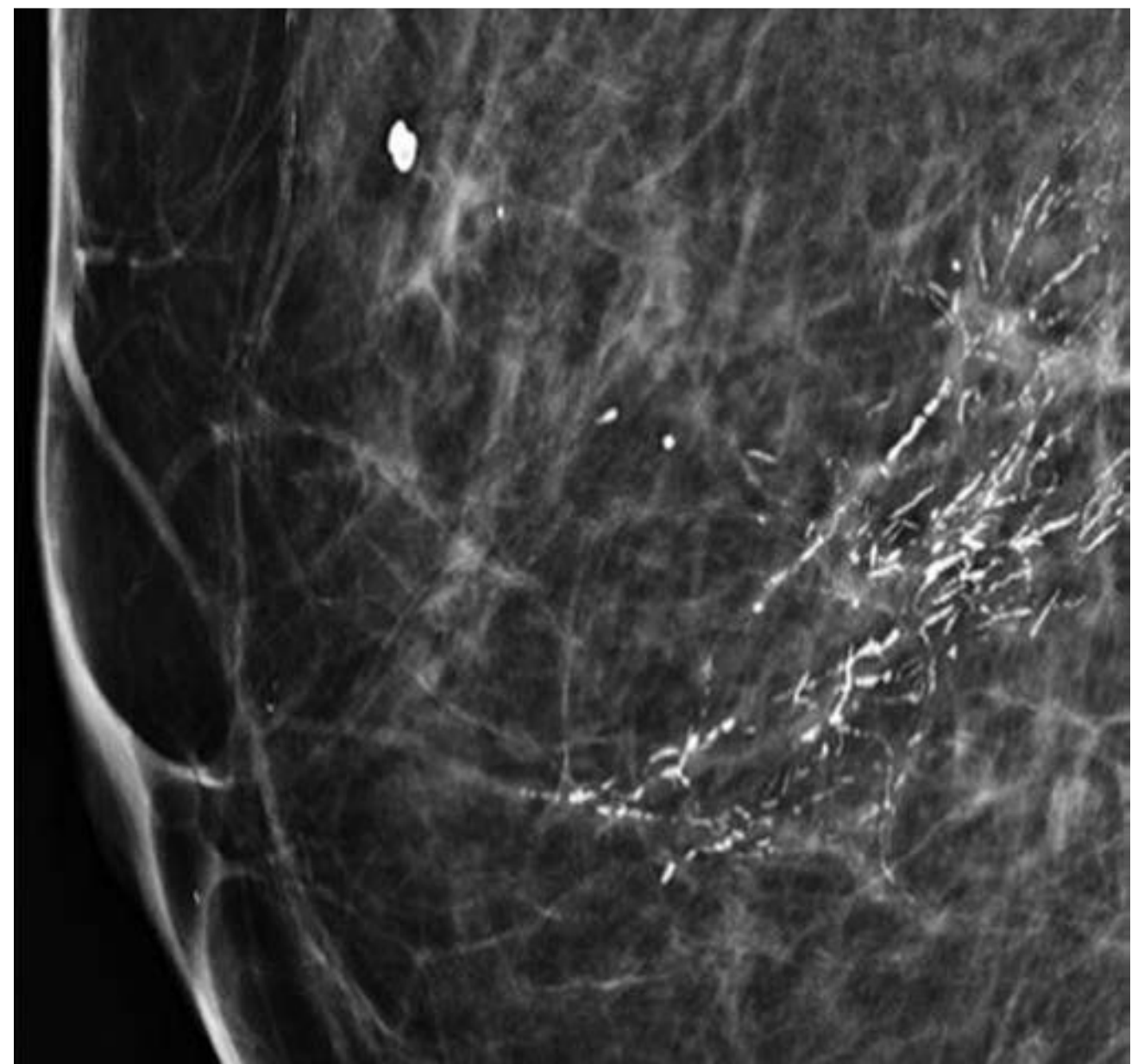
Reproduced with permission from Euhus D. Breast disease. In Schorge JO, Schaffer JI, Halvorson LM, et al (eds): Williams Gynecology, 2nd ed. New York, McGraw-Hill, 2012, Figure 12-9.

- a. 0.2
- b. 4
- c. 20
- d. 40

12–34. Which of the following management strategies is recommended subsequent to an incidental finding of lobular carcinoma in situ diagnosed by needle biopsy?

- a. Surgical excision of involved area
- b. Prophylactic bilateral mastectomy
- c. Prophylactic unilateral mastectomy
- d. Observation alone with annual mammography and magnetic resonance imaging

12–35. Which of the following, with typical mammographic appearance shown below, currently accounts for up to 30 percent of breast cancer cases in the United States?



Used with permission from Dr. Phil Evans.

- a. Ductal carcinoma in situ
- b. Invasive lobular carcinoma
- c. Paget disease of the nipple
- d. Invasive inflammatory ductal carcinoma

- 12–36.** Which histologic feature of ductal carcinoma in situ is the most predictive for the presence of associated invasive cancer, the extent of disease, and the recurrence risk after treatment?
- Nuclear grade
 - Morphologic type
 - Mammographic features
 - Presence or absence of comedonecrosis
- 12–37.** Which of the following statements regarding Paget disease of the nipple is true?
- It presents as a focal eczematous rash.
 - It is a type of ductal carcinoma in situ.
 - Approximately one third of cases will harbor an underlying invasive cancer.
 - All of the above
- 12–38.** Which of the following confers the strongest risk of breast cancer?
- Increasing parity
 - Earlier age of first live birth
 - Increasing lifetime number of menstrual cycles
 - Use of estrogen-only hormone replacement therapy
- 12–39.** Which of the following breast cancer risk evaluation tools has been most thoroughly validated and is most appropriate for use in average-risk women?
- Gail model
 - Richardson model
 - Tryer-Cuzick model
 - Bloom-Schwarz model
- 12–40.** What percentage of breast cancers in the United States is accounted for by hereditary breast-ovarian cancer syndrome?
- < 10 percent
 - 20 percent
 - 40 percent
 - > 60 percent
- 12–41.** Up to 13 percent of male breast cancers are related to which genetic mutation?
- BRCA1
 - BRCA2
 - p16^{INK4a}
 - Li-Fraumeni
- 12–42.** In addition to breast cancer, carriers of mutations in the *BRCA* gene are at increased risk for which of the following?
- Melanoma
 - Ovarian cancer
 - Pancreatic cancer
 - All of the above
- 12–43.** Which statement is **FALSE** regarding three-dimensional tomosynthesis for breast cancer screening compared with two-dimensional digital mammography?
- Decreases the radiation dose exposure per study
 - Reduces the false-positive rate (recall) by up to 30 percent
 - Increases the breast cancer detection rate by up to 30 percent
 - Attenuates overlying breast densities at each level viewed
- 12–44.** Which of the following has decreased concurrently with routine screening mammography over the past several decades?
- Incidence of late-stage (node-positive and metastatic) breast cancers
 - Rate of diagnosis of early-stage breast cancers that are unlikely to progress
 - Mortality rate from breast cancer by approximately 25 percent if screening begins at age 50
 - Number of women over-treated with surgery, chemotherapy, and/or radiation needlessly for indolent breast cancers
- 12–45.** An advantage of breast screening with magnetic resonance imaging compared with screening using mammography includes which of the following?
- Lower cost per procedure
 - Lower false-positive rate
 - Improved breast cancer survival rates in genetically high-risk women
 - None of the above

- 12–46.** Breast cancers positive for estrogen and progesterone receptors generally demonstrate a better prognosis and allow more treatment options. What proportion of breast cancers are estrogen- and progesterone-receptor positive?
- One third
 - Two thirds
 - One fourth
 - Three fourths
- 12–47.** What is the most common site of distant breast cancer metastasis?
- Bone
 - Liver
 - Lungs
 - Ovaries
- 12–48.** What treatment is most commonly used to decrease local recurrence rates following lumpectomy for apparently localized breast cancer?
- Postoperative chemotherapy
 - Ipsilateral complete axillary lymphadenectomy
 - Whole breast radiation of affected breast
 - Ipsilateral axillary radiation therapy
- 12–49.** Which of the following therapeutic agents used to treat breast cancer in postmenopausal women increases the risk of bone fractures?
- Tamoxifen
 - Bisphosphonates
 - Aromatase inhibitors
 - All of the above
- 12–50.** Which of the following correctly characterizes inflammatory breast cancer?
- Slow onset and progression
 - Breast erythema, induration, and enlargement
 - Accounts for approximately 20 percent of breast cancers
 - Better prognosis than other advanced primary breast cancers

Chapter 12 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
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12-3	b	p. 275	Ductal System	12-31	b	p. 282	Nonpuerperal Infections
12-4	a	p. 275	Lymphatic Drainage	12-32	a	p. 282	Mastalgia
12-5	c	p. 275	Development and Physiology	12-33	b	p. 283	Benign Proliferative Disease with Atypia
12-6	c	p. 275	Development and Physiology	12-34	a	p. 284	Lobular Carcinoma in situ
12-7	d	p. 275	Development and Physiology	12-35	a	p. 284	Ductal Carcinoma in Situ
12-8	c	p. 275	Development and Physiology	12-36	a	p. 284	Ductal Carcinoma in Situ
12-9	a	p. 275	Development and Physiology	12-37	d	p. 285	Paget Disease of the Nipple
12-10	d	p. 275	Development and Physiology	12-38	c	p. 286	Ovulatory Cycles
12-11	c	p. 276	Evaluation of a Breast Lump	12-39	a	p. 286	Breast Cancer Risk Stratification and Management
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12-13	d	p. 276	Physical Examination	12-41	b	p. 288	Hereditary Breast-Ovarian Cancer Syndrome
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12-20	b	p. 278	Cysts	12-48	c	p. 291	Radiation Therapy
12-21	a	p. 278	Cysts	12-49	c	p. 291	Hormone Therapy and Targeted Therapies
12-22	a	p. 278	Cysts	12-50	b	p. 291	Inflammatory Breast Cancer
12-23	c	p. 278	Cysts				
12-24	d	p. 278	Fibroadenoma				
12-25	d	p. 279	Phyllodes Tumors				
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12-27	b	p. 280	Nipple Discharge				
12-28	b	p. 281	Puerperal Infections				

CHAPTER 13

Psychosocial Issues and Female Sexuality

- 13–1.** True statements regarding the health of U.S. women compared with men include which of the following?
- More women have less comorbid illness.
 - Women use health-care services with less frequency.
 - Women approach their physicians with psychiatric complaints more often.
 - All of the above
- 13–2.** Which category of psychiatric disorders frequently accompanies reproductive disorders?
- Mood disorders
 - Anxiety disorders
 - Alcohol or substance abuse
 - All of the above
- 13–3.** A 30-year-old woman presents for a routine well-woman examination. When asked how she has been during the past year, she reports difficulty dealing with the death of her father, military overseas deployment of her spouse, and financial concerns. She admits to daily feelings of sadness and decreased pleasure in most activities that used to make her happy, particularly those involving her children and job. You suspect a major depressive episode. Additional diagnostic criteria for this disorder do **NOT** include which of the following?
- Insomnia
 - Poor concentration
 - Compulsive, repetitive behaviors
 - Inappropriate guilt or feelings of worthlessness
- 13–4.** An anxiety disorder is more common in U.S. women than men and is the most prevalent mood disorder group. What is the approximate lifetime prevalence rate of anxiety disorder in the United States?
- 0.15 percent
 - 3 percent
 - 15 percent
 - 30 percent
- 13–5.** A 24-year-old woman complains of feeling constant anxiety regarding her own health and that of her family, social interactions, performance at work, her future career direction, and a host of other issues. She has been experiencing these feelings on most days for the past 9 months. What additional symptoms are included in the diagnostic criteria for a generalized anxiety disorder?
- Irritability
 - Disturbed sleep
 - Difficulty concentrating
 - All of the above
- 13–6.** Currently, which of the following is more commonly diagnosed in men than in women in the United States?
- Anxiety
 - Depression
 - Eating disorders
 - Substance misuse
- 13–7.** The etiology of eating disorders may be multifactorial with both biologic and psychosocial factors at play. What is the approximate concordance rate of the restricting type of anorexia among monozygotic twins?
- 11 percent
 - 33 percent
 - 66 percent
 - 99 percent

- 13–8.** A 17-year-old woman presents for evaluation of infrequent, light menses. She is without any diagnosed medical problems. Her body mass index is 17.5, and she appears unusually slender. She claims that she has been at the same body weight for 2 years and would like to be thinner to improve her health and appearance. With further questioning, she admits to attempting food restriction in the name of a “healthier diet.” She gets angry at herself for not being able to control episodes of eating large amounts of food in a short period of time approximately once a week. When this loss of control occurs, she compensates with laxatives or self-induced vomiting. She exercises daily for 90 minutes at a local gymnasium. Her presentation is most consistent with which diagnosis?
- Bulimia nervosa
 - Anorexia nervosa
 - Binge-eating disorder
 - Body-image dysphoric syndrome
- 13–9.** A characteristic clinical feature of bulimia nervosa includes *Russell sign*. This finding refers to which of the following?
- Patchy alopecia
 - Knuckle calluses
 - Esophageal ulcerations
 - Gastric and proximal small bowel dilation
- 13–10.** Nearly 300 different physical and psychiatric symptoms have been reported by women during the late luteal phase of the menstrual cycle. In most, these symptoms are self-limited and cause no excessive distress or functional impairment. In approximately what percentage of women are such symptoms severe enough to cause functional impairment or require special attention, consistent with premenstrual dysphoric disorder?
- 0.05 percent
 - 0.15 percent
 - 5 percent
 - 15 percent
- 13–11.** The etiology of premenstrual disorders remains obscure and likely involves various biological factors. Which of the following is **NOT** currently suspected of playing a significant role in these disorders?
- Prolactin
 - Serotonin
 - Sex steroids
 - Renin–angiotensin–aldosterone system
- 13–12.** A 26-year-old woman complains of long-standing symptoms of fatigue, generalized muscle and joint pains, and headaches. All of these become significantly worse during the week before her menses. She finds it difficult to attend work and perform well during this premenstrual phase. Before attributing her complaints to premenstrual dysphoric disorder, which of the following diagnoses should be considered?
- Anemia
 - Hypothyroidism
 - Systemic lupus erythematosus
 - All of the above
- 13–13.** At present, which of the following is considered primary therapy for psychological symptoms of premenstrual syndrome?
- Prostaglandin inhibitors
 - Combination oral contraceptives
 - Selective serotonin-reuptake inhibitors
 - None of the above
- 13–14.** Which of the following is the unique spironolactone-like progestin in *Yasmin*, an oral contraceptive which has received the Food and Drug Administration (FDA) approval for the treatment of premenstrual dysphoric disorder?
- Gestodene
 - Desogestrel
 - Drospirenone
 - Etonogestrel
- 13–15.** Which of the following statements regarding pregnancy and depression is **FALSE**?
- Suicide is a leading cause of maternal death in developed countries.
 - The diagnostic criteria and prognosis differ in pregnant and nonpregnant women.
 - During pregnancy, the risk for relapse of a preexisting psychiatric disorder is increased.
 - The prevalence of depression is highest in the first trimester with a slight decrease in the second and third trimesters.
- 13–16.** Which of the following is a **FALSE** statement regarding postpartum depression?
- There is no standardized screening tool available.
 - Risk factors include a history of depression or anxiety.
 - Postpartum “blues” place a woman at increased risk of developing frank depression.
 - Postpartum depression, when defined as any depression developing within 12 months of delivery, affects approximately 15 percent of women who give birth.

- 13–17.** A 49-year-old woman presents for her annual health-care examination. She complains of lighter and fewer menses during the past 6 months. She notes poor sleep and feelings of sadness that come and go. She also has become anxious about family matters and the execution of routine daily living activities despite the fact that no specific concerns or challenges have arisen. Which of the following is **FALSE** regarding mood disorders that develop during the menopause transition?
- Thyroid function should be assessed along with other possible new-onset medical conditions.
 - Demographic predictors include Caucasian race, higher educational status, and employment.
 - A short-term trial of estrogen is a reasonable therapeutic option in the absence of contraindications.
 - Rates of new-onset depression during menopause transition are nearly double that of premenopausal rates.
- 13–18.** As in the general population, what is the most common psychiatric disorder diagnosed in the elderly?
- Anxiety
 - Depression
 - Alcohol and substance misuse
 - Obsessive-compulsive behaviors
- 13–19.** A 32-year-old woman has undergone thorough evaluation by various specialists in an attempt to explain and treat her persistent symptoms of headaches, abdominal discomfort, and musculoskeletal pain. She has been feeling depressed and hopeless about ever getting better. She has not worked for 6 months due to these symptoms and often cannot go out due to pain and low energy levels. A somatic symptom disorder is suspected. What approach is most likely to benefit this patient?
- Reassurance
 - Multidisciplinary approach
 - Regular exercise and healthy diet
 - Low-dose tricyclic antidepressant medication
- 13–20.** You are compelled to testify as an expert witness during a sexual assault trial. The defense counsel disputes the occurrence of assault based on the absence of genital or other physical trauma visible during the examination of the alleged victim soon after the incident. In what percentage of rape victims are gross findings of trauma absent during physical examination?
- 0.3 percent
 - 7 percent
 - 30 percent
 - 70 percent
- 13–21.** In general, valid physical evidence can be collected following alleged sexual assault for how many days?
- 3
 - 5
 - 7
 - 10
- 13–22.** Emergency contraception is routinely offered to rape victims who are of reproductive age, have reproductive organs, and are not pregnant. What is the per rape risk of pregnancy in women of reproductive age?
- 1 percent
 - 5 percent
 - 10 percent
 - 20 percent
- 13–23.** Which medication used for emergency contraception has the greatest potential to harm a preexistent pregnancy?
- Ulipristal
 - Levonorgestrel
 - Combination hormonal oral contraceptive pills
 - All of the above
- 13–24.** Which of the following sexually transmitted infections is **LEAST** likely to result from sexual assault?
- Syphilis
 - Gonorrhea
 - Trichomoniasis
 - Chlamydial infection
- 13–25.** A 24-year-old female rape victim understands that she is at increased risk of contracting a sexually transmitted infection. She is particularly fearful of human immunodeficiency virus (HIV) infection. Her assailant was not known to her. She is trying to decide whether or not to accept postexposure HIV prophylaxis. What is her approximate risk of HIV infection with receptive penile-vaginal rape?
- 0.1 percent
 - 1 percent
 - 5 percent
 - 10 percent
- 13–26.** Rape may result in long-term psychological symptoms that include which of the following?
- Anxiety
 - Depression
 - Somatic complaints
 - All of the above

- 13–27.** A 1-year-old female child is brought to the emergency department for evaluation of suspected sexual abuse. Which of the following infections is the strongest indicator that such abuse has indeed occurred?
- Gonorrhea
 - Genital warts
 - Trichomoniasis
 - Hepatitis B infection
- 13–28.** Of the following demographic characteristics, which is **LEAST** commonly associated with a woman falling victim to intimate partner violence?
- Pregnancy
 - Age less than 25 years
 - Age greater than 65 years
 - Witness to violence as a child
- 13–29.** What is reported as the leading cause of death during pregnancy?
- Suicide
 - Homicide
 - Thromboembolic event
 - Motor vehicle accident
- 13–30.** In studies of female sexual responsiveness, early theories focused on observed anatomic and physiologic changes. Phases of excitement, plateau, orgasm, and resolution were described. Newer constructs have added which of the following as an early phase in the cycle of female sexual functioning?
- Desire
 - Emotional harmony
 - Intimacy awareness
 - Social conflict resolution
- 13–31.** Female sexual desire is modified by which of the following?
- Drive, the spontaneous biologic component
 - Beliefs and values regarding sexual intimacy
 - Motivation to engage in sexual activity with a partner (or self)
 - All of the above
- 13–32.** Which of the following is **NOT** a physical component of female sexual arousal?
- Vaginal narrowing
 - Clitoral engorgement
 - Elevated heart and respiratory rates
 - Release of nitric oxide by vaginal epithelium and endothelium
- 13–33.** Which of the following agents is thought to have significant physiologic role in female orgasm?
- Dopamine
 - Oxytocin
 - Serotonin
 - All of the above
- 13–34.** Which of the following therapies has been shown most convincingly to positively enhance postmenopausal libido and orgasm?
- Estrogen
 - Progesterone
 - Testosterone
 - Selective serotonin-reuptake inhibitors
- 13–35.** Which of the following is **NOT** a recognized category of sexual dysfunction in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)?
- Female orgasmic disorder
 - Female sexual/depressive disorder
 - Female sexual interest/arousal disorder
 - Genitopelvic pain/penetration disorder

Chapter 13 ANSWER KEY

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13-3	c	p. 298	Table 13-2	13-22	b	p. 308	Pregnancy Prevention
13-4	d	p. 298	Anxiety Disorders	13-23	a	p. 308	Pregnancy Prevention
13-5	d	p. 300	Table 13-5	13-24	a	p. 309	Sexually Transmitted Disease Prevention
13-6	d	p. 301	Substance Use Disorders	13-25	a	p. 309	Sexually Transmitted Disease Prevention
13-7	c	p. 301	Eating Disorders	13-26	d	p. 310	Psychological Response to Sexual Assault
13-8	b	p. 302	Diagnosis	13-27	a	p. 310	Table 13-14
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13-11	a	p. 303	Pathophysiology	13-30	a	p. 312	Female Sexuality
13-12	d	p. 303	Diagnosis	13-31	d	p. 312	Dive/Desire
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13-14	c	p. 303	Treatment	13-33	d	p. 313	Release and Resolution
13-15	b	p. 305	Antepartum	13-34	a	p. 313	Normal Variations in the Physiologic Response
13-16	a	p. 305	Postpartum	13-35	b	p. 314	Table 13-15
13-17	b	p. 306	Evaluation and Treatment				
13-18	a	p. 307	Late Life				
13-19	b	p. 307	Somatic Symptom Disorders				

CHAPTER 14

Pediatric Gynecology

- 14-1.** Which of the following statements is **FALSE** regarding the development of the hypothalamic–pituitary–ovarian axis in the female fetus and neonate?
- By 5 months' gestation, 6 to 7 million oocytes have been created from accelerated germ cell division.
 - The gonadotropin-releasing hormone (GnRH) “pulse generator” remains functionally dormant until several months after birth.
 - At birth, follicle-stimulating hormone (FSH) and luteinizing hormone (LH) concentrations rise and remain high during the first 3 months of life.
 - Neonatal breast budding, minor uterine bleeding, and transient ovarian cysts may occur as a normal response to initially high gonadotropin levels.
- 14-2.** Which of the following statements is true regarding pelvic anatomy in the female infant and child?
- The ovaries have obtained their normal adult size by birth.
 - At birth, the uterus and cervix are approximately equal in size.
 - Presence of an endometrial stripe or fluid within the endometrial cavity of the newborn uterus is a normal finding with sonography.
 - All the above are true statements.
- 14-3.** Which of the following generally occurs first among the major developmental events of female puberty?
- Menarche
 - Pubarche
 - Thelarche
 - Growth spurt
- 14-4.** An alarmed parent brings her 8-year-old daughter in for evaluation of breast budding. The child shows no other signs of puberty. Precocious puberty is defined as initial pubertal changes occurring prior to what threshold age?
- 6 years
 - 7 years
 - 8 years
 - 9 years
- 14-5.** Delayed puberty is characterized by a lack of initial pubertal changes, usually thelarche, by what threshold age?
- 13 years
 - 14 years
 - 15 years
 - 16 years
- 14-6.** Compared with several decades ago, the age at which U.S. girls currently experience thelarche and menarche has shown which of the following trends?
- In general, later than in past
 - In general, earlier than in past
 - For girls with a higher body mass index, later than in the past
 - No clear trend observed
- 14-7.** All states in the United States legally allow a minor woman to consent to medical examination and treatment on her own behalf in all of the following situations **EXCEPT**:
- Pregnancy
 - Emancipated minor status
 - Living permanently apart from parents
 - Requesting a school-sponsored sports' physical examination
- 14-8.** Which of the following is an indication for an internal vaginal examination of a child?
- Possible tumor
 - Vaginal bleeding
 - Suspected foreign body
 - All of the above

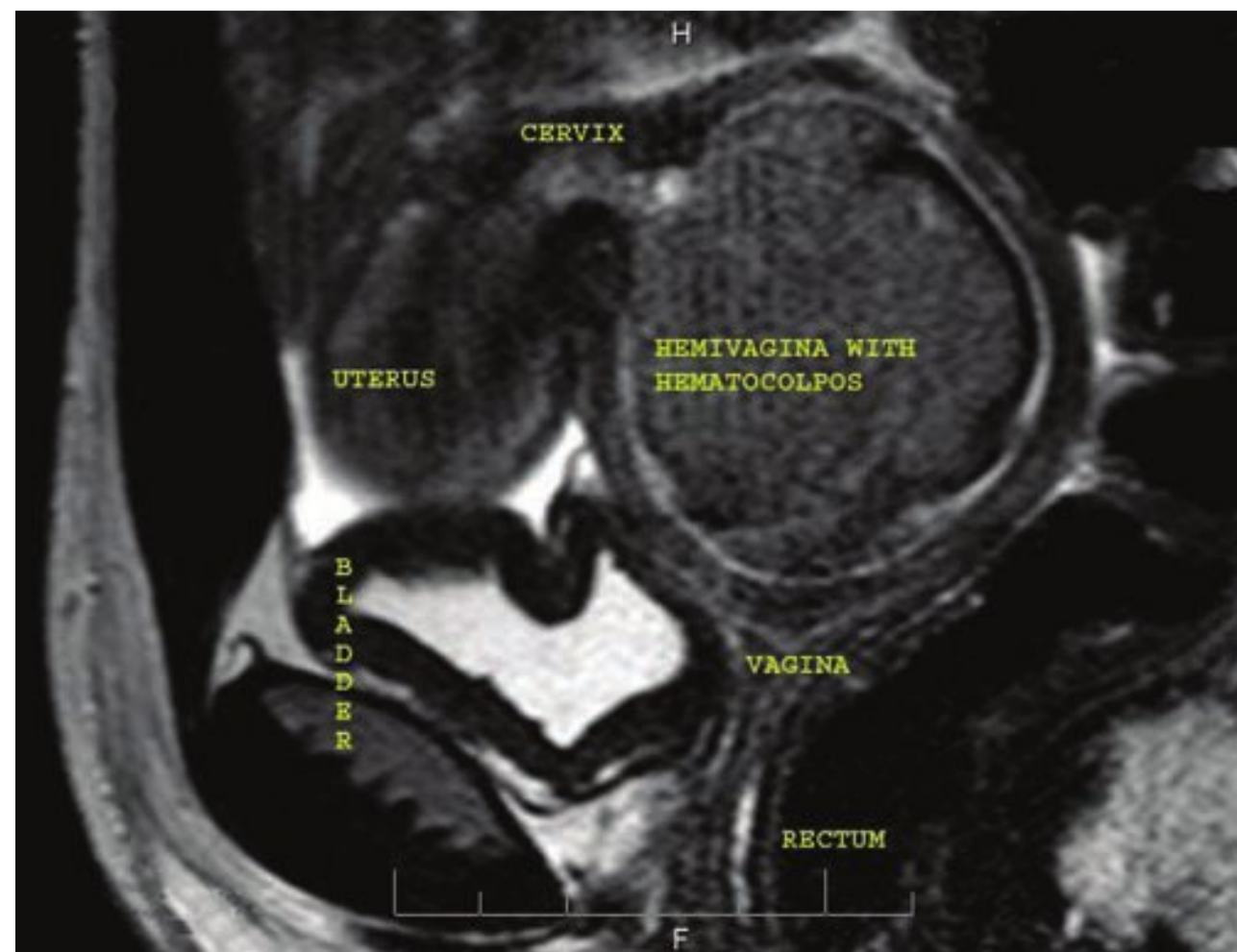
14–9. A 4-year-old girl is brought in by her parent with the concern that “the lips of her vagina have stuck together.” Initial management of labial adhesion or agglutination in a child, as shown here, does **NOT** include which of the following options?



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- a. Surgery
- b. Emollients
- c. Topical estrogen cream
- d. Await spontaneous resolution

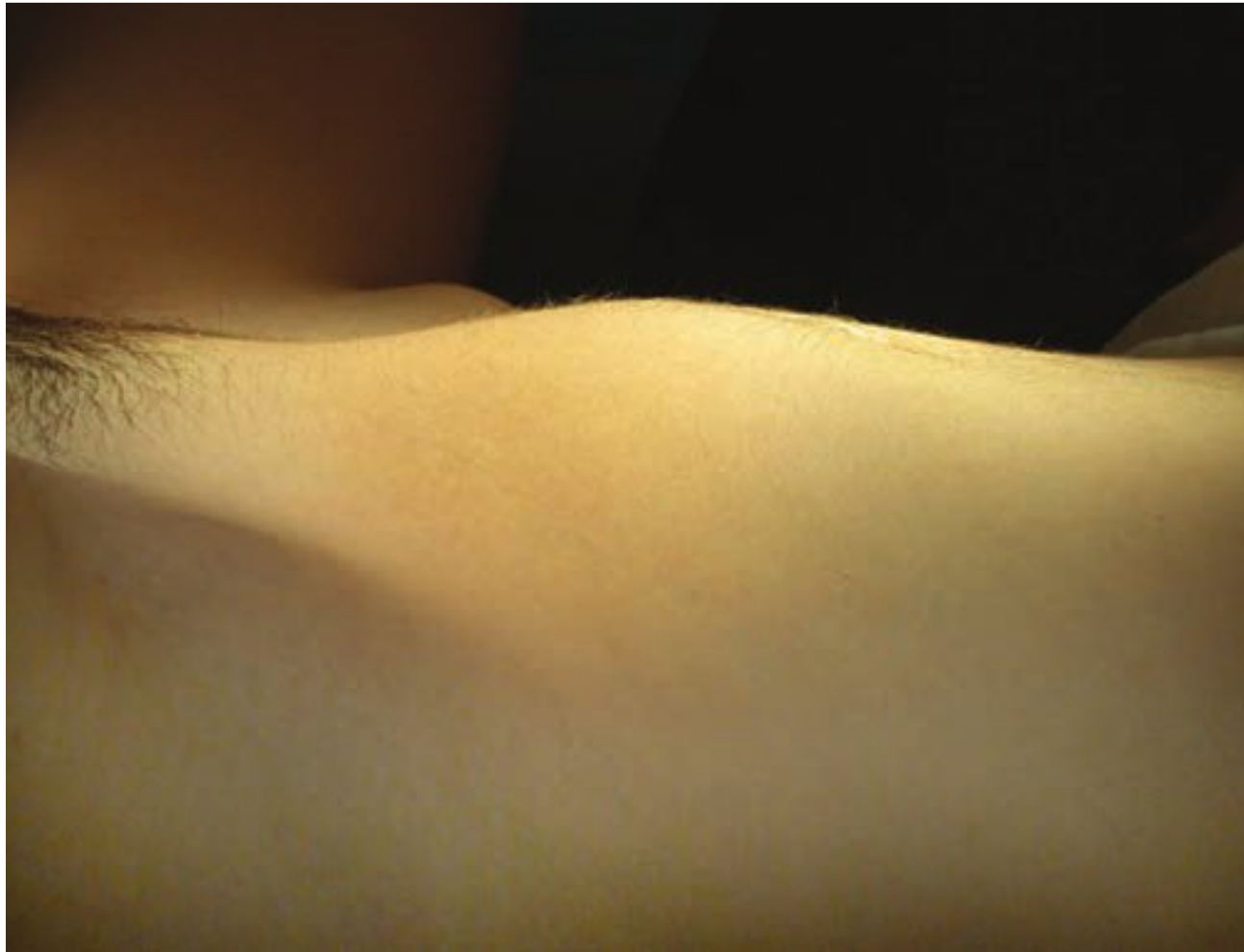
14–10. A 14-year-old woman presents with increasingly painful, cyclic menses since menarche, 9 months ago. Menstrual flow is normal in amount and duration. Oral analgesics and nonsteroidal antiinflammatory medications no longer adequately control her severe dysmenorrhea. Which of the following congenital anomalies is most likely present?



Used with permission from Dr. Ellen Wilson.

- a. Imperforate hymen
- b. Müllerian agenesis
- c. Complete transverse vaginal septum
- d. Obstructed hemivagina with ipsilateral renal agenesis (OHVIRA) syndrome

- 14–11.** A 14-year-old woman presents with increasing abdominal pain. She has begun appropriate pubertal development, although menarche has not occurred. During examination, a central abdominopelvic mass is appreciated and is shown here. Physical examination findings prompt magnetic resonance imaging with contrast, and the results are shown below. Which of the following congenital anomalies is most likely present?



Used with permission from Dr. Ellen Wilson.

- a. Imperforate hymen
- b. Müllerian agenesis
- c. Unicornuate uterus with cavitory communicating rudimentary horn
- d. Obstructed hemivagina with ipsilateral renal agenesis (OHVIRA) syndrome

- 14–12.** A 7-year-old girl has experienced vulvar irritation with external itching and burning during urination for several months. Symptoms have persisted despite attempts to eliminate potential irritants and contact allergens from the bath and laundry products used by the family. Examination, as shown here, reveals symmetrical hypopigmentation and a parchment-like thinning of the vulvar and perianal skin. What is the most likely diagnosis?



Used with permission from Dr. Mary Jane Pearson.

- a. Eczema
- b. Candidiasis
- c. Sexual abuse
- d. Lichen sclerosus

- 14–13.** Which of the following organisms is most likely to cause prepubertal vulvitis?

- a. *Candida albicans*
- b. Group B streptococcus
- c. *Staphylococcus aureus*
- d. Group A β -hemolytic streptococcus

- 14–14.** With prepubertal vulvovaginitis, what approximate percentage of bacterial cultures obtained from vaginal swabs show only normal genital flora?

- a. 25 percent
- b. 50 percent
- c. 75 percent
- d. 90 percent

- 14–15.** Which of the following physiologic or anatomic characteristics predispose to prepubertal vulvovaginitis?
- Poor vulvar hygiene
 - Lack of labial fat pads and labial hair
 - Nonestrogenized vulvovaginal epithelium
 - All of the above
- 14–16.** An 8-year-old girl presents with a mucopurulent and bloody vaginal discharge. Her parents report that, while traveling recently, the girl was briefly hospitalized for treatment of severe diarrhea. Examinations of the vagina in the office and under anesthesia reveal no tumor or foreign body. What is the most likely organism involved?
- Shigella* spp.
 - Salmonella* spp.
 - Candidia glabrata*
 - Enterobius vermicularis*
- 14–17.** What approximate percentage of malignant tumors diagnosed in childhood are of ovarian origin?
- 0.1 percent
 - 1 percent
 - 10 percent
 - 30 percent
- 14–18.** A fetal ovarian mass is noted as an incidental finding during third-trimester sonographic assessment of fetal growth. The female infant is delivered at term without incident. Lower abdominal fullness is palpated during neonatal examination, and transabdominal sonography shows a 4.2-cm simple right ovarian cyst. The infant is afebrile and in no distress. What is the most appropriate management of this ovarian mass?
- No further surveillance
 - Percutaneous cyst aspiration
 - Surgery if unresolved within 2 months
 - Observation with repeat sonography in 6 weeks

- 14–19.** A unicornuate uterus and its noncavitary rudimentary horn are shown here. What is the preferred imaging modality when a congenital müllerian anomaly is suspected?



B = bladder.

- Computed tomography
 - Hysterosalpinography
 - Transabdominal sonography
 - Magnetic resonance imaging
- 14–20.** Accessory nipples, when present, are located along the embryonic milk line extending from the axilla to the groin bilaterally. Their presence is termed which of the following?
- Polythelia
 - Multimomium
 - Polymammoma
 - Areola duplicata
- 14–21.** Which of the following is true regarding isolated premature thelarche?
- Bone age is advanced.
 - Gonadotropin levels are elevated.
 - It is most common in girls younger than 2 years.
 - None of the above

14–22. A 14-year-old adolescent is brought in for examination due to her left breast being noticeably larger than her right when she is undressed. The breasts are otherwise normal during examination. Thelarche occurred at the age of 11.5 years. She cannot think of any specific trauma to the right breast or chest wall. She has never had any surgery. Cosmetically, the difference is not obvious when she is clothed. Which of the following is the most common etiology of asymmetric breast growth in a female adolescent?

- a. Idiopathic
- b. Surgical trauma
- c. Physical trauma
- d. Strong right or left handedness

14–23. In an adolescent with an otherwise normal breast and chest wall examination, what is the best approach to breast asymmetry?

- a. Order breast sonography or diagnostic mammography
- b. Initiate combination low-dose oral contraceptive pills
- c. Refer now for plastic surgery before asymmetry worsens
- d. Reassure that most cases of breast asymmetry resolve by completion of breast development

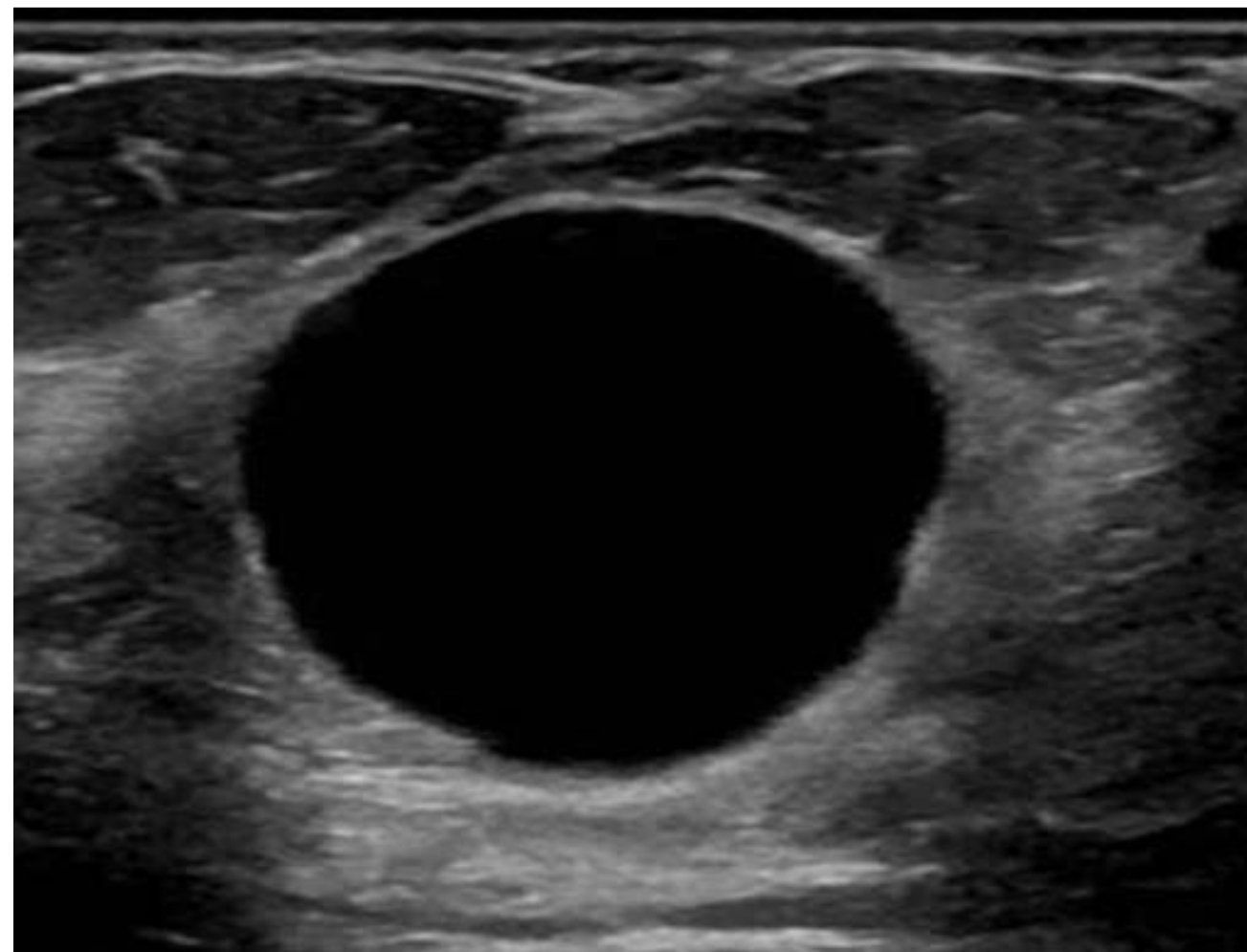
14–24. Abnormal breast development may be due to either fascial adherence to the underlying muscle layer or due to high-dose exogenous hormone exposure during puberty. In such cases, breasts have excessive forward but limited lateral growth, which causes an abnormal shape. This condition is referred to as which of the following?

- a. Perithelia
- b. Tuberous breasts
- c. Aberrant breast hypertrophy
- d. Asymmetric lactiferous hyperplasia

14–25. Lack of breast development is associated with low estrogen levels and may be caused by which of the following?

- a. Chronic disease
- b. Gonadal dysgenesis
- c. High levels of athletic activity
- d. All of the above

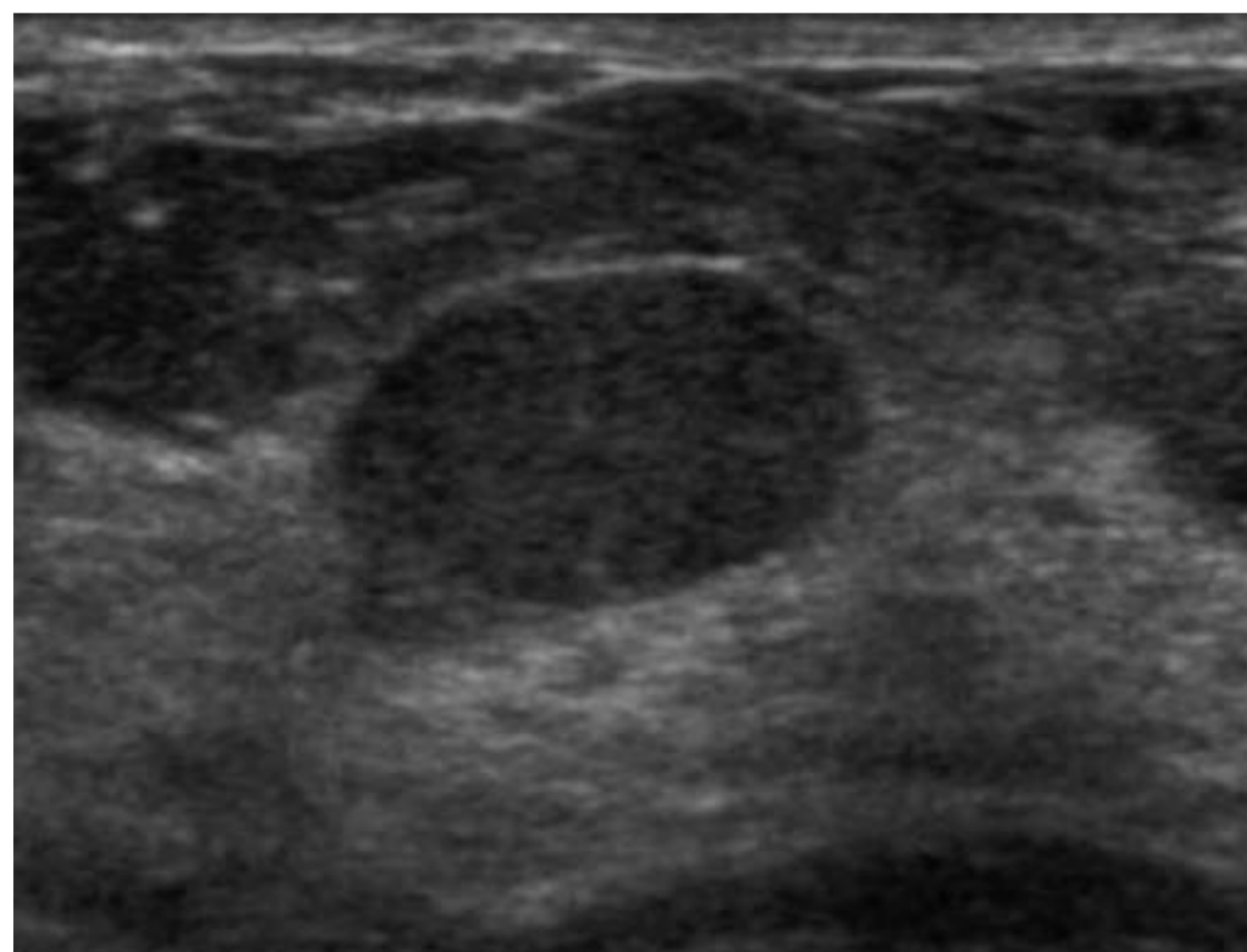
14–26. A breast mass noted in an adolescent female prompts you to order breast sonography. What is the most likely outcome of the lesion found and shown here?



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- a. Spontaneous regression over time
- b. Persistence with little change in size
- c. With hormonal stimulation, gradual increase in size
- d. Development of more generalized fibrocystic changes

14–27. A smooth, firm, mobile, nontender right-breast mass is palpable during examination of a 12-year-old girl. It is 1 cm in its greatest dimension and appears solid sonographically, as shown here. She has had no major health problems to date. What is the most likely diagnosis?



Used with permission from Dr. Stephen J. Seiler.

- a. Malignancy
- b. Fibroadenoma
- c. Ductal ectasia
- d. Asymmetric breast budding

- 14–28.** Mastitis is unusual in children and adolescents. What is the most common pathogen isolated from breast abscesses in the pediatric population?
- Escherichia coli*
 - Staphylococcus aureus*
 - Streptococcus pyogenes*
 - Staphylococcus epidermidis*
- 14–29.** An 8-year-old girl is brought in for evaluation of 4 days of intermittent vaginal bleeding and foul discharge. She shows no signs of pubertal development. The cause of the bleeding is not apparent during physical examination, and the decision is made to proceed with examination under anesthesia and saline vaginoscopy. What is the most likely finding?
- Foreign object
 - Atrophic vaginitis
 - Endocervical polyp
 - Genital tract malignancy
- 14–30.** Which of the following is the most common cause of central precocious puberty?
- Idiopathic
 - Head trauma
 - Hydrocephalus secondary to surgery
 - Congenital central nervous system anomaly
- 14–31.** Primary therapy for central (gonadotropin-dependent) precocious puberty consists of which of the following?
- Bromocriptine
 - Depot-medroxyprogesterone acetate
 - Combination oral contraceptive pills
 - Gonadotropin-releasing hormone (GnRH) agonist
- 14–32.** A primary goal of therapy for central precocious puberty includes prevention of which of the following consequences?
- Short stature
 - Excessive breast size
 - Learning disabilities
 - None of the above
- 14–33.** A 5-year-old girl shows clinical signs of precocious puberty. Gonadotropin levels are low, even following gonadotropin-releasing hormone (GnRH) stimulation testing. However, estrogen levels are elevated. Which of the following could cause of her disorder?
- Primary hypothyroidism
 - Ovarian granulosa cell tumor
 - Congenital adrenal hyperplasia
 - All of the above
- 14–34.** Pubarche, with development of axillary and pubic hair, is stimulated by the androgens derived primarily from which of the following?
- Adrenal glands
 - Ovarian stroma
 - Peripheral aromatization of estrogens
 - Physiology continues to be poorly understood.
- 14–35.** Delayed puberty in women is defined as the lack of secondary sexual characteristics by age 13 or lack of menarche by what age?
- 14
 - 15
 - 16
 - 18
- 14–36.** When an individual experiences difficulty identifying with their phenotypic gender, perceiving themselves to be of the opposite gender, the condition is termed which of the following?
- Homosexuality
 - Gender dysphoria
 - Sexual identity conflict
 - Gender of rearing mismatch
- 14–37.** Sexually active adolescents are particularly vulnerable to partner violence. In a study by Abma and associates (2010), what percentage of adolescent women who experienced coitarche prior to age 20 described their first sexual intercourse as nonvoluntary?
- 0.1 percent
 - 1 percent
 - 7 percent
 - 17 percent
- 14–38.** Which of the following contraceptive methods is generally contraindicated in adolescents and women younger than 21 years?
- Vaginal ring
 - Intrauterine devices
 - Extended use of oral contraceptive pills
 - None of the above
- 14–39.** Which of the following is required before initiating a contraceptive method for a healthy, sexually active adolescent?
- Pelvic examination
 - Cervical cancer screening
 - Human papillomavirus (HPV) vaccination
 - None of the above

- 14–40.** Vaccines targeting human papillomavirus infection are approved through what age (in years) for women according to the U.S. Food and Drug Administration?
- a.** 12
 - b.** 15
 - c.** 21
 - d.** 26
- 14–41.** In the United States, adolescents can obtain medical care without parental knowledge or consent for which of the following “medically emancipated” conditions?
- a.** Pregnancy
 - b.** Contraception
 - c.** Substance abuse
 - d.** All of the above

Reference

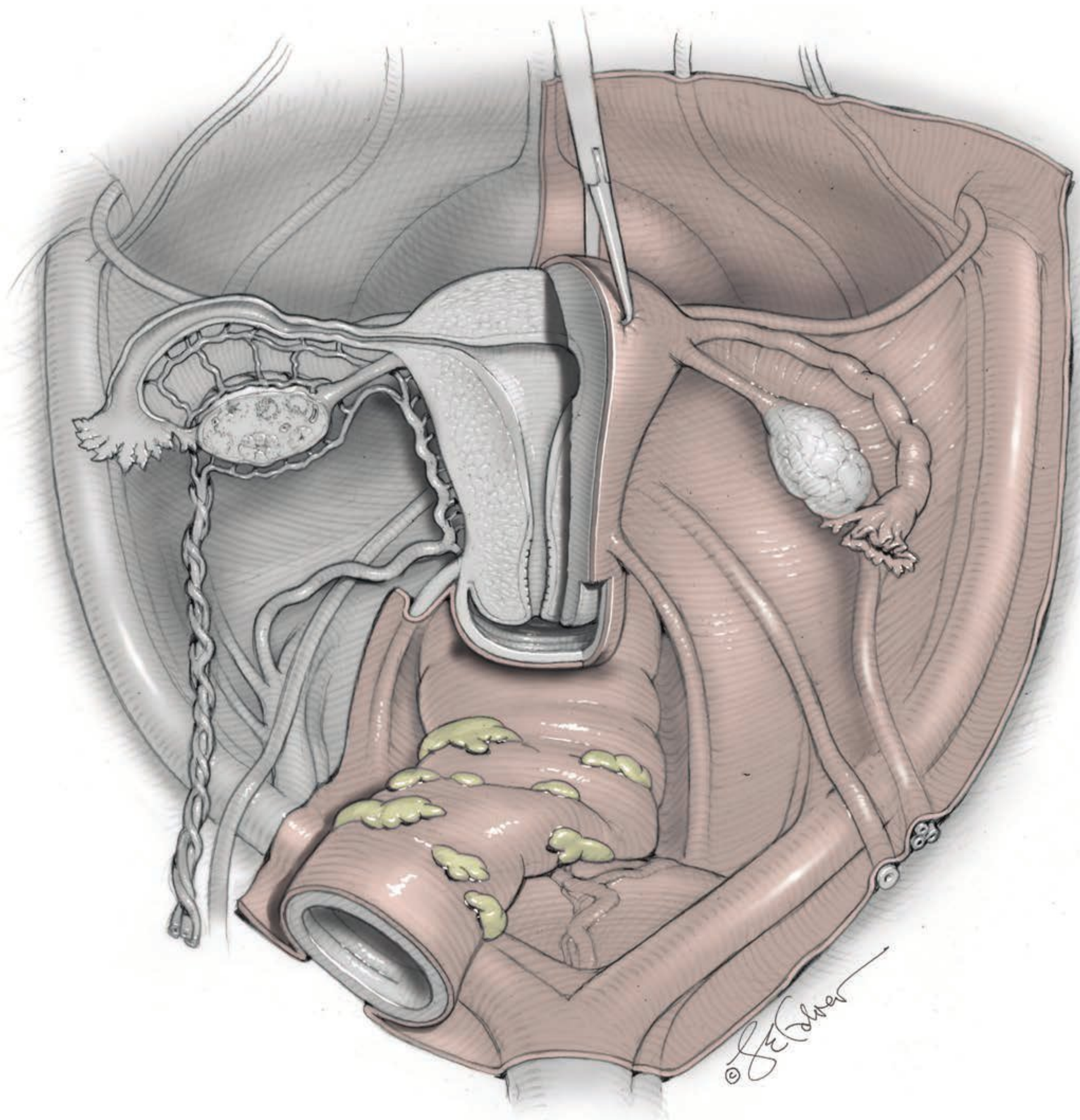
Abma JC, Martinez GM, Copen CE: Teenagers in the United States: sexual activity, contraceptive use, and childbearing, National Survey of Family Growth 2006–2008. National Center for Health Statistics. Vital Health Stat 23:30, 2010.

Chapter 14 ANSWER KEY

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14-2	c	p. 318	Anatomy	14-24	b	p. 326	Breast Shape
14-3	c	p. 319	Pubertal Changes	14-25	d	p. 326	Absent Breast Development
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14-9	a	p. 321	Labial Adhesion	14-31	d	p. 327	Central Precocious Puberty (Gonadotropin Dependent)
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14-17	b	p. 325	Ovarian Tumors	14-39	d	p. 330	Contraception
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14-20	a	p. 325	Polythelia				
14-21	c	p. 326	Premature Thelarche				
14-22	a	p. 326	Breast Shape				

SECTION 2

REPRODUCTIVE ENDOCRINOLOGY, INFERTILITY, AND THE MENOPAUSE



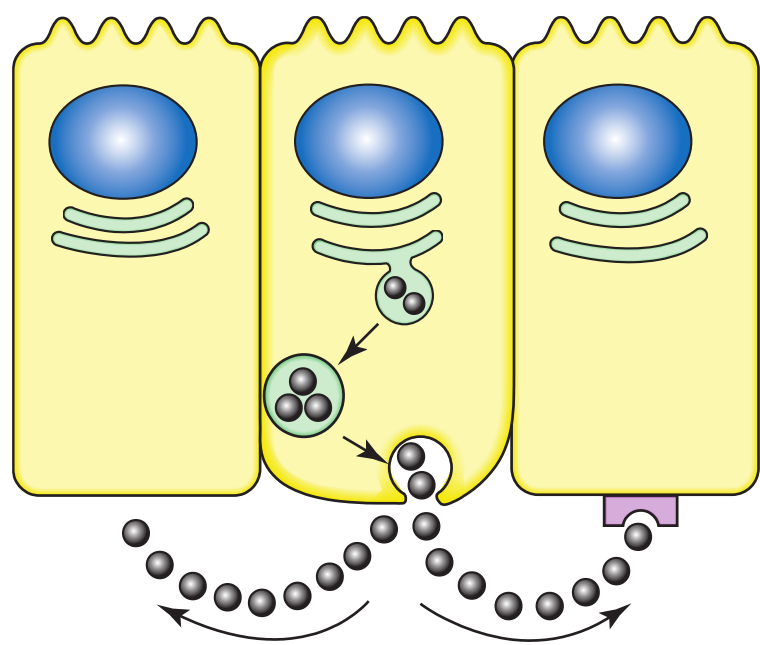
CHAPTER 15

Reproductive Endocrinology

15-1. Which of the following most accurately describes autocrine hormone communication?

- A cell secretes a hormone that acts on a neighboring cell.
- A cell secretes a hormone that influences its own function.
- The hormone is secreted and acts upon a distant target tissue.
- The hormone produced acts within the cell before it is secreted.

15-2. The figure below portrays which type of hormone action?



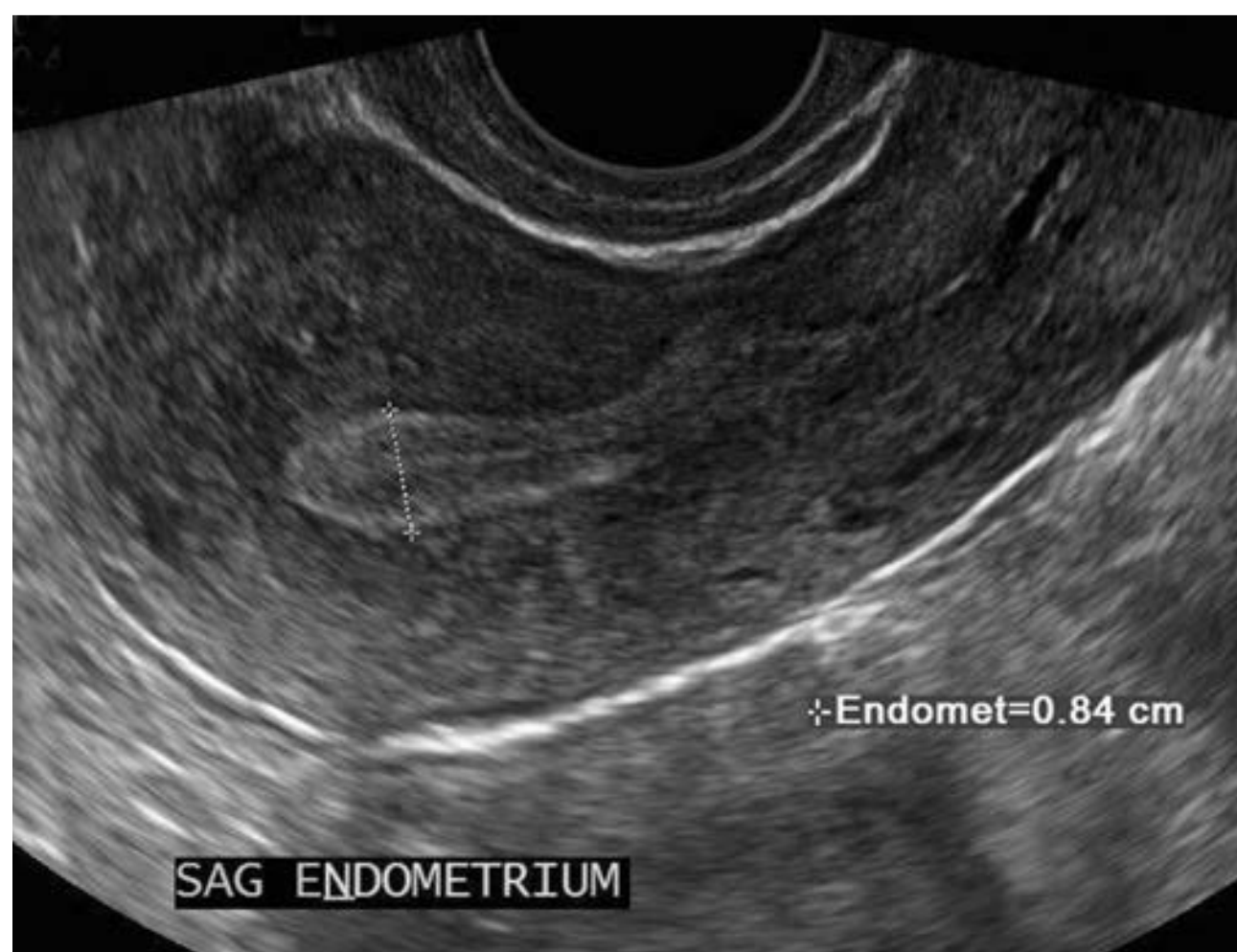
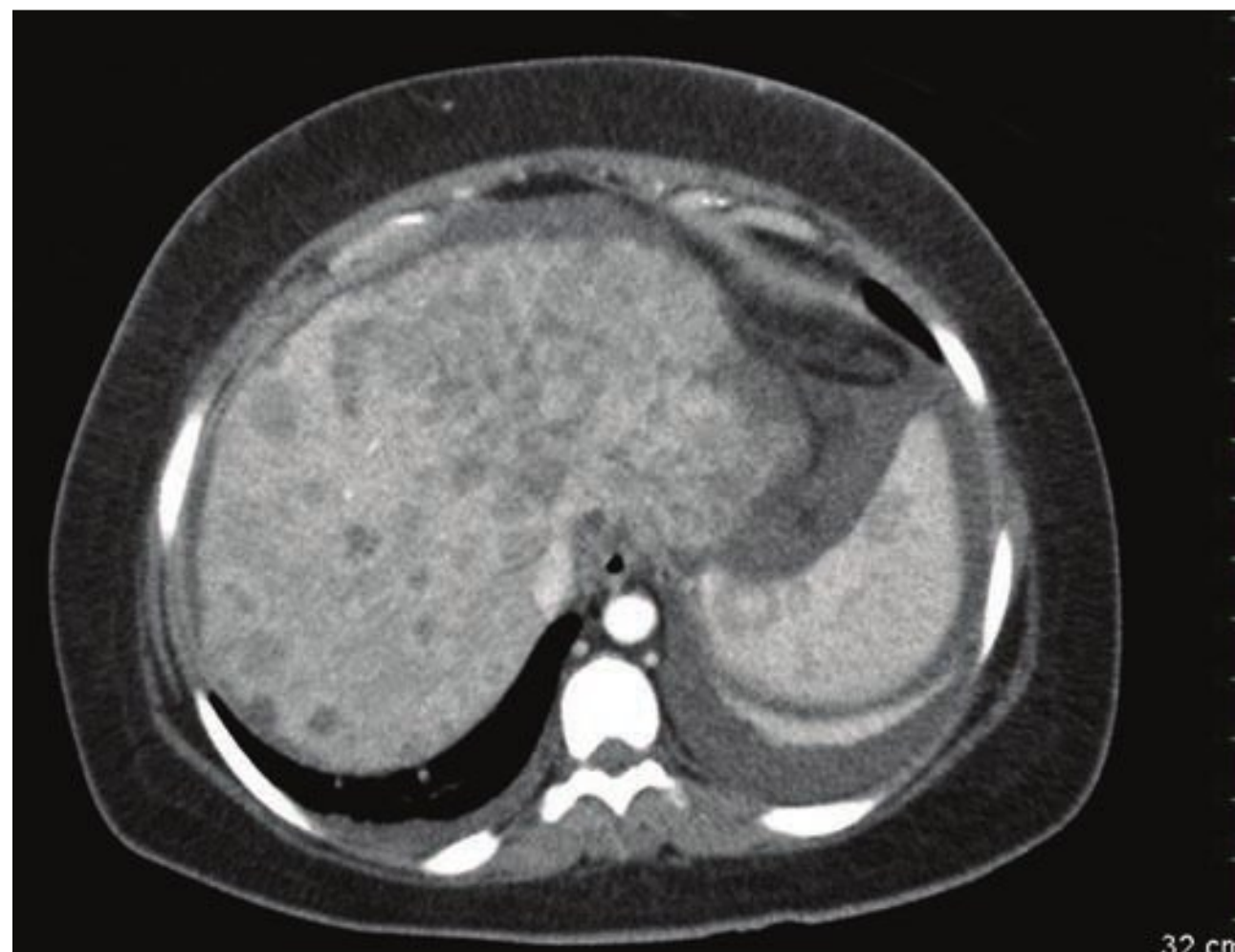
Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al: Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Figure 15-1B.

- Autocrine
- Endocrine
- Paracrine
- Intracrine

15-3. Which of the following statements is true regarding the gonadotropin luteinizing hormone (LH)?

- It is secreted by the posterior pituitary gland.
- Its functional specificity is derived from the α -subunit.
- It shares a common glycoprotein β -subunit with follicle-stimulating hormone (FSH).
- Its β -subunit demonstrates approximately 80 percent homology with that of human chorionic gonadotropin (hCG).

15-4. A 48-year-old woman presents to the Emergency Department with severe upper abdominal pain and a positive pregnancy test. She has had a prior tubal ligation. A computed tomography scan performed to evaluate her pain is significant for multiple heterogeneous hepatic lesions (shown below). Her serum β -human chorionic gonadotropin (β -hCG) test result is 115 mIU/mL. Transvaginal sonography results are also shown below. Chest radiographs are normal. What is the most likely source of her hCG?



- Liver tumors
- Exogenous hCG injection
- Partial molar pregnancy
- Complete molar pregnancy

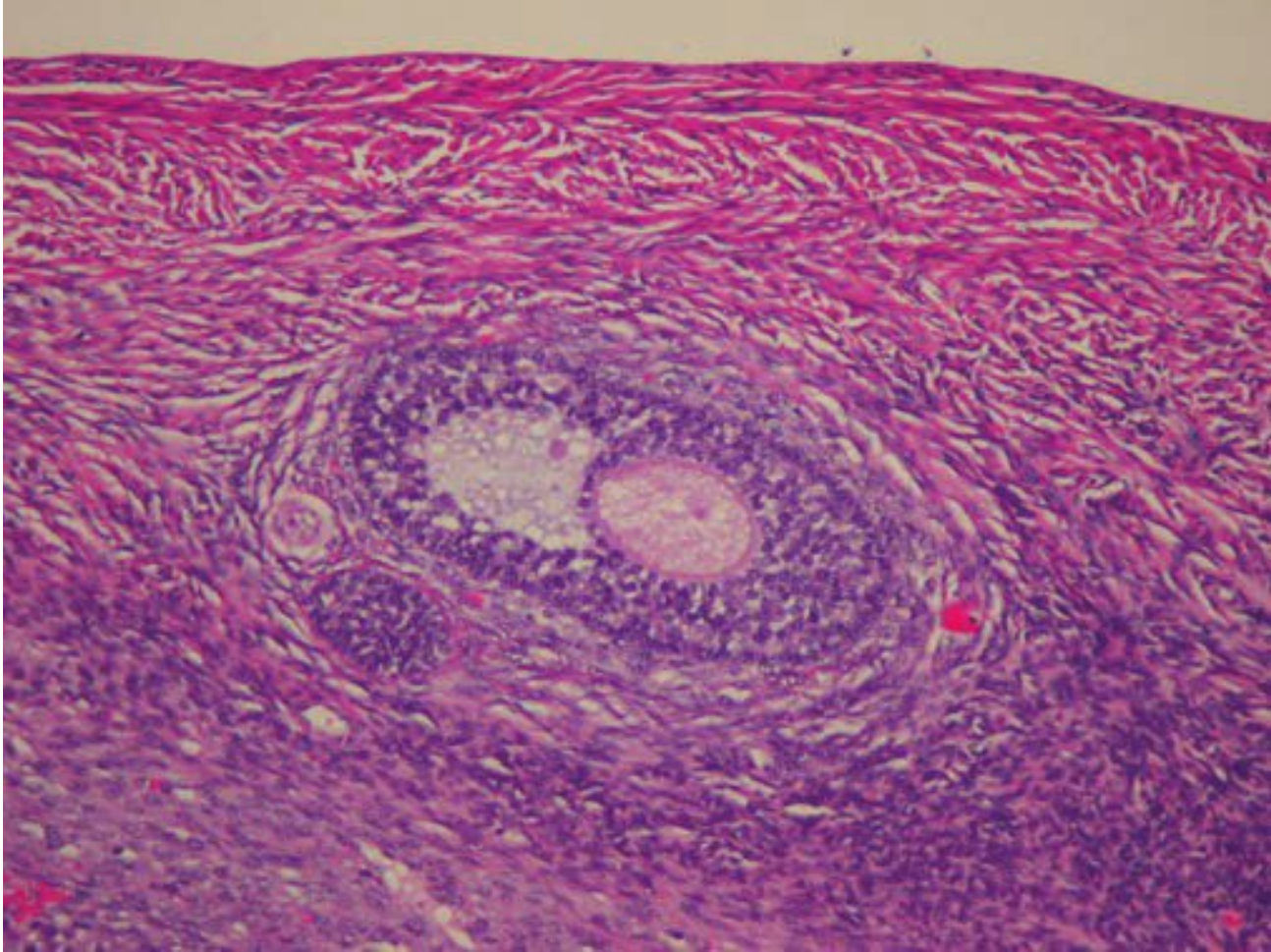
- 15-5.** Which of the following statements regarding steroidogenesis is **FALSE**?
- Steroid production primarily occurs in the Golgi apparatus.
 - The primary building block of sex steroid hormones is cholesterol.
 - The enzymes involved in steroid production are members of the cytochrome P450 superfamily.
 - The placenta is the only steroid-producing tissue that cannot synthesize cholesterol from its precursor, acetate.
- 15-6.** The last step in estrogen synthesis requires which of the following enzymes?
- Aromatase
 - 21-hydroxylase
 - 5 α -reductase
 - 11 β -hydroxylase
- 15-7.** All of the following tissues express significant levels of aromatase **EXCEPT**:
- Skin
 - Brain
 - Ovary
 - Muscle
- 15-8.** What is the predominant estrogen during menopause?
- Estriol
 - Estrone
 - Estradiol
 - None of the above
- 15-9.** Which of the following androgens is **NOT** produced by the ovary?
- Testosterone
 - Androstenedione
 - Dihydrotestosterone (DHT)
 - Dehydroepiandrosterone (DHEA)
- 15-10.** Approximately what percentage of androgens and estrogens are found unbound, or free, in the circulation?
- 1 percent
 - 5 percent
 - 10 percent
 - 20 percent
- 15-11.** All of the following will increase levels of sex hormone-binding globulin **EXCEPT**:
- Androgens
 - Estrogens
 - Pregnancy
 - Hyperthyroidism
- 15-12.** Where in the cell are unliganded estrogen receptors located?
- Nucleus
 - Cytoplasm
 - Mitochondria
 - Endoplasmic reticulum
- 15-13.** Gonadotropin-releasing hormone agonists, such as leuprolide acetate, reduce gonadotropin secretion by what mechanisms?
- Receptor destruction
 - Receptor hydroxylation
 - Receptor downregulation
 - Receptor phosphorylation
- 15-14.** A 17-year-old adolescent presents with heavy vaginal bleeding for 3 days. Her previous menstrual period was 3 months ago, and she is sexually active without contraception. She denies vision changes, galactorrhea, or headaches. Physical examination is notable for a soft, 14-week size uterus. Her urine β -human chorionic gonadotropin (β -hCG) level assay is negative. Transvaginal sonography is obtained and a sagittal view of the uterus reveals the findings below. What is the next clinical step?



- Endometrial biopsy
- Serum-based β -hCG assay
- Serum-based prolactin level
- Head magnetic resonance imaging

- 15–15.** For the patient in Question 15–13, what is the mechanism by which significantly elevated hormone levels can saturate assay antibodies and create a false-negative reading?
- Hook effect
 - Werner effect
 - Layered effect
 - Maryland effect
- 15–16.** What effect do endogenous opioids have on the release of gonadotropin-releasing hormone (GnRH)?
- No effect
 - Variable effect
 - Increase release of GnRH
 - Suppress release of GnRH
- 15–17.** Endorphin levels in the brain peak during what phase of the menstrual cycle?
- Menses
 - Ovulation
 - Luteal phase
 - Follicular phase
- 15–18.** Secretion of which anterior pituitary hormone is **NOT** stimulated by hypothalamic neuroendocrine secretion?
- Prolactin
 - Growth hormone
 - Luteinizing hormone
 - Thyroid-stimulating hormone
- 15–19.** Sustained gonadotropin secretion requires which of the following patterns of gonadotropin-releasing hormone (GnRH) secretion?
- Nocturnal release of GnRH
 - Pulsatile release of GnRH
 - Continuous low levels of GnRH secretion
 - Continuous high levels of GnRH secretion
- 15–20.** Which of the following statements regarding gonadotropin-releasing hormone (GnRH) pulsatility in animal models is **FALSE**?
- Progesterone decreases GnRH pulsatility.
 - Higher pulse frequency favors luteinizing hormone (LH) secretion.
 - Lower pulse frequency favors follicle-stimulating hormone (FSH) secretion.
 - Estrogen increases GnRH pulse frequency such that FSH levels increase relative to LH levels.
- 15–21.** Prolactin release is primarily regulated by which neurotransmitter?
- Dopamine
 - Epinephrine
 - Norepinephrine
 - Thyrotropin-releasing hormone
- 15–22.** Cells of the anterior pituitary primarily express which of the following dopamine receptors?
- D1
 - D2
 - D3
 - D4
- 15–23.** Which of the following statements is true regarding the corticotropin-releasing hormone–adrenocorticotropic hormone (CRH-ACTH) pathway?
- Abnormalities in the pathway result in electrolyte disturbances.
 - CRH secretion is under negative-feedback regulation by circulating cortisol.
 - CRH binds to its receptors in the posterior pituitary to stimulate ACTH secretion.
 - ACTH stimulates glucocorticoid production by the adrenal zona reticularis.
- 15–24.** All of the following stimulate release of growth hormone **EXCEPT**:
- Sleep
 - Stress
 - Adiposity
 - Hypoglycemia
- 15–25.** Which of the following is **NOT** believed to be a function of oxytocin?
- Promotes vaginal distension during coitus
 - Stimulates uterine contractions during labor.
 - Promotes expression of milk during lactation.
 - Prompts uterine and tubal contractions to aid fertilization.

15–26. What stage of folliculogenesis is shown here?



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- a. Corpus luteum
- b. Antral follicle
- c. Corpus albicans
- d. Primary follicle

15–27. When is meiosis II completed during oocyte maturation?

- a. After fertilization
- b. After the luteinizing hormone (LH) surge
- c. Immediately preceding the LH surge
- d. During follicular development in the preovulatory phase

15–28. All of the following statements regarding estrone are true **EXCEPT**:

- a. It is the principal serum estrogen in postmenopausal women.
- b. The major site for conversion of androstenedione to estrone is adipose tissue.
- c. Circulating levels of estrone are usually adequate to protect against bone loss.
- d. For a given body weight, conversion of androstenedione to estrone is higher in postmenopausal women than in premenopausal women.

15–29. What hormone is responsible for the recruitment of the follicles destined for ovulation?

- a. Estrogen
- b. Inhibin A
- c. Inhibin B
- d. Follicle-stimulating hormone (FSH)

15–30. A 36-year-old woman is using a home ovulation-predictor kit to help achieve pregnancy. She is given specific instructions by her physician to engage in sexual intercourse after detecting the luteinizing hormone (LH) surge. The advice is based upon ovulation typically occurring how many hours after the onset of this surge?

- a. 12 to 16 hours
- b. 24 to 30 hours
- c. 36 to 40 hours
- d. 48 to 52 hours

15–31. The patient in Question 15–30 returns to her physician, unsure if she detected a luteinizing hormone (LH) surge with her home ovulation predictor kit. To confirm ovulation, a progesterone level is drawn in the midluteal phase (day 21 of the menstrual cycle). At what minimum progesterone level can it be assumed that ovulation has occurred?

- a. 0.3 ng/mL
- b. 3 ng/mL
- c. 30 ng/mL
- d. 300 ng/mL

15–32. Steroidogenesis in the corpus luteum is mainly under the control of which hormone?

- a. Activin
- b. Follistatin
- c. Luteinizing hormone (LH)
- d. Follicle-stimulating hormone (FSH)

15–33. A 28-year-old woman presents to the emergency room reporting acute onset of pelvic pain. Her urine pregnancy test result is positive; she reports her last menses was 8 weeks ago; and a first-trimester intrauterine pregnancy is seen sonographically. The patient is taken to the operating room to evaluate for torsion after imaging demonstrates a large ovarian cyst. Ovarian torsion is confirmed, and the ovary containing a corpus luteum cyst must be removed. Until what gestational age must this patient receive progesterone replacement?

- a. 10 weeks
- b. 14 weeks
- c. 20 weeks
- d. No replacement is necessary after 8 weeks' gestation.

15–34. What days of the menstrual cycle constitute the window of implantation for a human embryo?

- a. Days 14 to 16
- b. Days 16 to 20
- c. Days 20 to 24
- d. Days 24 to 28

15–35. A 33-year-old woman has a 5-mm prolactin-producing pituitary adenoma, which is well controlled on bromocriptine. She presents soon after a missed menstrual period with a positive pregnancy test result. What is the best next step in management for this patient?

- a. Decreasing bromocriptine dose
- b. Increasing bromocriptine dose
- c. Discontinuing bromocriptine therapy
- d. Visual field testing in every trimester

15–36. A 26-year-old woman presents with severe headaches. Visual field defects are noted during evaluation, and imaging confirms a pituitary adenoma. What is the best next step in management for this patient?

- a. Radiation therapy
- b. Neurosurgical evaluation
- c. Somatostatin-agonist therapy
- d. Initiation of gonadotropin-releasing hormone (GnRH) agonist therapy

15–37. Which of the following progestins is **NOT** derived from 19-nortestosterone?

- a. Drospirenone
- b. Norgestimate
- c. Norethindrone
- d. Levonorgestrel

Chapter 15 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
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15-2	c	p. 334	Reproductive Endocrinology	15-21	a	p. 345	Dopamine and Prolactin
15-3	d	p. 334	Peptide Hormones: LH, FSH, and hCG	15-22	b	p. 345	Dopamine and Prolactin
15-4	a	p. 335	Human Chorionic Gonadotropin	15-23	b	p. 345	Corticotropin-releasing Hormone
15-5	a	p. 336	Steroidogenesis	15-24	c	p. 345	Growth Hormone-releasing Hormone
15-6	a	p. 337	Figure 15-5	15-25	a	p. 346	Posterior Pituitary Peptides
15-7	d	p. 336	Steroidogenesis	15-26	b	p. 348	Figure 15-13
15-8	b	p. 336	Steroidogenesis	15-27	a	p. 348	Oocyte Maturation
15-9	c	p. 336	Steroidogenesis	15-28	c	p. 350	Steroidogenesis Across the Life Span
15-10	a	p. 338	Steroid Hormone Transport in the Circulation	15-29	d	p. 353	Follicular Phase
15-11	a	p. 338	Steroid Hormone Transport in the Circulation	15-30	c	p. 353	Ovulation
15-12	a	p. 339	Estrogen, Progesterone, and Androgen Receptors	15-31	b	p. 354	Luteal Phase
15-13	c	p. 340	Receptor Expression and Desensitization	15-32	c	p. 354	Luteal Phase
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15-16	d	p. 343	Endogenous Opiates	15-35	c	p. 360	Pregnancy and Pituitary Adenomas
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15-19	b	p. 344	Pulsatile Gonadotropin-releasing Hormone Secretion				

CHAPTER 16

Amenorrhea

- 16-1.** In those without menses, which of the following clinical scenarios meets the definition of amenorrhea?
- A 12-year-old woman with Tanner stage I breast development
 - A 16-year-old woman with Tanner stage II breast development
 - A 14-year-old woman with Tanner stage III breast development
 - An 18-year-old woman with Tanner stage V breast development and cessation of menses for the last two cycles
- 16-2.** A rapid rise in which hormone is necessary to trigger ovulation?
- Estrogen
 - Progesterone
 - Follicle-stimulating hormone (FSH)
 - Human chorionic gonadotropin (hCG)
- 16-3.** Which of the following hormones “rescues” the corpus luteum from luteolysis?
- Luteinizing hormone
 - Human placental lactogen
 - Follicle-stimulating hormone (FSH)
 - Human chorionic gonadotropin (hCG)

- 16-4.** A 16-year-old woman presents for evaluation of pelvic pain. She has advanced breast and sexual hair development. Her examination is significant for the finding below. A transvaginal ultrasound shows normal female pelvic anatomy. What is this patient’s expected karyotype?



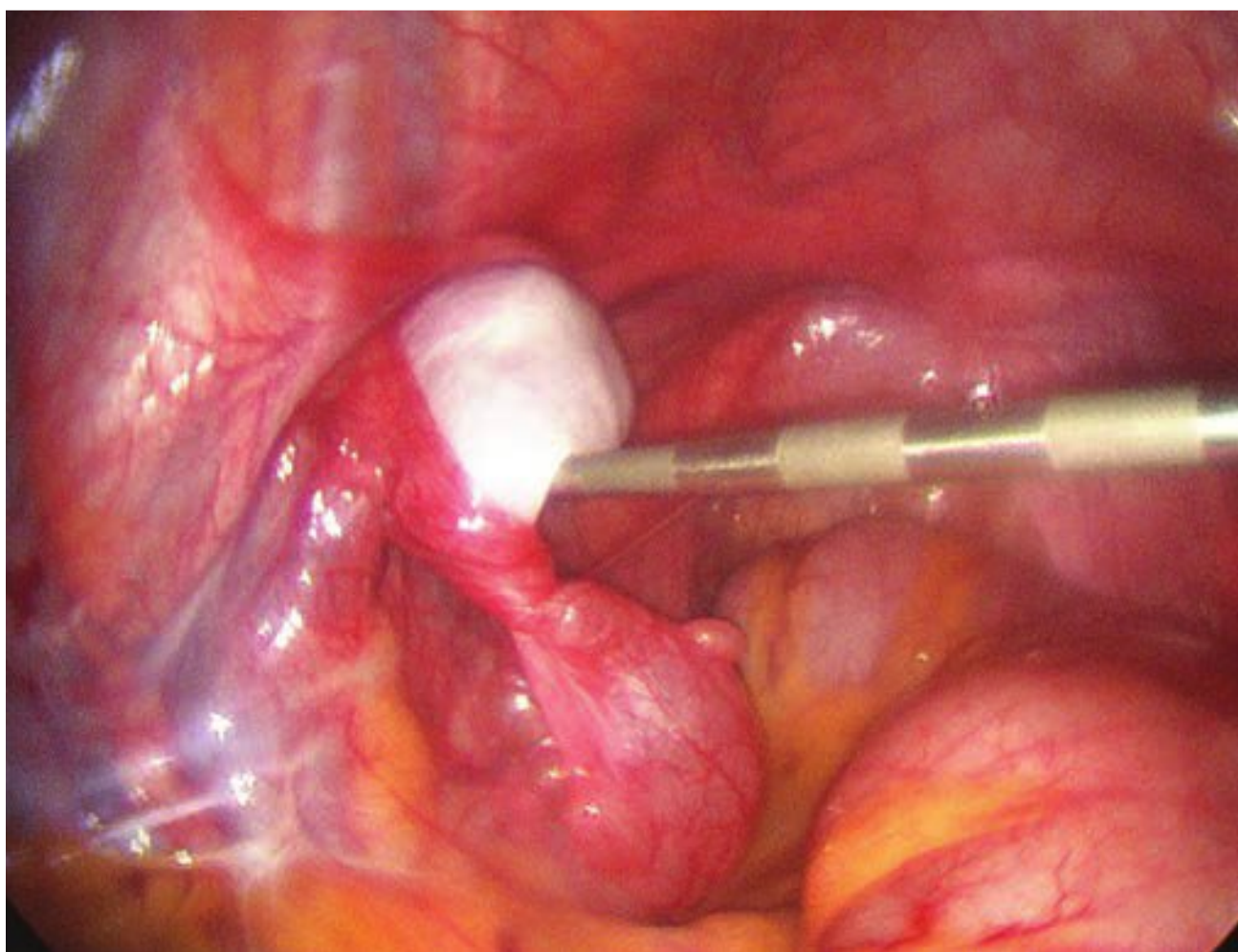
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- 45,X
 - 46,XX
 - 46,XY
 - 45,X/46,XX
- 16-5.** Which of the following is **NOT** derived from the müllerian ducts?
- Cervix
 - Lower vagina
 - Upper vagina
 - Fallopian tube

16–6. An 18-year-old nulligravida presents with primary amenorrhea. Her examination is notable for Tanner stage IV breasts and the absence of pubic and axillary hair. Also, a blind ending vagina is identified. What is the likely diagnosis in this patient?

- a. Müllerian agenesis
- b. Premature ovarian failure
- c. Androgen insensitivity syndrome
- d. Congenital adrenal hyperplasia

16–7. The patient in Question 16–6 undergoes laparoscopy. The white oval structure above the blunt probe represents which of the following?



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- a. Ovary
- b. Testis
- c. Oophoron
- d. Epoophoron

16–8. What is the expected testosterone level in a patient with müllerian agenesis?

- a. Male level
- b. Female level
- c. Not measurable
- d. Significantly elevated (> 1000 ng/dL)

16–9. A 30-year-old multipara presents with secondary amenorrhea since a spontaneous septic abortion 2 years ago that required dilation and curettage. She reports monthly breast tenderness and mood changes followed by several days of severe, crampy lower abdominal pain. Transvaginal sonography is shown below. She desires treatment of her condition. Which of the following is the best option?



- a. Cervical dilation
- b. Endometrial ablation
- c. Endometrial curettage
- d. Operative hysteroscopy

16–10. In a woman younger than 40 years, what follicle-stimulating hormone (FSH) level, persistent for 1 month or more, is diagnostic of premature ovarian failure?

- a. 5 mIU/mL
- b. 15 mIU/mL
- c. 25 mIU/mL
- d. 40 mIU/mL

16–11. Which of the following conditions is considered the most frequent cause of primary ovarian failure?

- a. Gonadal dysgenesis
- b. Fragile X syndrome
- c. Androgen insensitivity syndrome
- d. Mayer-Rokitansky-Kuster-Hauser syndrome

16–12. A 28-year-old nulligravida presents with primary amenorrhea. She is diagnosed with premature ovarian failure. Which of the following is the best test to order next?

- a. Karyotyping
- b. Hysterosalpingography
- c. Progesterone withdrawal test
- d. Adrenal stimulation test with adrenocorticotrophic hormone (ACTH)

- 16–13.** The patient in Question 16–12 is diagnosed with 46,XY gonadal dysgenesis. During pelvic laparoscopy, what is the expected finding?
- Streak gonads and male internal genitalia
 - Streak gonads and female internal genitalia
 - Empty pelvis (no gonads or internal genitalia)
 - Bilateral abdominal testes and male internal genitalia
- 16–14.** For the same patient in Questions 16–12 and 16–13 who has undergone pelvic laparoscopy, what is the best next step in management?
- Gonadectomy
 - Oophoropexy
 - Endometrial ablation
 - No further surgical treatment is required.
- 16–15.** An 18-year-old woman with primary amenorrhea presents for evaluation. Her blood pressure is elevated and her examination is notable for a lack of breast development and sexual hair. Pelvic ultrasound confirms the presence of a uterus but gonads could not be visualized. Laboratory evaluation is significant for hypokalemia. Which of the following conditions is likely to be her diagnosis?
- 17-hydroxylase deficiency
 - 21-hydroxylase deficiency
 - 5 α -reductase deficiency
 - 3 β -hydroxysteroid dehydrogenase deficiency
- 16–16.** Which of the following chemotherapeutic classes is most damaging to the ovaries?
- Antimetabolites
 - Alkylating agents
 - Antibiotic agents
 - Gonadotropin-releasing hormone (GnRH) analogues
- 16–17.** Which of the following is true of Kallmann syndrome?
- Gonadotropin-releasing hormone (GnRH) neurons fail to develop.
 - Intact sense of smell differentiates it from other similar conditions.
 - It is a condition that leads to hypergonadotropic hypogonadism.
 - It is also associated with other abnormalities such as cerebellar ataxia and midline facial defects.
- 16–18.** What is the minimum body mass index (BMI) that is required to begin menstruation?
- 17 kg/m²
 - 19 kg/m²
 - 23 kg/m²
 - 25 kg/m²
- 16–19.** An increase in which of the following alters gonadotropin-releasing hormone (GnRH) pulsatility in exercise-induced amenorrhea?
- Testosterone
 - β -endorphins
 - Nocturnal growth hormone
 - Growth-stimulating hormone
- 16–20.** An 18-year-old woman with previously regular menses presents with amenorrhea. She is also diagnosed with anorexia nervosa. Which of the following is likely to be seen in this patient?
- Elevated leptin level
 - Elevated neuropeptide Y level
 - Decreased β -endorphin level
 - Decreased in corticotropin-releasing hormone
- 16–21.** A 27-year-old woman presents with secondary amenorrhea. She has been experiencing morning sickness and breast tenderness for several months and believes she is pregnant. Her history is remarkable for a recent term stillbirth resulting in depression. β -human chorionic gonadotropin (β -hCG) levels are < 5 mIU/mL on several occasions. Transvaginal sonography shows no intrauterine pregnancy, no evidence of outflow obstruction, and an endometrial stripe of 3 mm. Her physical examination is unremarkable. What is the best treatment for her?
- Diagnostic laparoscopy
 - Dilation and curettage
 - Psychiatric evaluation
 - Vaginal progesterone suppositories
- 16–22.** Which of the following tumors often associated with amenorrhea is the most common?
- Glioma
 - Germinoma
 - Craniopharyngioma
 - Endodermal sinus tumor
- 16–23.** Which of the following hormones is **NOT** produced by the anterior pituitary gland?
- Oxytocin
 - Prolactin
 - Growth hormone
 - Adrenocorticotropin hormone

- 16–24.** Which pituitary cell type is most sensitive to damage from ischemia?
- Lactotropes
 - T yotropes
 - Gonadotropes
 - Corticotropes
- 16–25.** Which of the following statements is true regarding polycystic ovarian syndrome?
- Patients typically present with amenorrhea.
 - It is the most common cause of chronic anovulation.
 - It is characterized by hypogonadotropic hypogonadism.
 - It is characterized by persistently depressed estradiol levels.
- 16–26.** Congenital adrenal hyperplasia is most commonly caused by mutations in genes coding for which of the following enzymes?
- 17-hydroxylase
 - 21-hydroxylase
 - 11 β -hydroxylase
 - 3 β -hydroxysteroid dehydrogenase
- 16–27.** A 27-year-old nulligravida presents with 6 months of amenorrhea and is diagnosed with hyperprolactinemia. Laboratory tests measuring which of the following should also be obtained?
- Total testosterone
 - T yroid-stimulating hormone
 - 24-hour urinary free cortisol
 - Insulin-like growth factor II
- 16–28.** T e patient in Question 16–27 undergoes further laboratory testing and imaging, which are significant only for a pituitary mass measuring less than 1 cm in greatest diameter. Which of the following is the most appropriate treatment option?
- Dopamine agonist
 - Dopamine antagonist
 - T yroid hormone replacement
 - Surgical resection of the pituitary mass
- 16–29.** A 20-year-old woman presents with primary amenorrhea. She has short stature, shield-shaped chest, absent breast development, and widely spaced nipples. What is the most likely cause of her amenorrhea?
- Eugonadotropic hypogonadism
 - Hypogonadotropic hypogonadism
 - Hypergonadotropic hypogonadism
 - Anatomic lower outflow tract obstruction
- 16–30.** A 15-year-old woman with amenorrhea and Tanner stage IV breast development presents for evaluation. Assessing levels for which of the following is an appropriate first step in her evaluation?
- Luteinizing hormone (LH)
 - T yroid-stimulating hormone (TSH)
 - Follicle-stimulating hormone (FSH)
 - Human chorionic gonadotropin (hCG)
- 16–31.** An 18-year-old nulligravida presents with primary amenorrhea. She reports vaginal bleeding following a progesterone withdrawal test. Which of the following conditions is most likely to be her diagnosis?
- Müllerian agenesis
 - Hypothalamic amenorrhea
 - Premature ovarian failure
 - Polycystic ovarian syndrome
- 16–32.** Measurement of which of the following serum levels is helpful in evaluating patients suspected of having late-onset congenital adrenal hyperplasia?
- Testosterone
 - 17-hydroxyprogesterone
 - Follicle-stimulating hormone (FSH)
 - Dehydroepiandrosterone sulfate (DHEAS)
- 16–33.** A 29-year-old nulligravida presents with secondary amenorrhea. She also complains of increased hair growth on her chin and worsening acne. She states all of these changes occurred suddenly 6 months ago. Her examination is also notable for the finding depicted below. Which of the following is the most likely cause of her symptoms?



Used with permission from Dr. Kristie Wilburn-Wren.

- Swyer syndrome
- Androgen-secreting tumor
- Polycystic ovarian syndrome
- Nonclassic congenital adrenal hyperplasia

- 16–34.** The patient in Question 16–33 undergoes pelvic sonography as imaged below. Which of the following laboratory test values is the most likely to be extremely elevated?



- a. Prolactin
 - b. Total testosterone
 - c. 17-hydroxyprogesterone
 - d. Dehydroepiandrosterone sulfate (DHEAS)
- 16–35.** In which of the following patients is karyotyping most strongly indicated?
- a. A 22-year-old woman with secondary amenorrhea and hirsutism
 - b. A 25-year-old woman with secondary amenorrhea and elevated prolactin level
 - c. A 20-year-old woman with primary amenorrhea and müllerian structures absent on exam and sonography
 - d. A 16-year-old woman with primary amenorrhea and a persistently elevated follicle-stimulating hormone (FSH) level of 80 mIU/mL

- 16–36.** A 30-year-old woman with stress-induced amenorrhea strongly desires to become pregnant. Adequate behavioral modification therapy and psychological counseling have not resulted in resumption of menses. Which of the following treatment options is the best next step for achieving pregnancy?
- a. Estradiol
 - b. Gonadotropins
 - c. Aromatase inhibitor
 - d. Selective estrogen-receptor modulator
- 16–37.** A 28-year-old woman with secondary amenorrhea is seeking infertility treatment. Other than some mild hirsutism, her examination, including body mass index (BMI), is normal. Transvaginal sonography is performed and reveals numerous follicular cysts in each ovary. What is the most appropriate first-line treatment for this patient?
- a. Gonadotropins
 - b. Clomiphene citrate
 - c. In vitro fertilization
 - d. Combined oral contraceptive pills

Chapter 16 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
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16-2	a	p. 369	Normal Menstrual Cycle	16-21	c	p. 377	Pseudocyesis
16-3	d	p. 369	Normal Menstrual Cycle	16-22	c	p. 377	Anatomic Destruction
16-4	b	p. 370	Lower Outflow Tract Obstruction	16-23	a	p. 378	Anterior Pituitary Gland Disorders
16-5	b	p. 371	Müllerian Defects	16-24	a	p. 378	Acquired Pituitary Dysfunction
16-6	c	p. 372	Table 16-5	16-25	b	p. 379	Polycystic Ovarian Syndrome
16-7	b	p. 372	Table 16-5	16-26	b	p. 379	Nonclassic Congenital Adrenal Hyperplasia
16-8	b	p. 372	Table 16-5	16-27	b	p. 379	Hyperprolactinemia and Thyroid Disorders
16-9	d	p. 372	Intrauterine Adhesions	16-28	a	p. 383	Treatment
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16-11	a	p. 373	Gonadal Dysgenesis	16-30	d	p. 381	Testing
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16-16	b	p. 375	Acquired Abnormalities	16-35	d	p. 383	Chromosomal Analysis
16-17	d	p. 375	Inherited Hypothalamic Abnormalities	16-36	b	p. 383	Infertility
16-18	b	p. 376	Exercise-Induced Amenorrhea	16-37	b	p. 383	Infertility
16-19	b	p. 376	Functional Hypothalamic Amenorrhea Pathophysiology				

CHAPTER 17

Polycystic Ovarian Syndrome and Hyperandrogenism

- 17-1.** Which of the following is **NOT** a component of the Rotterdam criteria for diagnosing polycystic ovarian syndrome (PCOS)?
- Oligoovulation or anovulation
 - Polycystic appearing ovaries on sonography
 - Clinical or biochemical signs of hyperandrogenism
 - Peripheral distribution of ovarian follicles on sonography
- 17-2.** A 25-year-old nulligravida presents with irregular menstrual cycles. Her physical examination shows acanthosis nigricans, clitoromegaly, and temporal balding. Ovarian hyperthecosis is suspected. What sonographic or histologic characteristic of the ovary is most specific to this condition?
- Complex ovarian mass
 - Ovarian volume greater than 10 mL
 - At least 12 follicles per ovary peripherally distributed
 - Nests of luteinized theca cells distributed in the ovarian stroma
- 17-3.** What is the most common endocrine disorder of reproductive-aged women?
- Hypothyroidism
 - Type 2 diabetes mellitus
 - Polycystic ovarian syndrome
 - Congenital adrenal hyperplasia
- 17-4.** First-degree male relatives of women with polycystic ovarian syndrome have been shown to have higher circulating levels of which hormone?
- Testosterone
 - Androstenedione
 - Dihydrotestosterone
 - Dehydroepiandrosterone sulfate (DHEAS)
- 17-5.** In polycystic ovarian syndrome, altered gonadotropin-releasing hormone (GnRH) pulsatility leads to what predominant change in hormone levels?
- Decreased estrone
 - Decreased testosterone
 - Increased luteinizing hormone
 - Increased follicle-stimulating hormone
- 17-6.** In addition to insulin, which of the following hormones stimulates increased testosterone production by the ovaries in polycystic ovarian syndrome?
- Inhibin
 - Estradiol
 - Luteinizing hormone
 - Follicle-stimulating hormone
- 17-7.** Which of the following statements is true regarding sex hormone-binding globulin (SHBG)?
- It is produced by the adrenal gland.
 - Its synthesis is increased by insulin.
 - Its synthesis is increased by testosterone.
 - It binds most of the circulating testosterone.
- 17-8.** An 18-year-old woman presents with secondary amenorrhea. Her examination is significant for the finding below. Which of the following additional clinical features is **LEAST** typical of polycystic ovarian syndrome?



Used with permission from Dr. Adriana Lopez.

- Acne
- Clitoromegaly
- Androgenic alopecia
- Acanthosis nigricans

17–9. For the patient in Question 17–8, what hormone is most responsible for her hirsutism?

- a. Testosterone
- b. Androstenedione
- c. Dihydrotestosterone
- d. Dehydroepiandrosterone sulfate (DHEAS)

17–10. Which of the following medications is **NOT** a cause of hirsutism or hypertrichosis?

- a. Danazol
- b. Minoxidil
- c. Methyldopa
- d. Ketoconazole

17–11. Of the following laboratory test results, which is most closely associated with the clinical finding depicted below?



- a. Low progesterone level
- b. Elevated estradiol level
- c. Abnormal glucose tolerance test result
- d. Elevated dehydroepiandrosterone sulfate (DHEAS) level

17–12. Which of the following statements is true regarding acanthosis nigricans?

- a. It can be seen with malignancies of the pancreas.
- b. Its development is isolated to the back of the neck.
- c. Its onset is sudden when associated with polycystic ovarian syndrome (PCOS).
- d. It equally affects obese and nonobese women with PCOS.

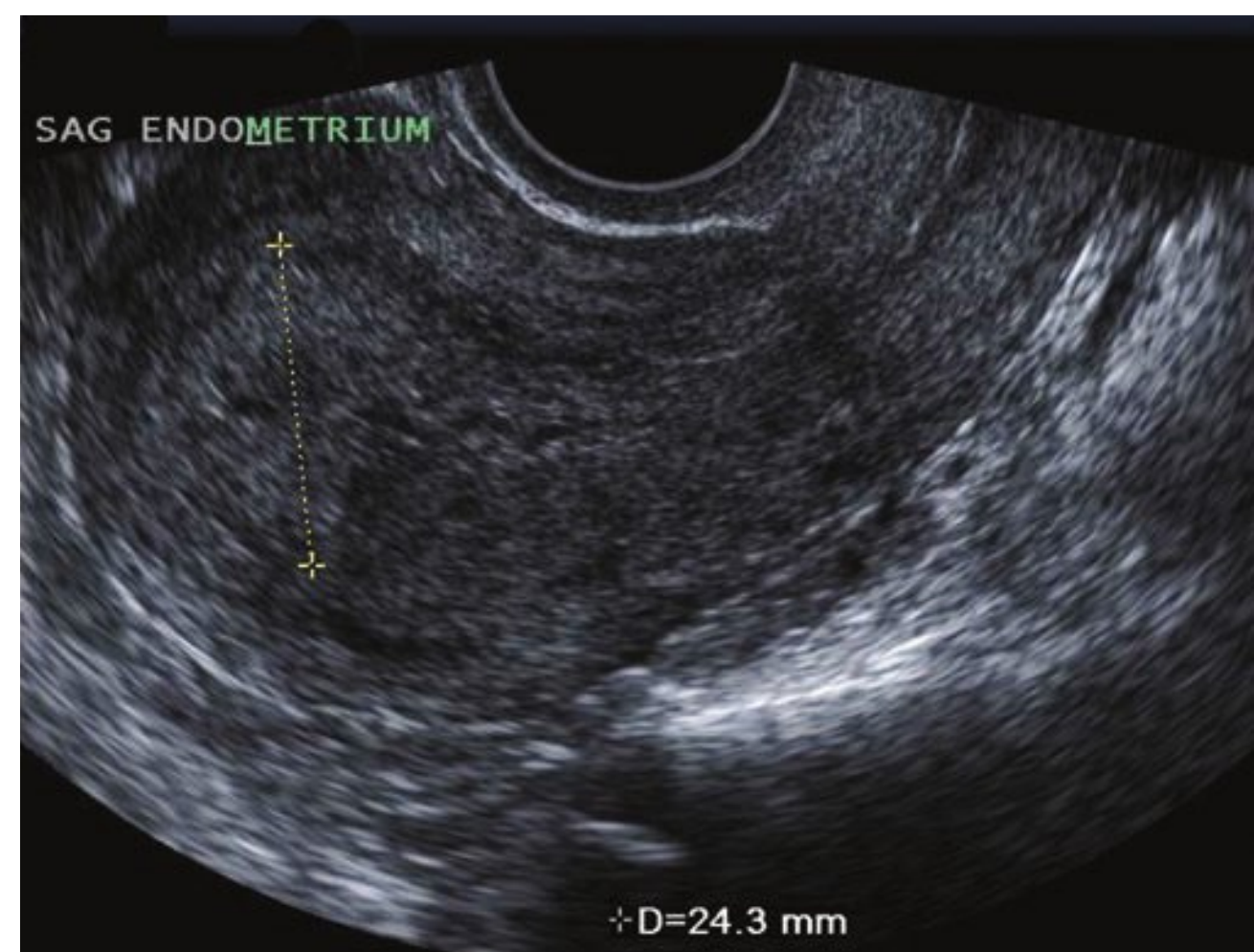
17–13. A 22-year-old obese nulligravida presents with a long history of irregular menstrual cycles and is diagnosed with polycystic ovarian syndrome. Which of the following is most likely to characterize her lipid profile?

- a. Decreased triglyceride level
- b. Decreased low-density lipoprotein level
- c. Decreased high-density lipoprotein level
- d. Decreased total cholesterol to high-density lipoprotein ratio

17–14. Which of the following is **NOT** a criterion used for diagnosing metabolic syndrome?

- a. Obesity
- b. Dyslipidemia
- c. Insulin resistance
- d. Ventricular diastolic dysfunction

17–15. A 35-year-old woman presents with a 5-year history of secondary amenorrhea, thought due to polycystic ovarian syndrome. Transvaginal sonography is performed and is notable for the finding shown below. Which of the following is the best next step in her management?



- a. Hysterectomy
- b. Endometrial ablation
- c. Endometrial sampling
- d. Computed tomography of the abdomen and pelvis

17–16. Infertility secondary to anovulation is most often attributed to which of the following disorders?

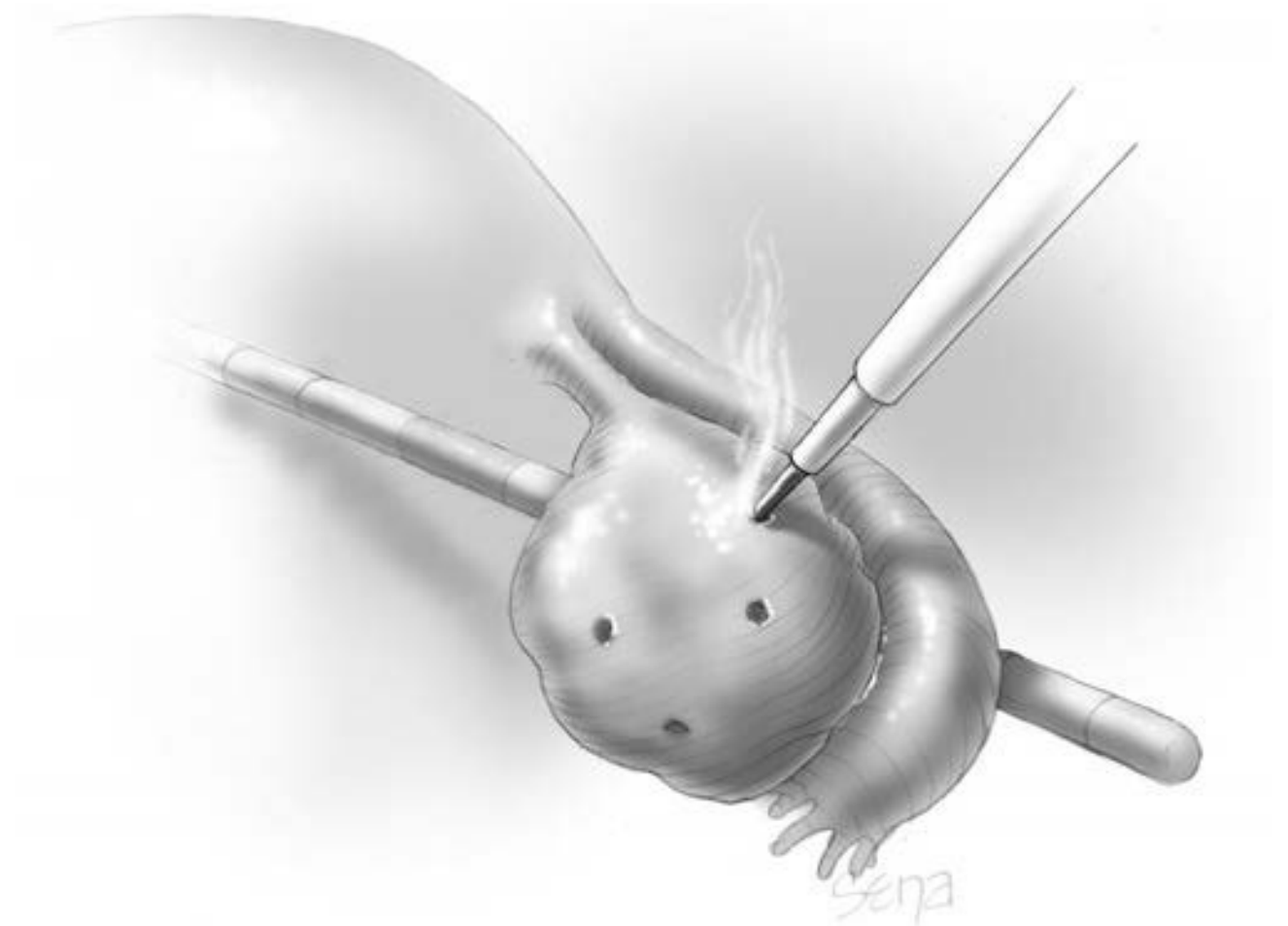
- a. Hypothyroidism
- b. Hyperprolactinemia
- c. Polycystic ovarian syndrome
- d. Hypogonadotropic hypogonadism

- 17–17.** A 30-year-old woman presents for evaluation of amenorrhea. Her examination is remarkable for severe acne and hirsutism. During evaluation for polycystic ovarian syndrome, she is noted to have an elevated dehydroepiandrosterone sulfate (DHEAS) level of 750 $\mu\text{g/dL}$. What is the best test to order next?
- Transvaginal sonography
 - 17-hydroxyprogesterone level
 - 2-hour glucose tolerance test
 - Computed tomography of the abdomen
- 17–18.** A 26-year-old woman is undergoing evaluation of amenorrhea. Her laboratory test results are notable for an abnormal luteinizing hormone (LH) level. Which of the following is **LEAST** likely to have influenced this result?
- Body mass index
 - Recent strenuous exercise
 - Timing in the menstrual cycle
 - Use of oral contraceptive pills
- 17–19.** Which of the following is a characteristic of congenital adrenal hyperplasia?
- Decreased level of cortisol
 - Decreased level of 17-hydroxypregnenolone
 - Decreased level of 17-hydroxyprogesterone
 - Decreased level of adrenocorticotrophic hormone (ACTH)
- 17–20.** A 25-year-old obese woman presents for evaluation of irregular menstrual bleeding. Her physical examination is notable for a widened, round (moon) face and proximal muscle weakness. What test is most likely to lead to the correct diagnosis for this patient?
- Total testosterone level
 - Antimüllerian hormone level
 - 24-hour urinary free cortisol excretion
 - Adrenocorticotrophic hormone (ACTH) stimulation test
- 17–21.** What test is the gold standard for evaluating insulin resistance but is rarely used clinically?
- Fasting serum insulin level
 - Hyperinsulinemic-euglycemic clamp
 - Intravenous glucose tolerance test
 - Homeostasis model assessment of insulin resistance
- 17–22.** A lower threshold used to diagnose impaired glucose tolerance includes which of the following results?
- Hemoglobin A_{1C} of 5.6 percent
 - Fasting blood glucose of 80 mg/dL
 - Glucose of 140 mg/dL during a 2-hour glucose tolerance test
 - All of the above
- 17–23.** In which of the following clinical scenarios is endometrial sampling **LEAST** indicated?
- A 45-year-old woman with a 2-month history of abnormal bleeding
 - A 30-year-old woman with a 2-year history of secondary amenorrhea
 - A 25-year-old woman with known polycystic ovarian syndrome and abnormal bleeding despite treatment
 - A 35-year-old obese woman with normal menses but polycystic-appearing ovaries seen sonographically
- 17–24.** According to the Rotterdam criteria, which of the following is **NOT** a criterion for diagnosing polycystic ovaries by sonography?
- Ovarian volume > 10 mL
 - At least five follicles per ovary
 - Follicles 2–9 mm in mean diameter
 - Only one ovary with findings, which is sufficient to define polycystic ovarian syndrome
- 17–25.** A 25-year-old nulligravida presents for infertility evaluation. A transvaginal sonogram is performed and is significant for the finding depicted below. Which of the following conditions is **LEAST** likely to be the cause of this finding?



- Cushing syndrome
- Polycystic ovarian syndrome
- Exogenous use of estrogenic medications
- Late-onset congenital adrenal hyperplasia

- 17–26.** A 35-year-old obese woman is diagnosed with polycystic ovarian syndrome. She reports having 8 to 10 normal menses per year for the last several years. She is not seeking pregnancy and does not desire further interventions if not medically necessary. Counseling includes recommendations for all of the following **EXCEPT**:
- Periodic screening for dyslipidemia and diabetes mellitus
 - A healthy approach to weight loss to decrease comorbid risks
 - Endometrial assessment if her menstrual irregularities worsen
 - Immediate treatment with combination oral contraceptives to prevent endometrial neoplasia
- 17–27.** When treating polycystic ovarian syndrome, what is a beneficial physiologic effect of the ethinyl estradiol component of combined oral contraceptives?
- Increases angiotensinogen production.
 - Stimulates endometrial proliferation.
 - Increases luteinizing hormone production.
 - Increases sex hormone-binding globulin (SHBG) production.
- 17–28.** A 32-year-old nulligravida with polycystic ovarian syndrome is being treated for infertility. Testing shows that she is not ovulating despite increasing doses of clomiphene citrate. Which of the following medications could be added to improve her response to clomiphene citrate?
- Insulin
 - Metformin
 - Progesterone
 - Spironolactone
- 17–29.** Which of the following statements is true regarding the treatment of hirsutism?
- Improvement in hirsutism is typically seen within the first month of treatment.
 - The primary goal is to lower androgen levels and stop further conversion of vellus hairs to terminal hairs.
 - Permanent cosmetic hair removal therapies are completed before initiation of any medical therapy.
 - Medical therapies can stop the progression of hirsutism and eliminate the abnormal hair that is already present.
- 17–30.** Which of the following is a possible side effect of finasteride?
- Alopecia
 - Decreased libido
 - Prostate cancer in men
 - Female fetal teratogenicity
- 17–31.** Spironolactone can be accurately described by all of the following statements **EXCEPT**:
- It inhibits 5α -reductase.
 - It is a potassium-sparing diuretic.
 - It is typically used as a second-line antiandrogen.
 - It can decrease conversion of vellus hair to terminal hair.
- 17–32.** A 24-year-old woman with polycystic ovarian syndrome desires treatment for severe acne. She has tried several medications previously without improvement. Oral isotretinoin (Accutane) is recommended to her. Which of the following medications is most appropriate to prescribe in addition to Accutane?
- Metformin
 - Spironolactone
 - 5α -reductase inhibitor
 - Depot medroxyprogesterone acetate
- 17–33.** What is the optimal treatment of acanthosis nigricans?
- Topical antibiotics
 - Topical corticosteroids
 - Epilation of the hyperpigmented areas
 - Decreasing hyperinsulinemia and insulin resistance
- 17–34.** What is the primary goal of the procedure depicted below?



Reproduced, with permission, from Thompson MJ, Kho KA: Minimally invasive surgery. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 44-7.1

- Resumption of ovulation
- Destruction of all antral follicles
- Slowing the progression of severe hirsutism
- Surgical induction of menopause to decrease ovarian steroidogenesis

Chapter 17 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
17-1	d	p. 387	Table 17-1	17-19	a	p. 394	17 α -Hydroxyprogesterone
17-2	d	p. 386	Ovarian Hyperthecosis and HAIR-AN Syndrome	17-20	c	p. 396	Cortisol
17-3	c	p. 386	Incidence and Etiology	17-21	b	p. 396	Measurements of Insulin Resistance and Dyslipidemia
17-4	d	p. 386	Incidence and Etiology	17-22	c	p. 396	Measurements of Insulin Resistance and Dyslipidemia
17-5	c	p. 388	Figure 17-1	17-23	d	p. 397	Endometrial Neoplasia
17-6	c	p. 387	Androgens	17-24	b	p. 397	Sonography
17-7	d	p. 387	Sex Hormone-Binding Globulin	17-25	c	p. 397	Sonography
17-8	b	p. 389	Hyperandrogenism	17-26	d	p. 397	Conservative Treatment
17-9	c	p. 390	Pathophysiology of Hirsutism	17-27	d	p. 398	Hormonal Agents
17-10	d	p. 389	Table 17-3	17-28	b	p. 398	Insulin Sensitizing Agents
17-11	c	p. 391	Acanthosis Nigricans	17-29	b	p. 398	Hirsutism
17-12	a	p. 391	Acanthosis Nigricans	17-30	b	p. 398	Lowered Effective Androgen Levels
17-13	c	p. 392	Dyslipidemia	17-31	c	p. 399	Androgen Receptor Antagonists
17-14	d	p. 392	Metabolic Syndrome	17-32	d	p. 399	Acne
17-15	c	p. 392	Endometrial Neoplasia	17-33	d	p. 400	Acanthosis Nigricans
17-16	c	p. 393	Infertility	17-34	a	p. 400	Surgical Therapy
17-17	d	p. 394	Dehydroepiandrosterone Sulfate				
17-18	b	p. 394	Gonadotropins				

CHAPTER 18

Anatomic Disorders

- 18-1.** Congenital anatomic disorders of the female reproductive tract may result from which of the following mechanisms?
- Genetic mutation
 - Developmental arrest
 - Abnormal hormonal exposure or exposure to environmental insults
 - All of the above
- 18-2.** Both urinary and genital systems develop from which of the following cell types?
- Ectoderm
 - Endoderm
 - Mesoderm
 - None of the above
- 18-3.** Which of the following organs is correctly paired with its embryologic origin?
- Uterus—mesonephric duct
 - Bladder—mesonephric duct
 - Kidney—paramesonephric duct
 - Testes and ovaries—genital ridge
- 18-4.** Up to what percentage of women with uterovaginal malformations have associated urinary tract anomalies?
- 5 percent
 - 25 percent
 - 50 percent
 - 75 percent
- 18-5.** Embryos of male or female gender are indistinguishable from each other until which number of weeks of development?
- 7
 - 10
 - 12
 - 14
- 18-6.** Which of the following statements is true regarding the role of the sex-determining region Y (SRY) in the sexual differentiation of humans?
- The SRY acts as the testis-determining factor.
 - Without the influence of SRY, gonads develop as testes.
 - The SRY is located on the Y chromosome and is the only gene responsible for sex determination.
 - None of the above
- 18-7.** Antimüllerian hormone is involved in all of the following **EXCEPT**:
- Regression of the ipsilateral paramesonephric system
 - Peaking of testosterone production as a result of stimulation of the testes
 - Rapid gubernacular growth necessary for the trans-abdominal descent of testes
 - Assessment of ovarian reserve in women undergoing assisted reproduction
- 18-8.** During female sex development, when do the germ cells carrying two X chromosomes (oocytes) reach their peak number of 5 to 7 million?
- At birth
 - Age 5 to 7 years
 - Shortly before menarche
 - In utero at 20 weeks' gestation
- 18-9.** During a first-trimester ultrasound for pregnancy dating, you discover that your patient has a subseptate uterus. While counseling her, you explain that this müllerian anomaly developed in utero secondary to failure of the midline uterine septum to reabsorb completely. Normally, reabsorption of the uterine septum in a fetus should occur by how many weeks of gestation?
- 20
 - 28
 - 32
 - 36

- 18–10.** The vagina forms in part from both the müllerian ducts and which other structure?
- Genital ridge
 - Urogenital sinus
 - Mesonephric duct
 - Paramesonephric duct
- 18–11.** The hymen is the partition that remains between which structures?
- Cloacal membrane and genital tubercle
 - Sinovaginal bulb and urogenital sinus
 - Unfused cephalad portions of the two müllerian ducts
 - None of the above
- 18–12.** In the male fetus, dihydrotestosterone (DHT) is involved in which of the following?
- Enlargement of the phallus
 - Lengthening of the anogenital distance
 - Fusion of the labioscrotal folds to form the scrotum
 - All of the above
- 18–13.** Which of the following anatomic structures is correctly paired with its embryologic origin?
- Genital tubercle—clitoris
 - Urethral folds—labia minora
 - Labioscrotal folds—labia majora
 - All of the above
- 18–14.** Which of the following disorders of sex development is correctly paired with its category of abnormality?
- Hypospadias—ambiguous genitalia
 - Streak gonad—gonadal dysgenesis
 - True hermaphroditism—ovotesticular disorder
 - All of the above
- 18–15.** True statements regarding Turner syndrome include which of the following?
- There are no classic physical stigmata.
 - It is the least common form of gonadal dysgenesis that leads to primary ovarian failure.
 - Although the uterus and vagina are normal, streak gonads are present, and patients typically present with primary amenorrhea.
 - All of the above
- 18–16.** Which of the following is **NOT** true of Klinefelter syndrome?
- Affected men are tall and excessively virilized.
 - Affected men have significantly reduced fertility.
 - The syndrome occurs in 1 to 2 percent of all men.
 - It confers an increased risk for germ cell tumors, osteoporosis, and breast cancer.
- 18–17.** True statements about pure 46,XY gonadal dysgenesis include which of the following?
- It was formerly named Swyer syndrome.
 - It results from a mutation in sex-determining region Y (SRY) or in another gene with testis-determining effects.
 - The condition creates a normal prepubertal female phenotype and normal müllerian system due to the absence of antimüllerian hormone (AMH).
 - All of the above
- 18–18.** All of the following statements regarding complete androgen insensitivity syndrome (CAIS) are true **EXCEPT**:
- On outward examination, patients appear as phenotypically normal women.
 - These women develop breasts during puberty due to abundant androgen-to-estrogen conversion.
 - Surgical excision of the testes is recommended before puberty to decrease the associated risk of germ cell tumors.
 - Estrogen replacement after removal of the testes is important to maintain bone mass and to provide relief from vasomotor symptoms.
- 18–19.** Which of the following can cause virilization of a 46,XX infant?
- Placental aromatase deficiency
 - Fetal congenital adrenal hyperplasia due to deficiency of 21-hydroxylase
 - Maternal virilizing ovarian tumors, such as Sertoli–Leydig tumor, or maternal use of androgenic medication
 - All of the above
- 18–20.** When faced with ambiguous external genitalia of a newborn at delivery, the obstetrician should do which of the following?
- Examine the mother for signs of hyperandrogenism.
 - Refer to the newborn as “your baby” and not as “it.”
 - Refrain from gender assignment by explaining that the genitalia are incompletely formed.
 - All of the above

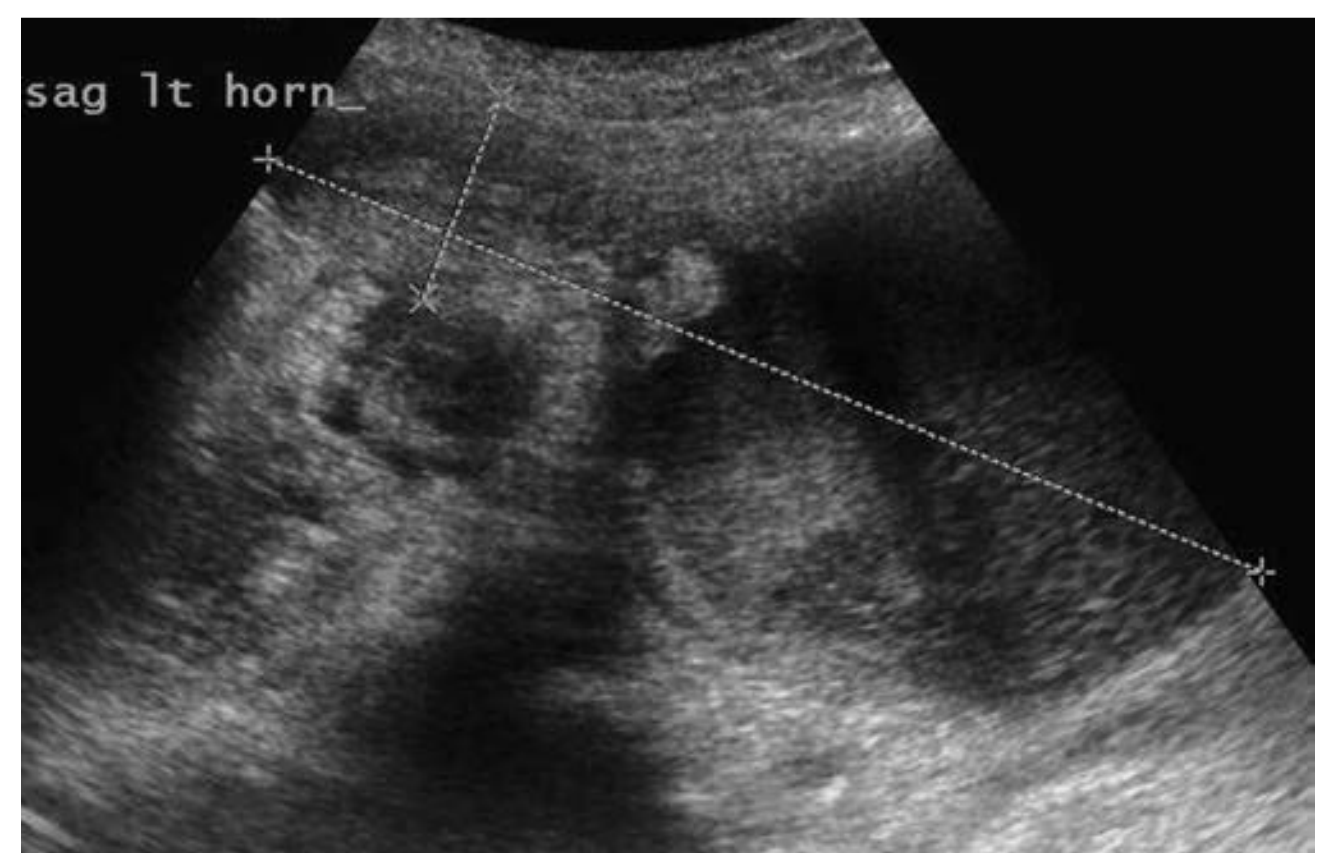
- 18–21.** Which of the following statements regarding bladder exstrophy is **NOT** true?
- It is an anomaly that displays a predilection for women of 2:1.
 - It is characterized by an exposed bladder lying outside the abdomen.
 - Surgical closure is performed early in life and as a staged procedure.
 - It occurs from failure of the cloacal membrane to be reinforced by an ingrowth of mesoderm.
- 18–22.** Causes of newborn clitoromegaly include which of the following?
- Prematurity
 - Neurofibromatosis
 - Fetal exposure to excessive androgens
 - All of the above
- 18–23.** A 14-year-old nulligravida presents to the emergency department with complaints of worsening lower abdominal pain over the past few days. She states that she has had a similar pain in the past, usually for a few days each month, but then it subsides. She is afebrile with stable vital signs. Although she has breasts and axillary and pubic hair, she has never had a period. Examination reveals a tender midline lower abdominal mass and a bluish bulging vaginal mass, as shown here. Based on her history and your physical examination, which of the following conditions is your most likely diagnosis?



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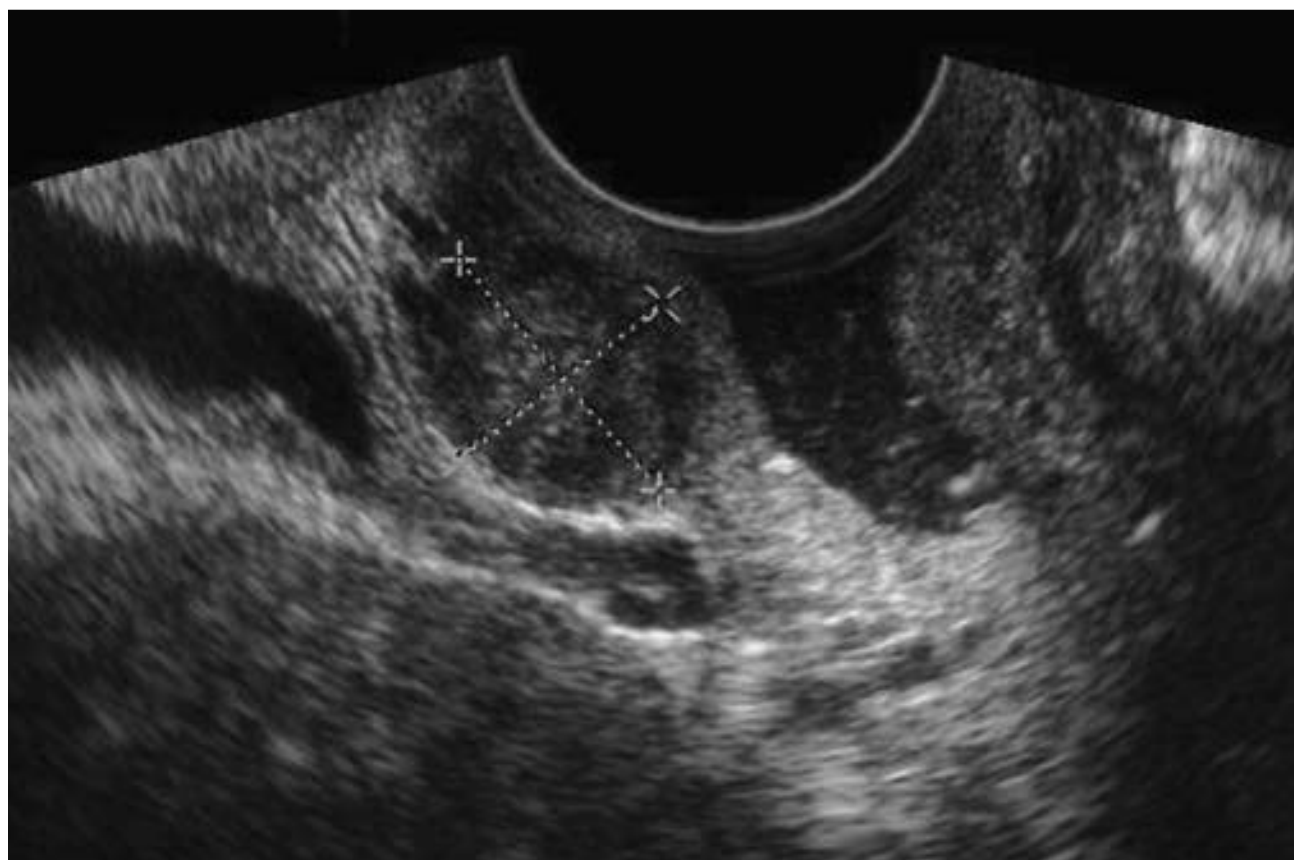
- Bartholin cyst
- Imperforate hymen
- Gartner duct cyst
- Longitudinal vaginal septum

- 18–24.** Appropriate techniques for the surgical correction of the condition diagnosed in Question 18–23 involve all of the following **EXCEPT**:
- Hymenectomy
 - Laparoscopy to exclude endometriosis
 - Repair in infancy or after thelarche
 - Needle aspiration of the hematocolpos
- 18–25.** Compared with other müllerian duct defects, a transverse vaginal septum is associated with a lower rate of which of the following?
- Endometriosis
 - Urologic abnormalities
 - Need for surgical correction
 - None of the above
- 18–26.** A 16-year-old nulligravida presents to the emergency department with complaints of abdominal and vaginal pain, worsening during the past several months. She describes the pain as being mostly on her right side and much worse during menstruation. During your physical examination, a patent vagina and cervix are noted, but a lateral vaginal and pelvic mass is palpated. Transvaginal sonography demonstrates a single uterus and cervix but also a large pelvic mass filled with complex fluid, as shown below, and the absence of the right kidney. What is the most likely diagnosis?



- OHVIRA syndrome
- Ovarian neoplasm
- Imperforate hymen
- Transverse vaginal septum

18–27. Why is careful preoperative planning warranted with congenital vaginal cysts, as shown in sonogram below?



- a. The recurrence rate after excision is high.
- b. They are frequently large, measuring greater than 8 cm in size.
- c. Their typical location is in the posterior-lateral wall of the vagina.
- d. Some may extend up to the broad ligament and anatomically approximate the distal course of the ureter.

18–28. Müllerian anomalies are associated with anomalies of all of the following systems **EXCEPT**:

- a. Renal
- b. Hepatic
- c. Skeletal
- d. Neurological

18–29. One of your patients brings her 13-year-old daughter for consultation regarding the girl's complaints of pelvic pain. The daughter has experienced normal pubertal development to date but has not yet experienced menarche. She began having monthly pelvic pain about 1 year ago, and the pain has been progressively worsening. During physical examination, her external genitalia, including hymeneal ring, appear normal. However, proximal to the hymen, only a vaginal dimple is found. Rectovaginal examination confirms the presence of a uterus and cervix. What is your diagnosis?

- a. Vaginal atresia
- b. Cervical atresia
- c. Imperforate hymen
- d. Müllerian agenesis

18–30. Appropriate techniques for surgical correction of the condition diagnosed in Question 18–29 include which of the following?

- a. Hymenectomy
- b. Hysterectomy
- c. Uterine transplantation
- d. Surgical creation of a neovagina

18–31. A 22-year-old G3P0 woman presents as a new patient for consultation regarding her history of multiple miscarriages. Her gynecologic history is otherwise unremarkable. During physical examination, you note that the uterus is markedly deviated to the left. Transvaginal sonography is performed, and three-dimensional images reveal a uterus that is deviated and has a banana-shaped cavity, as shown below. What is your diagnosis?

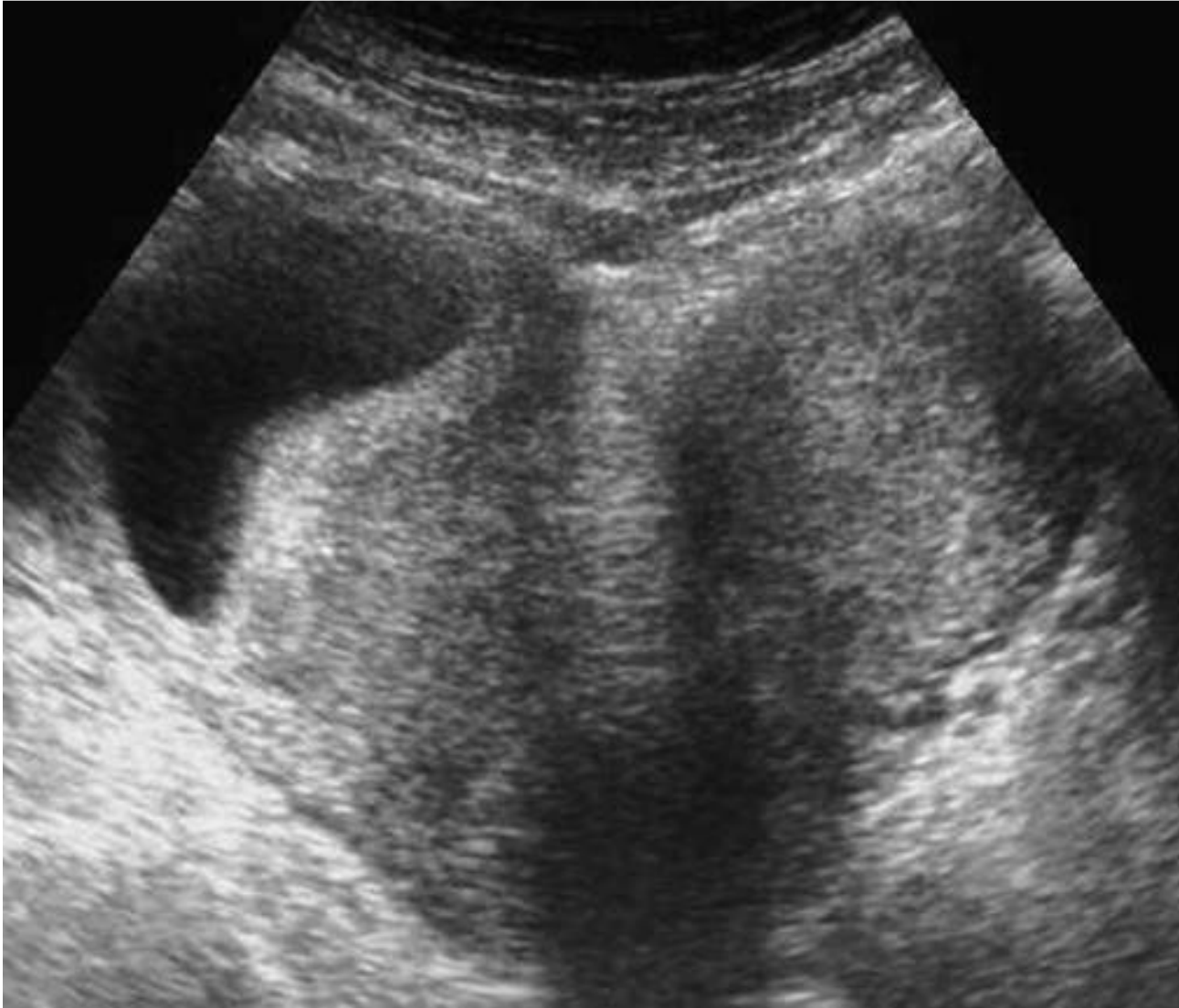


- a. Septate uterus
- b. Bicornuate uterus
- c. Uterine didelphys
- d. Unicornuate uterus

18–32. The pathogenesis of poor pregnancy outcomes with a unicornuate uterus is thought to be related to which of the following factors?

- a. Cervical incompetence
- b. Reduced uterine capacity
- c. Anomalous distribution of the uterine artery
- d. All of the above

- 18–33.** Which müllerian anomaly results from complete failure of the paired müllerian ducts to fuse? This anomaly is shown in this sonogram, and a gestational sac is seen on the image's left side.



- a. Septate uterus
- b. Bicornuate uterus
- c. Uterine didelphys
- d. Unicornuate uterus

- 18–34.** When should surgical reconstruction of a bicornuate uterus (Strassman metroplasty) be performed?
- a. Prior to conception
 - b. In all women with the diagnosis of bicornuate uterus
 - c. Procedure no longer performed for repair of bicornuate uterus
 - d. With recurrent pregnancy loss and no other identifiable cause except the uterine anomaly

- 18–35.** Septate uterus, as shown in the sonogram below, has a significantly higher spontaneous abortion rate and early pregnancy loss rate than bicornuate uterus. What is the primary mechanism thought to be responsible for this extraordinarily high pregnancy wastage?



- a. Associated cervical anomalies
- b. Distortion of the uterine cavity
- c. Distortion of the uterine serosal contour
- d. Partial or complete implantation on the largely avascular septum

- 18–36.** Which of the following are seen in offspring of women who took diethylstilbestrol (DES) during the associated pregnancy?
- a. Impaired conception rates in female offspring
 - b. Cryptorchidism, testicular hypoplasia, and malformations of the penis in male offspring
 - c. T-shaped uterus, “cockscomb” cervix, and increased rates of clear cell adenocarcinoma in female offspring
 - d. All of the above

- 18–37.** While staffing labor and delivery, you are asked to evaluate a pelvic mass discovered during the performance of a postpartum tubal ligation. The mass is a thin-walled, translucent cystic structure measuring less than 1 cm in diameter. It is attached by a thin pedicle to the distal end of the right fallopian tube. The resident physician is concerned that the mass may be neoplastic, but you assure her that it is not. What is the likely diagnosis?
- a. Hydrosalpinx
 - b. Accessory ovary
 - c. Supernumerary ovary
 - d. Paratubal cyst (hydrotid of Morgagni)

Chapter 18 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
18-1	d	p. 404	Anatomic Disorders	18-19	d	p. 413	Androgen Excess
18-2	c	p. 404	Normal Embryology	18-20	d	p. 413	Gender Assignment
18-3	d	p. 404	Normal Embryology	18-21	a	p. 414	Defects of the Bladder and Perineum
18-4	c	p. 404	Normal Embryology	18-22	d	p. 414	Defects of the Clitoris
18-5	a	p. 406	Gonadal Determination	18-23	b	p. 415	Hymenal Defects
18-6	a	p. 406	Gonadal Determination	18-24	d	p. 415	Hymenal Defects
18-7	b	p. 406	Gonadal Determination	18-25	b	p. 416	Transverse Vaginal Septum
18-8	d	p. 406	Gonadal Determination	18-26	a	p. 416	Longitudinal Vaginal Septum
18-9	a	p. 408	Ductal System Development	18-27	d	p. 417	Congenital Vaginal Cysts
18-10	b	p. 408	Ductal System Development	18-28	b	p. 417	Müllerian Anomalies
18-11	b	p. 408	Ductal System Development	18-29	a	p. 419	Vaginal Atresia
18-12	d	p. 409	External Genitalia	18-30	d	p. 420	Müllerian Agenesis
18-13	d	p. 409	External Genitalia	18-31	d	p. 420	Unicornuate Uterus
18-14	d	p. 409	Disorders of Sexual Development, Definitions	18-32	d	p. 420	Unicornuate Uterus
18-15	c	p. 412	Gonadal Dysgenesis	18-33	c	p. 420	Uterine Didelphys
18-16	a	p. 411	Turner and Klinefelter Syndromes	18-34	d	p. 421	Bicornuate Uterus
18-17	d	p. 412	46, XY Gonadal Dysgenesis	18-35	d	p. 422	Septate Uterus
18-18	c	p. 412	Abnormal Androgen Production or Action	18-36	d	p. 423	Diethylstilbesterol-Induced Reproductive Tract Abnormalities
				18-37	d	p. 423	Fallopian Tube Anomalies

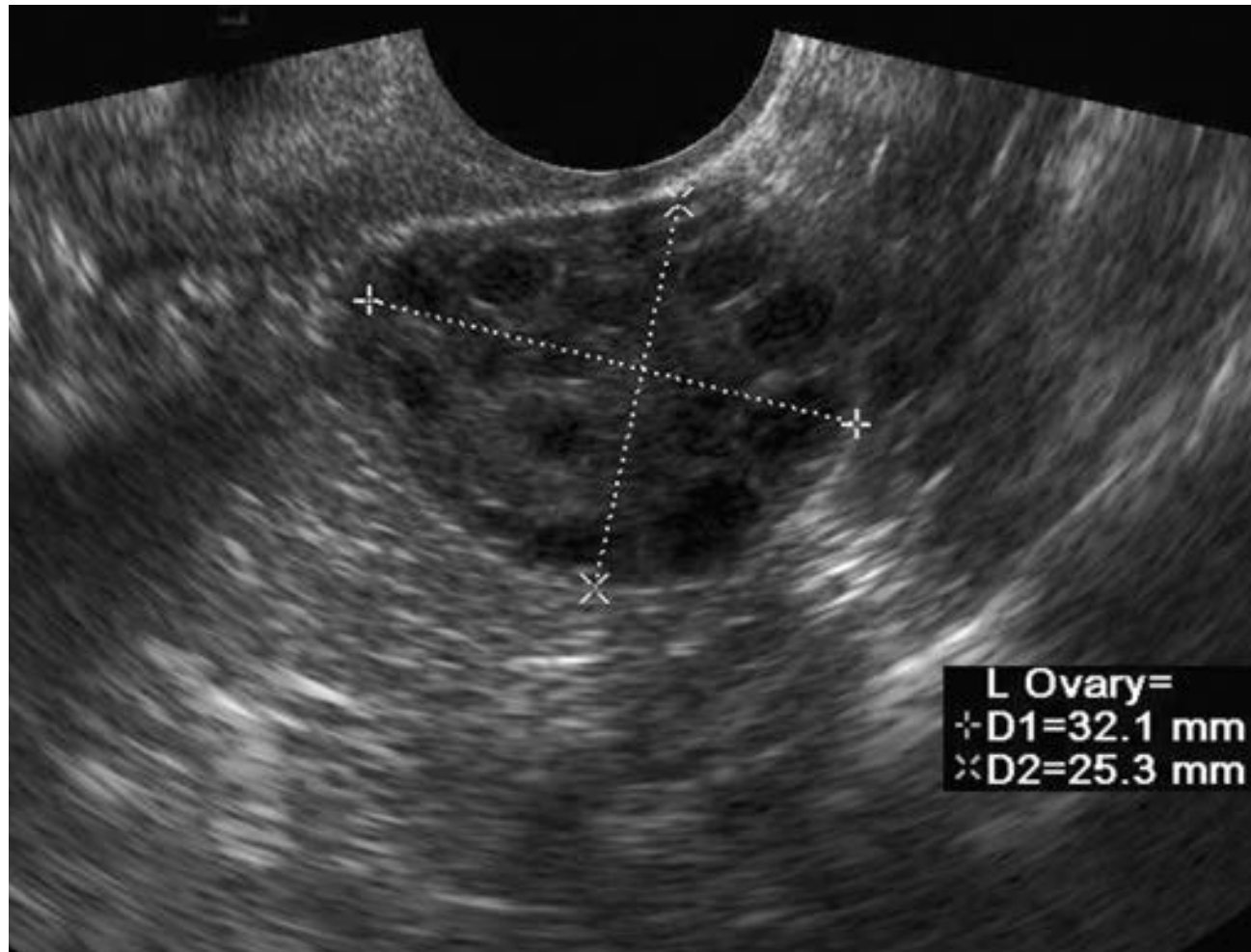
CHAPTER 19

Evaluation of the Infertile Couple

- 19-1.** What is the expected per cycle fecundability rate?
- 0.5 percent
 - 5 percent
 - 25 percent
 - 85 percent
- 19-2.** Regarding couples attempting pregnancy, what percentage of women are expected to have conceived at 1 year?
- 15 percent
 - 30 percent
 - 60 percent
 - 85 percent
- 19-3.** A 27-year-old married nulligravid resident physician has been married for 3 years. She is worried about delaying childbearing for another few years while she pursues fellowship training. She can be reassured that a significant decline in the fecundability rate does not begin until what age (years)?
- 26
 - 32
 - 38
 - 44
- 19-4.** In general, infertility evaluation is initiated after a couple fails to conceive after 1 year of unprotected intercourse of reasonable frequency. When should earlier evaluation be considered?
- Woman older than 35 years
 - History of chronic anovulatory cycles
 - Prior severe pelvic inflammatory disease (PID)
 - All of the above
- 19-5.** An infertile couple presents for evaluation. Neither partner has ever conceived a pregnancy. Both believe that the female partner alone is the source of their failure to achieve a pregnancy. It should be explained that infertility can be attributed to the male partner in approximately one third of cases and to both partners in approximately what percentage of cases?
- 1 percent
 - 10 percent
 - 33 percent
 - 66 percent
- 19-6.** Of infertility causes, which of the following is most likely encountered?
- Unexplained
 - Male factors
 - Tubal disease
 - Ovulatory dysfunction
- 19-7.** A 30-year-old nulligravida has been trying to conceive for the last 2 years. She has no medical problems. She consumes five alcoholic drinks weekly, smokes half a pack of cigarettes daily. She describes herself as a heavy coffee drinker. She works in a dry cleaning facility. Which of the following exposures is **LEAST** likely affecting her fertility?
- Alcohol
 - Caffeine
 - Cigarettes
 - Dry cleaning fluid exposure
- 19-8.** Preconceptional carrier screening for cystic fibrosis is currently recommended for which group?
- Ashkenazi Jewish descent
 - Non-Hispanic white race
 - All individuals considering pregnancy
 - Family or personal history of cystic fibrosis
- 19-9.** How long does spermatogenesis take, starting from stem cell to mature sperm?
- 10 days
 - 30 days
 - 60 days
 - 90 days
- 19-10.** Which of the following is **NOT** known to impair sperm production or quality?
- Tight underwear
 - Chronic hot tub use
 - Chemotherapy or local radiation
 - Illness accompanied by high fever

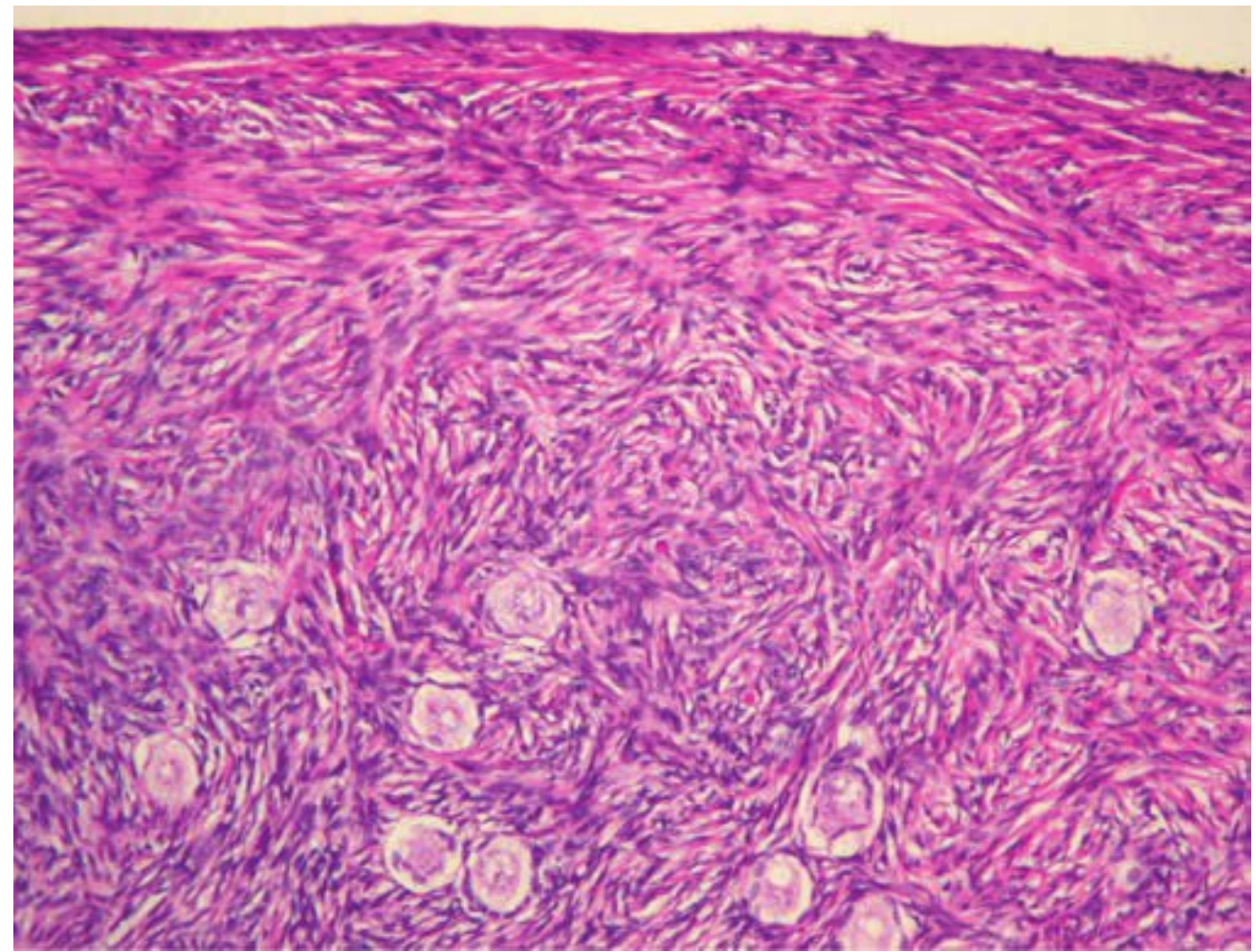
- 19–11.** A woman complaining of infertility reports that her husband has already undergone evaluation by a urologist to exclude male factors. This leads to the surgical repair of a unilateral varicocele. With regard to varicoceles and infertility, which of the following is true?
- All should be repaired.
 - They are an established cause of male infertility.
 - Repair of subclinical varicoceles leads to correction of semen abnormalities.
 - A varicocele is present in nearly 20 percent of the adult male general population.
- 19–12.** Use of which of these is most likely to damage testicular function permanently?
- Gentamycin
 - Spironolactone
 - Anabolic steroids
 - Alcohol consumption
- 19–13.** If not already up to date as a part of routine well-woman care, which of the following should be completed during the initial infertility evaluation?
- Determine rubella immunity status
 - Screen for cervical cancer
 - Screen for *Neisseria gonorrhoeae* and *Chlamydia trachomatis*
 - All of the above
- 19–14.** Gynecomastia in a male patient may suggest the presence of which of the following conditions?
- Noonan syndrome
 - Klinefelter syndrome
 - Pituitary prolactinoma
 - 17 β -hydroxysteroid dehydrogenase deficiency
- 19–15.** Congenital bilateral absence of the vas deferens is genetically related to which of the following?
- Cystic fibrosis
 - Noonan syndrome
 - Klinefelter syndrome
 - Red–green color blindness
- 19–16.** Which of the following suggests ovulatory cycles?
- Dysmenorrhea
 - Mittelschmerz
 - Moliminal symptoms
 - All of the above
- 19–17.** Which of the following is **NOT** true of basal body temperature testing to identify ovulation in adult women?
- It can be an insensitive test in many women.
 - With ovulation, the temperature rises from 0.4°F to 0.8°F.
 - It is an inexpensive and easy test for ovulation monitoring.
 - Once the temperature rises, a patient should expect ovulation during the next 48 hours.
- 19–18.** Regarding commercially available urinary luteinizing hormone kits, when does ovulation take place in relation to a positive result?
- Same day
 - Day after
 - Day before
 - 48 hours after
- 19–19.** Which of the following midluteal progesterone level values signifies ovulation?
- 0.05 ng/mL
 - 0.1 ng/mL
 - 1.0 ng/mL
 - 5.0 ng/mL
- 19–20.** Which of the following is true of luteal phase endometrial biopsy?
- It shows high intra- and interobserver reliability.
 - It does not reliably distinguish fertile women from infertile women.
 - An out-of-phase biopsy result predicts an increased risk of future early pregnancy loss should conception occur.
 - Its performance on day 21 of a menstrual cycle is considered a standard component of an infertility evaluation.

- 19–21.** As shown here, sonography is clinically most useful for the diagnosis of which of the following conditions that contributes to a significant percentage of infertility cases?



- a. Anovulation
 - b. Sex cord-stromal tumors
 - c. Polycystic ovarian syndrome
 - d. Periovarian adhesive disease
- 19–22.** In reproductive-aged women, which of the following increases with the passage of time?
- a. Fertility
 - b. Ovarian reserve
 - c. Risk of spontaneous abortion
 - d. Success of donor insemination
- 19–23.** Reduced secretion of which of the following hormones is most likely responsible for the rising serum follicle-stimulating hormone (FSH) level seen as a woman ages?
- a. Activin
 - b. Inhibin B
 - c. Estradiol
 - d. Follistatin
- 19–24.** For the evaluation of ovarian function, which of the following laboratory tests is **LEAST** helpful?
- a. Random inhibin B level
 - b. Cycle day 3 estradiol level
 - c. Random antimüllerian hormone level (AMH)
 - d. Cycle day 3 follicle-stimulating hormone (FSH) level

- 19–25.** Which of the following statements regarding anti-müllerian hormone level (AMH) is true?



Reproduced with permission Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr. Kelley Carrick.

- a. AMH levels are increased in women with polycystic ovarian syndrome.
 - b. Compared with estradiol or follicle-stimulating hormone (FSH) levels, AMH levels correlate better with the number of ovarian primordial follicles (seen in photomicrograph above).
 - c. AMH expression is strong in preantral follicles and weak in larger follicles.
 - d. All of the above statements are true.
- 19–26.** A 19-year-old woman is admitted with her second bout of pelvic inflammatory disease (PID) in 18 months. She is counseled that she is at increased risk of infertility and ectopic pregnancy in the future. Despite this effort, she is likely to continue her risk-taking behaviors. What is the estimated tubal infertility rate after three episodes of PID?
- a. 0.4 percent
 - b. 14 percent
 - c. 34 percent
 - d. 54 percent

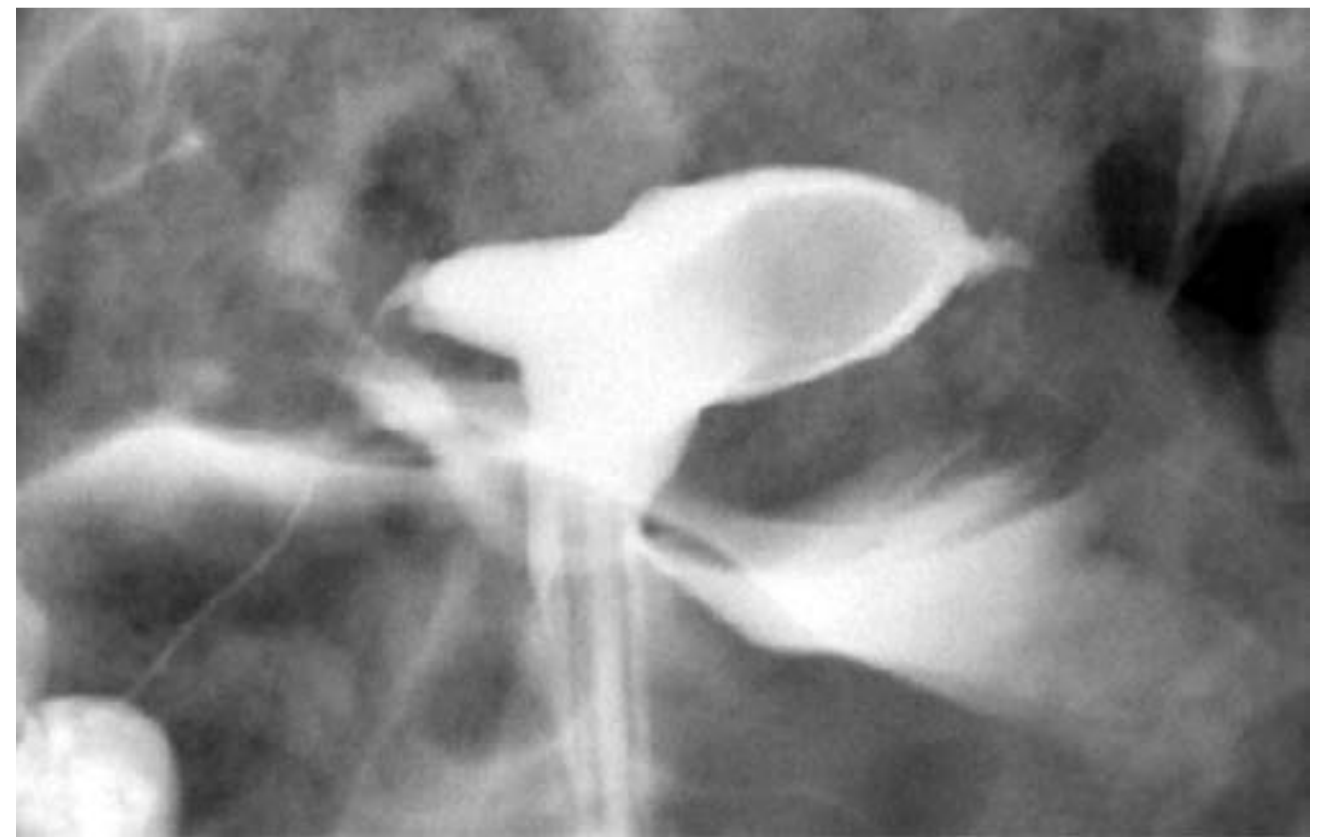
19–27. A 28-year-old woman presents with primary infertility. She has no current health problems or history of serious illness, including pelvic inflammatory disease (PID). She has predictable, cyclic menses with mild dysmenorrhea, unchanged since menarche. Her healthy male partner has been evaluated and has a normal physical examination and semen analysis. What is your interpretation of the patient's hysterosalpingogram as shown below?



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- a. Normal
- b. Uterine didelphys
- c. Bilateral hydrosalpinges
- d. Unilateral proximal tubal blockage

19–28. A 32-year-old woman undergoes infertility evaluation after trying to conceive for 5 years. She has cyclic but heavy menses. Prior to this, she experienced one pregnancy that ended in a first-trimester spontaneous abortion. What uterine abnormality is suggested by her hysterosalpingogram?



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- a. Normal
- b. Asherman syndrome
- c. Submucous leiomyoma
- d. Bilateral hydrosalpinges

19–29. Hysterosalpingography is **LEAST** helpful for detecting which of the following?

- a. Tubal patency
- b. Pelvic adhesions
- c. Asherman syndrome
- d. Congenital uterine anomalies

- 19–30.** The photomicrograph of an air-dried sample of cervical mucus demonstrates the effect of high amounts of which of the following hormones?



Reproduced with permission from Halvorson LM: Evaluation of the infertile couple. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 19-10.

- a.** Inhibin
b. Estrogen
c. Progesterone
d. Follicle-stimulating hormone (FSH)
- 19–31.** Which of the following is true of the process of sperm capitation?
- a.** Involves sperm hyperactivation.
b. Aids sperm penetration of the ovum's zona pellucida.
c. Results in the sperm's ability to release acrosomal enzymes important to fertilization of the ovum.
d. All of the above
- 19–32.** Liquefaction of the semen specimen after ejaculation is due to secretions from which of the following?
- a.** Prostate
b. Epididymis
c. Cowper gland
d. Seminiferous tubules
- 19–33.** When treating hypertension with β -blocking agents, which of the following semen abnormalities may be seen due to retrograde ejaculation?
- a.** Azoospermia
b. Oligospermia
c. Teratospermia
d. Low semen volume
- 19–34.** Asthenospermia refers to which of the following semen abnormalities?
- a.** Sperm count
b. Semen volume
c. Sperm motility
d. Sperm morphology
- 19–35.** Which of the following tests can differentiate between dead and alive nonmotile sperm?
- a.** Zona penetration assay
b. DNA fragmentation index
c. Hypoosmotic swelling test
d. Mannose fluorescence assay
- 19–36.** Which of the following tests are currently recommended components of a basic male factor infertility evaluation?
- a.** DNA integrity analysis
b. Sperm penetration assay
c. Antisperm antibody assay
d. None of the above
- 19–37.** A couple seeking pregnancy has undergone a thorough infertility evaluation. Both partners are generally healthy. The female partner is without apparent problems that would contribute to infertility. Semen analysis is performed. The sperm count is 4 million/mL, and semen volume is less than 1 mL. In addition to a serum testosterone level, which of the following should be measured during the hormonal evaluation of the male partner if an endocrinopathy is suspected?
- a.** Prolactin
b. Thyroid-stimulating hormone
c. Follicle-stimulating hormone (FSH)
d. All of the above
- 19–38.** Genetic testing should be performed in response to which of the following semen analysis results?
- a.** Semen volume of 2.0 mL
b. Sperm concentration of 2 million/mL
c. Presence of fructose in the semen sample
d. 8-percent normal sperm morphology by Kruger criteria
- 19–39.** Which of the following Y-chromosome deletions carries the best prognosis for recovering sperm from the testes in an azoospermic patient?
- a.** AZFa
b. AZFb
c. AZFc
d. AZFd

Chapter 19 ANSWER KEY

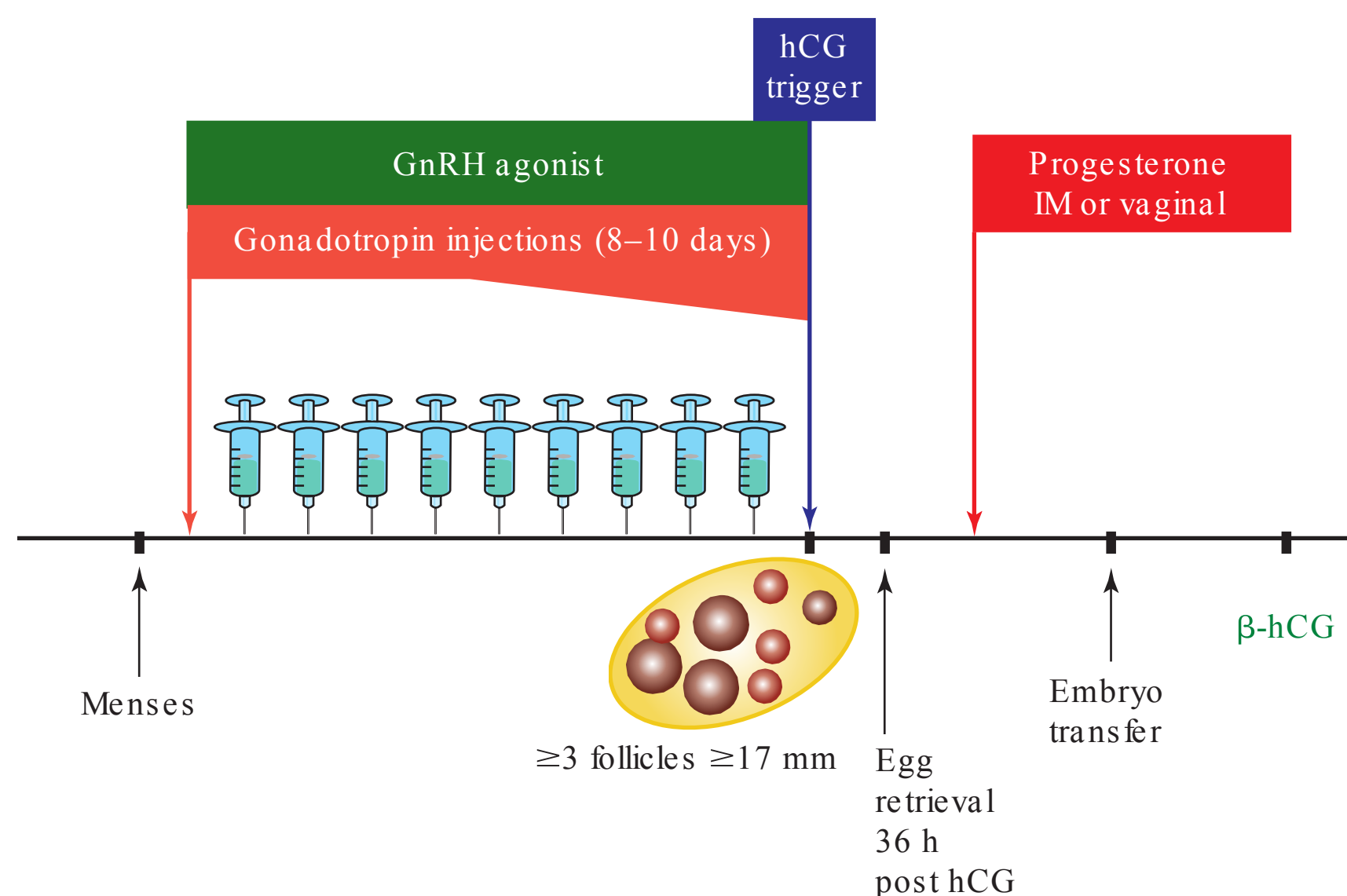
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
19-1	c	p. 427	Evaluation of the Infertile Couple	19-21	c	p. 435	Sonography
19-2	d	p. 427	Evaluation of the Infertile Couple	19-22	c	p. 435	Reproductive Aging
19-3	b	p. 427	Evaluation of the Infertile Couple	19-23	b	p. 436	Follicle-Stimulating Hormone and Estradiol
19-4	d	p. 427	Evaluation of the Infertile Couple	19-24	a	p. 436	Antimüllerian Hormone
19-5	c	p. 428	Etiology of Infertility	19-25	d	p. 436	Antimüllerian Hormone
19-6	d	p. 428	Table 19-1	19-26	d	p. 437	Tubal and Pelvic Factors
19-7	d	p. 428	Social, Table 19-2	19-27	c	p. 437	Tubal and Pelvic Factors
19-8	c	p. 430	Ethnicity and Family History	19-28	c	p. 438	Hysterosalpingography
19-9	d	p. 430	Male History	19-29	b	p. 438	Hysterosalpingography
19-10	a	p. 430	Male History	19-30	b	p. 441	Cervical Factors, Figure 19-10
19-11	d	p. 430	Male History	19-31	d	p. 442	Normal Spermatogenesis
19-12	c	p. 430	Male History	19-32	a	p. 442	Semen Analysis
19-13	d	p. 433	Examination of the Female Patient	19-33	d	p. 442	Semen Analysis Results
19-14	b	p. 433	Examination of the Male Patient	19-34	c	p. 442	Semen Analysis Results
19-15	a	P. 433	Examination of the Male Patient	19-35	c	p. 442	Semen Analysis Results
19-16	d	p. 434	Clinical Evaluation	19-36	d	p. 444	Additional Sperm Testing
19-17	d	p. 434	Clinical Evaluation	19-37	d	p. 444	Hormonal Evaluation of the Male
19-18	b	p. 435	Ovulation Predictor Kits	19-38	b	p. 444	Genetic Testing of the Male, Table 19-8
19-19	d	p. 435	Serum Progesterone	19-39	c	p. 444	Genetic Testing of the Male
19-20	b	p. 435	Endometrial Biopsy				

CHAPTER 20

Treatment of the Infertile Couple

- 20–1.** Which of these statements regarding infertility is **FALSE**?
- Women are affected more than twice as often as men.
 - Around 10 to 15 percent of the reproductive-aged population is infertile.
 - Early evaluation after only 6 months may be justified for certain medical conditions or for women aged 35 years or older.
 - Infertility generally is defined as the inability to achieve successful pregnancy after at least 12 months of regular, unprotected intercourse.
- 20–2.** A 28-year-old nullipara who has been seeking pregnancy is diagnosed with polycystic ovarian syndrome (PCOS). She is generally healthy, but her body mass index (BMI) is in the obese range. Which of the following should be recommended as first-line management of her anovulation?
- Gonadotropins
 - Clomiphene citrate
 - Weight loss and exercise
 - Insulin-sensitizing agents
- 20–3.** Obesity increases the risk of which of the following pregnancy complications?
- Birth defects
 - Cesarean delivery
 - Unexplained stillbirth
 - All of the above
- 20–4.** A very health-conscious patient is seeking pregnancy and asks about the best diet to follow at this time. She is overwhelmed by all the advice available from friends, books, and magazines. Which of the following nutritional strategies is most strongly recommended for women attempting pregnancy?
- High protein diet
 - Dietary antioxidants
 - Folic acid supplementation
 - Complex carbohydrate restriction
- 20–5.** A 27-year-old woman is diagnosed with a pituitary microadenoma during evaluation of secondary amenorrhea. She subsequently begins a dopamine agonist and becomes pregnant. Which of the following is the best management of her adenoma during this pregnancy?
- Resect the pituitary adenoma.
 - Suspend dopamine agonist therapy.
 - Continue medical therapy with bromocriptine.
 - Obtain pituitary imaging every trimester and continue medical therapy with cabergoline.
- 20–6.** Which of the following statements is true regarding thyroid dysfunction and infertility?
- Subclinical hypothyroidism is not associated with ovarian dysfunction.
 - There is no relationship between infertility and overt thyroid dysfunction.
 - In infertile women seeking pregnancy, treatment of any degree of hypothyroidism is advisable.
 - Thyroid-stimulating hormone levels are elevated in more than half of women with infertility.
- 20–7.** Which of the following is **NOT** true regarding clomiphene citrate therapy?
- The typical starting dose is 200 mg orally.
 - It can be initiated on the second day of the menstrual cycle.
 - It is taken for five consecutive days early in the menstrual cycle.
 - It is classified as a category X drug by the Food and Drug Administration (FDA).
- 20–8.** Which of the following statements is true regarding clomiphene citrate and its use for the treatment of anovulatory infertile women?
- It exerts its effect as a pure estrogen agonist.
 - The dose required to achieve ovulation shows no correlation with body weight.
 - Failure to achieve pregnancy alone is a sufficient indication to increase the dose in subsequent cycles.
 - Most pregnancies achieved in response to clomiphene therapy will occur during the first several ovulatory cycles.

- 20–9.** A 28-year-old woman with polycystic ovarian syndrome (PCOS) and infertility asks about the potential use of metformin to help achieve pregnancy. She can be counseled that current evidence **LEAST** supports which of the following benefits of metformin therapy in women with PCOS?
- Improved live-birth rate
 - Improved menstrual cyclicity
 - Higher frequency of spontaneous ovulation
 - Increased ovulatory response to clomiphene citrate therapy
- 20–10.** Despite achieving ovulation in most patients, clomiphene citrate results in pregnancy rates of 50 percent or less. This disappointing pregnancy rate is attributed to which of the following?
- Long drug half-life
 - Changes to cervical mucus quality
 - Anti-estrogenic effects on the endometrium
 - All of the above
- 20–11.** Which of the following gonadotropins is a recombinant product?
- Menopur
 - Bravelle
 - Repronex
 - Follistim
- 20–12.** Which of the following is present in some gonadotropin preparations and provides the needed luteinizing hormone (LH) activity by virtue of its shared receptor with LH?
- Inhibin
 - Activin
 - Follistatin
 - Human chorionic gonadotropin
- 20–13.** The treatment protocol shown here is considered which of the following?



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- Gonadotropin-releasing hormone (GnRH) flare protocol
- GnRH antagonist protocol
- Down-regulation GnRH agonist protocol
- None of the above

20–14. Which of the following is true regarding letrozole, an aromatase inhibitor, in the context of ovulation induction?

- a. It is Food and Drug Administration (FDA) approved for this indication.
- b. It is typically dosed daily for 4 to 6 weeks.
- c. Data regarding its teratogenicity are contradictory.
- d. It has become an accepted alternative to gonadotropins and clomiphene citrate.

20–15. Which of the following hormones is thought to play a contributing role early in the development of ovarian hyperstimulation syndrome?

- a. Progesterone
- b. Luteinizing hormone (LH)
- c. Human chorionic gonadotropin
- d. Follicle-stimulating hormone (FSH)

20–16. Which of the following is **NOT** a typical clinical manifestation of ovarian hyperstimulation syndrome?

- a. Ascites
- b. Seizures
- c. Hemoconcentration
- d. Hypercoagulability

20–17. A 38-year-old woman with infertility secondary to distal tubal blockage undergoes in vitro fertilization. Her peak estradiol is 4500 pg/mL. Subsequently, 17 oocytes are retrieved, and 2 embryos are transferred. She conceives a singleton gestation but develops ovarian hyperstimulation syndrome (OHSS). A sonogram of her ovaries is shown here. Which of the following is a predisposing factor for her developing OHSS?



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- a. Older maternal age
- b. High estradiol level
- c. Etiology of her infertility
- d. Number of embryos transferred

20–18. Suitable treatment of ovarian hyperstimulation syndrome may include all of the following **EXCEPT**:

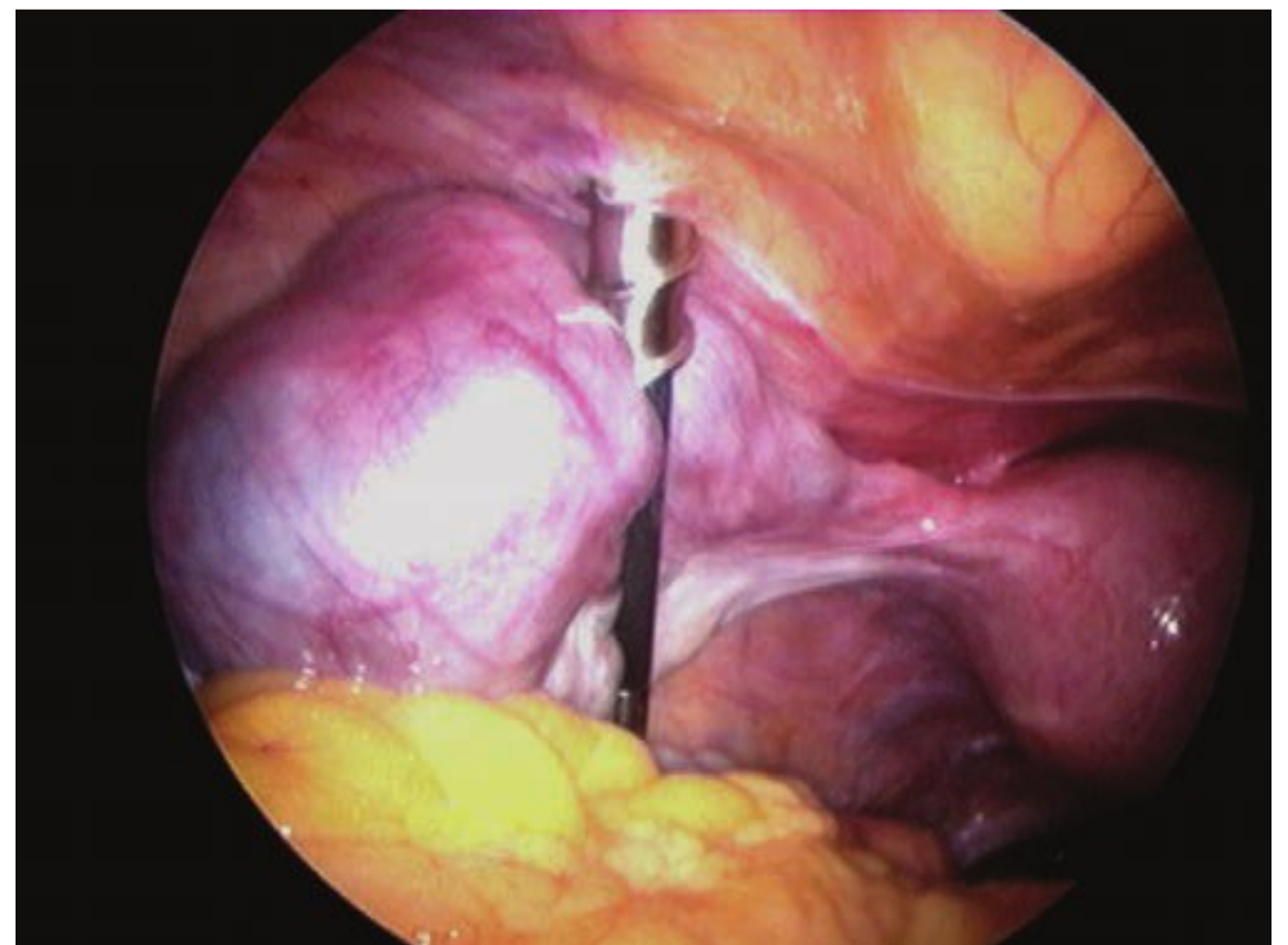
- a. Paracentesis
- b. Ovarian drilling
- c. Fluid resuscitation
- d. Thromboembolism prophylaxis

20–19. A patient is now undergoing exogenous gonadotropin ovulation induction. She developed mild ovarian hyperstimulation syndrome during a previous attempt at ovulation induction. Strategies to avert or minimize ovarian hyperstimulation syndrome include which of the following?

- a. Provide prophylactic volume expansion
- b. Decrease follicle-stimulating hormone (FSH) dose
- c. Withhold the human chorionic gonadotropin (hCG) trigger, resulting in cycle cancellation
- d. All of the above

- 20–20.** What approximate percentage of all multifetal births in the United States, including twins, results from in vitro fertilization and related procedures?
- 10 percent
 - 30 percent
 - 60 percent
 - 90 percent
- 20–21.** Most adverse maternal or perinatal outcomes of higher-order multifetal pregnancies are the result of which of the following?
- Premature delivery
 - Advanced maternal age
 - Venous thromboembolic events
 - Fetal growth restriction and discordance
- 20–22.** Which of the following can limit most reliably the risk of multifetal pregnancy resulting from ovulation induction and other assisted reproductive technologies?
- Monitor serum estradiol levels.
 - Sonographically measure follicular size and number.
 - Use in vitro fertilization to control the number of embryos transferred.
 - All of these options are equally reliable.
- 20–23.** The serum level of which of the following hormones is most likely to increase after ovarian drilling?
- Luteinizing hormone (LH)
 - Follicle-stimulating hormone (FSH)
 - Prolactin
 - Androstenedione
- 20–24.** Which of the following is the best treatment for a woman with a significant decline in ovarian reserve?
- Use of donor eggs
 - Clomiphene citrate ovulation induction
 - Exogenous gonadotropin ovulation induction
 - In vitro fertilization with intracytoplasmic sperm injection
- 20–25.** Which of the following tubal obstruction locations is **LEAST** amenable to surgical repair?
- Isthmic
 - Fimbrial
 - Ampullary
 - Interstitial

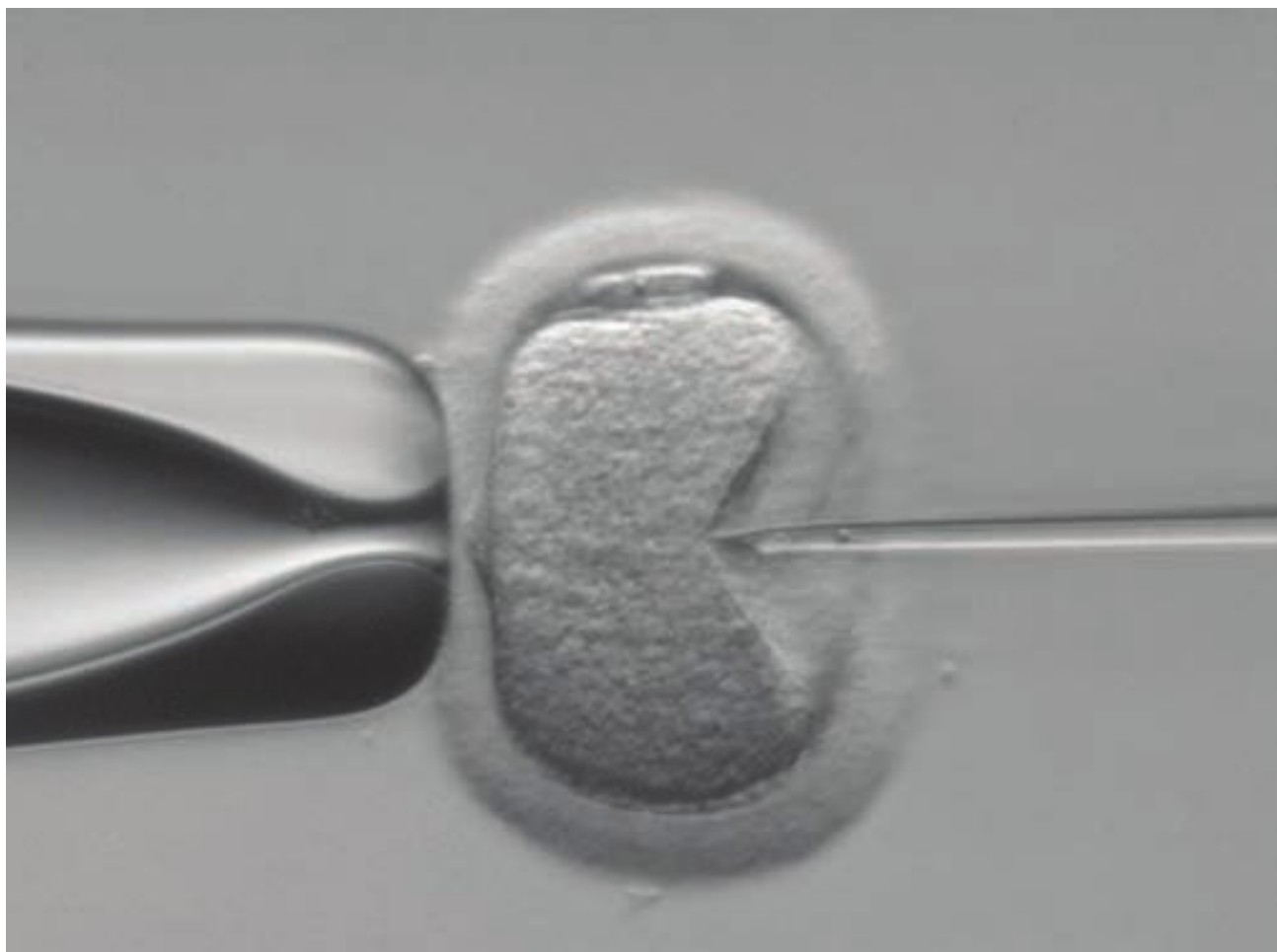
- 20–26.** Compared with in vitro fertilization, advantages of bilateral tubal reanastomosis to reverse tubal occlusion from a prior sterilization procedure do **NOT** include which of the following?
- Ability to conceive naturally
 - Negligible risk of ectopic pregnancy
 - Decreased risk of multifetal gestation
 - Avoidance of ovarian stimulation with exogenous hormonal therapy
- 20–27.** Which of the following treatment options offers the best chance for intrauterine pregnancy in a patient with the following problem?



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- Fimbriectomy
 - Neosalpingostomy
 - Tubal reanastomosis
 - In vitro fertilization after bilateral salpingectomy
- 20–28.** Which of the following statements regarding the management of uterine factors in infertile women is supported by evidence from a randomized trial?
- Endometrial polypectomy increases pregnancy rates.
 - Myomectomy of intramural myomas increases pregnancy rates.
 - Asherman syndrome can be reversed with high-dose estrogen therapy alone.
 - None of the above
- 20–29.** Which of the following is the preferred surgical approach for ovarian endometriomas, usually via laparoscopy?
- Ovarian wedge resection
 - Cyst drainage and ablation
 - Cyst wall excision by a stripping technique
 - Unilateral oophorectomy if the contralateral ovary appears normal

- 20–30.** In women with inadequate cervical mucus quantity or quality as a suspected contributor to infertility, what is the most reasonable approach to achieving pregnancy?
- Cryotherapy
 - Ovulation induction
 - Intrauterine insemination
 - Flax seed oil supplementation
- 20–31.** Which of the following assisted reproductive technologies, typically is used to treat male factor infertility, is shown here?



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- Embryo biopsy
 - Assisted hatching
 - Oocyte in vitro maturation
 - Intracytoplasmic sperm injection (ICSI)
- 20–32.** Oligospermia is defined as less than which of the following sperm count thresholds per milliliter of semen?
- 15 million/mL
 - 50 million/mL
 - 100 million/mL
 - 150 million/mL

- 20–33.** In cases of male hypogonadotropic hypogonadism, which of the following semen analysis abnormalities is most typically seen?
- Aspermia
 - Oligospermia
 - Asthenospermia
 - Teratozoospermia
- 20–34.** When providing treatment to increase sperm counts, it should be kept in mind that the process of spermatogenesis takes approximately how long?
- 30 days
 - 100 days
 - 6 months
 - 9 months
- 20–35.** During in vitro fertilization, prevention of a premature luteinizing hormone (LH) surge prior to oocyte retrieval is important. Which of the following medications helps achieve this goal?
- Estradiol
 - Leuprolide acetate
 - Human menopausal gonadotropins
 - Recombinant follicle-stimulating hormone (FSH)
- 20–36.** Infertility thought secondary to which of the following scenarios warrants intracytoplasmic sperm injection (ICSI)?
- Chronic anovulation
 - Severe oligospermia
 - Diminished ovarian reserve in an older woman
 - Bilateral distal fallopian tube occlusion with hydrosalpinges
- 20–37.** Which of the following assisted reproductive techniques avoids fertilization outside of the body, circumventing religious or ethical concerns for some patients?
- In vitro fertilization (IVF)
 - Intracytoplasmic sperm injection (ICSI)
 - Gamete intrafallopian tube transfer (GIFT)
 - Zygote intrafallopian tube transfer (ZIFT)

20–38. Which of the following assisted reproductive techniques is shown here?



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- a. Embryo biopsy
- b. Assisted hatching
- c. Oocyte in vitro maturation
- d. Intracytoplasmic sperm injection (ICSI)

20–39. Which of the following complication is more common in pregnancies resulting from assisted reproductive technologies compared with spontaneously conceived pregnancies?

- a. Cesarean delivery
- b. Placental abruption
- c. Gestational diabetes
- d. All of the above

Chapter 20 ANSWER KEY

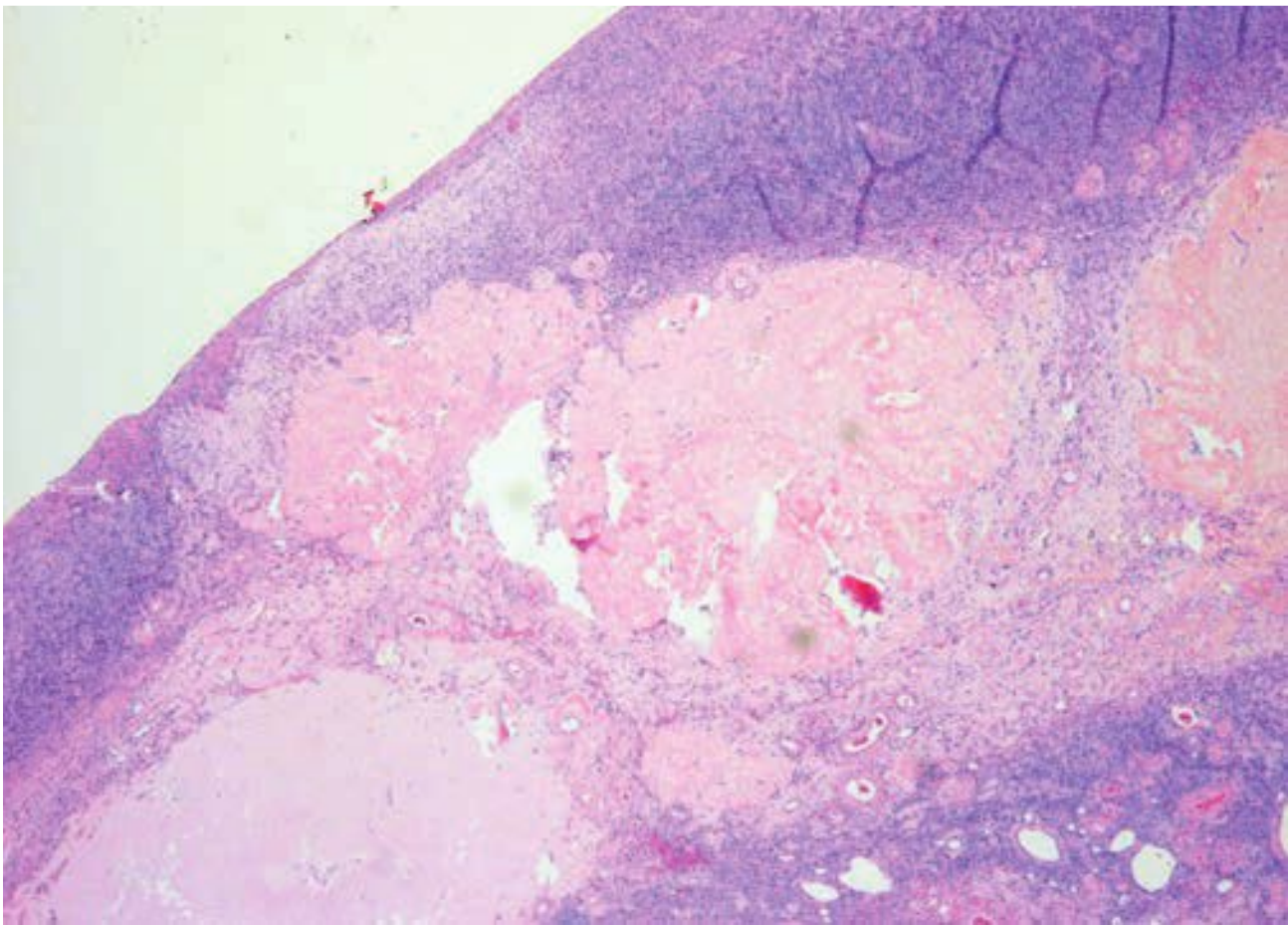
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
20-1	a	p. 449	Treatment of the Infertile Couple	20-21	a	p. 456	Multifetal Gestation
20-2	c	p. 449	Weight Optimization	20-22	c	p. 456	Multifetal Gestation
20-3	d	p. 449	Weight Optimization	20-23	b	p. 457	Ovarian Drilling
20-4	c	p. 450	Nutrition	20-24	a	p. 458	Correction of Diminished Ovarian Reserve
20-5	b	p. 450	Hyperprolactinemia	20-25	d	p. 458	Proximal Tubal Obstruction
20-6	c	p. 450	Hypothyroidism	20-26	b	p. 458	Proximal Tubal Obstruction
20-7	a	p. 451	Clomiphene Citrate	20-27	d	p. 459	Distal Tubal Obstruction
20-8	d	p. 451	Clomiphene Citrate	20-28	a	p. 460	Intrauterine Adhesions
20-9	a	p. 452	Insulin-Sensitizing agents	20-29	c	p. 460	Endometriosis
20-10	d	p. 452	Gonadotropins	20-30	c	p. 461	Correction of Cervical Abnormalities
20-11	d	p. 452	Gonadotropins, Table 20-1	20-31	d	p. 462	Correction of Male Infertility
20-12	d	p. 452	Gonadotropins	20-32	a	p. 462	Abnormal Sperm Count
20-13	a	p. 452	Gonadotropins, Figure 20-2	20-33	b	p. 462	Abnormal Sperm Count
20-14	c	p. 453	Aromatase Inhibitors	20-34	b	p. 462	Abnormal Sperm Count
20-15	c	p. 453	Ovarian Hyperstimulation Syndrome	20-35	b	p. 464	In Vitro Fertilization
20-16	b	p. 453	Ovarian Hyperstimulation Syndrome	20-36	b	p. 465	Intracytoplasmic Sperm Injection
20-17	b	p. 453	Ovarian Hyperstimulation Syndrome	20-37	c	p. 465	Gamete or Zygote Intrafallopian Transfer
20-18	b	p. 453	Ovarian Hyperstimulation Syndrome	20-38	a	p. 466	Preimplantation Genetic Diagnosis or Screening
20-19	d	p. 453	Ovarian Hyperstimulation Syndrome	20-39	d	p. 466	Complications of Assisted Reproductive Technology, Table 20-6
20-20	a	p. 456	Multifetal Gestation				

CHAPTER 21

Menopausal Transition

- 21-1.** Most women can now expect to live at least what percentage of their lifetime after menopause?
- 5 percent
 - 15 percent
 - 25 percent
 - 33 percent
- 21-2.** Characteristically, *menopausal transition* begins with a variable period of menstrual cycle irregularity and extends to 1 year after permanent cessation of menses. The menopausal transition typically spans how many years?
- 1 to 2 years
 - 2 to 4 years
 - 4 to 7 years
 - 7 to 10 years
- 21-3.** Premature ovarian failure is associated with a persistently elevated follicle-stimulating hormone (FSH) level and is further defined as cessation of menses before what age?
- 35 years
 - 40 years
 - 45 years
 - 51 years
- 21-4.** Several factors can alter ovarian aging. Which of the following is **LEAST** likely to shift menopause to an earlier age?
- Smoking
 - Chemotherapy
 - Pelvic radiation
 - Oral contraceptive pills
- 21-5.** During menopausal transition, erratic fluctuations in female reproductive hormones lead to an array of physical and psychological symptoms. These symptoms include all of the following **EXCEPT**:
- Headache
 - Poor memory
 - Vision changes
 - Urinary incontinence
- 21-6.** During the reproductive life of a woman, gonadotropin-releasing hormone is released in a pulsatile fashion from which of the following?
- Corpus lutea
 - Ovarian follicles
 - Pituitary gonadotrophs
 - Arcuate nucleus of the hypothalamus
- 21-7.** During menopausal transition, which of the following results from cessation of ovarian steroid hormone release?
- A rise in luteinizing hormone (LH) levels
 - A rise in follicle-stimulating hormone (FSH) levels
 - A maximal increase in the frequency and amplitude of gonadotropin-releasing hormone secretion
 - All of the above
- 21-8.** During the menopausal transition, antimüllerian hormone (AMH) levels do which of the following?
- Remain constant
 - Decrease progressively
 - Increase progressively
 - Fluctuate erratically beyond menopause

21–9. This photomicrograph illustrates which of the following?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr. Raheela Ashfaq.

- a. Corpus lutea
- b. Corpora albicantia
- c. Primordial follicles
- d. Polycystic ovarian syndrome

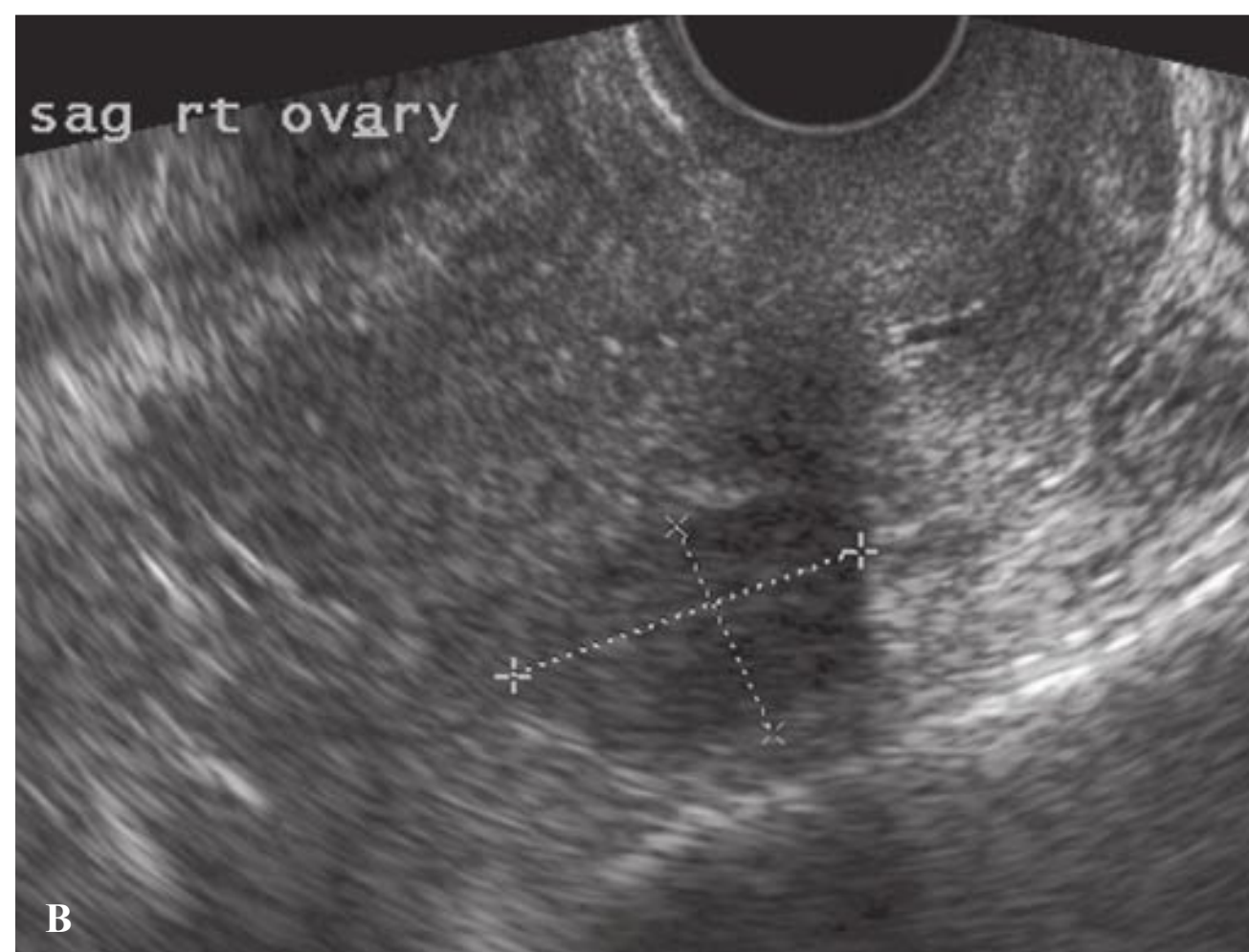
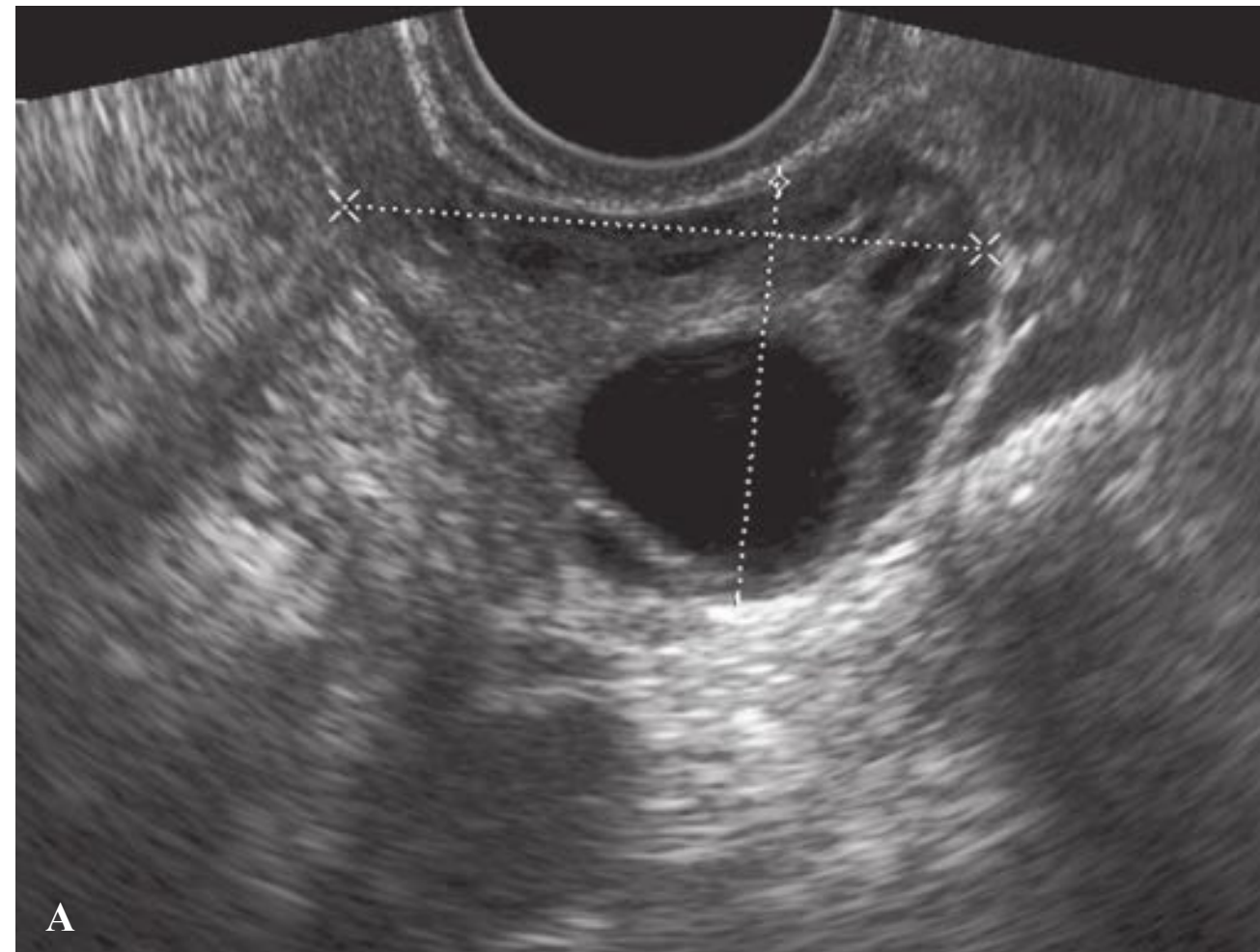
21–10. A female fetus has 6 to 7 million oocytes present during the 20th week of gestation. Approximately, how many oocytes are present at birth?

- a. 70,000
- b. 250,000
- c. 700,000
- d. 3,500,000

21–11. An average woman is expected to experience how many ovulatory events during her reproductive lifetime?

- a. 100
- b. 400
- c. 700,000
- d. 6 to 7 million

21–12. Which of the following transvaginal sonographic images demonstrates a typical premenopausal ovary?

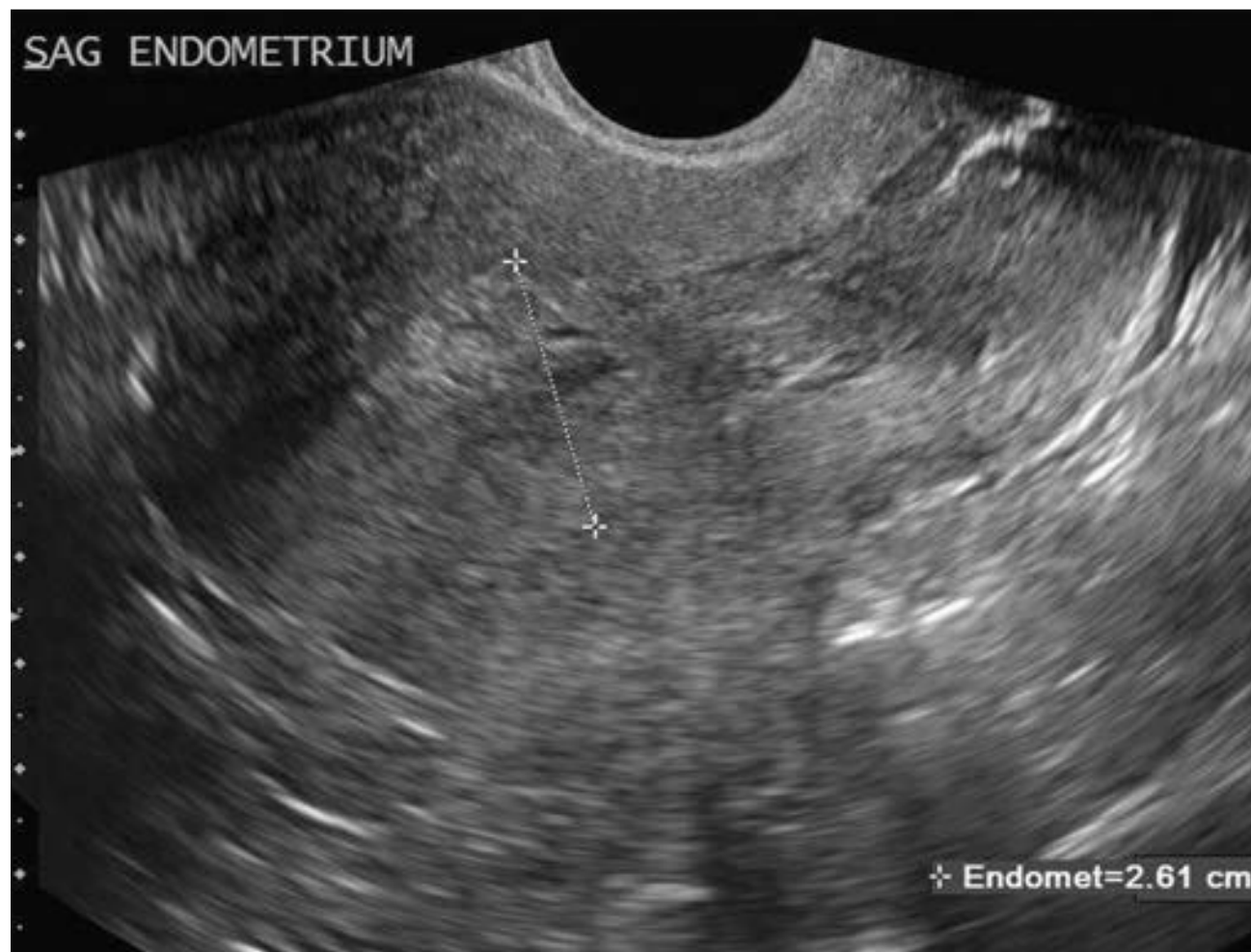


- a. A
- b. B
- c. Both A and B
- d. Neither of them is typical.

21–13. With advancing age, which of the following adrenal steroid levels declines?

- a. Pregnenolone
- b. Androstenedione
- c. Dehydroepiandrosterone sulfate
- d. All of the above

- 21–14.** Anovulation is the most common cause of erratic bleeding during menopausal transition. However, as shown in this sonogram, endometrial cancer is suspected during this transition in those with abnormal uterine bleeding (AUB). Here, the thickened heterogeneous endometrium measures 26 mm. The overall risk for endometrial cancer increases to what percentage in women with AUB during menopausal transition?

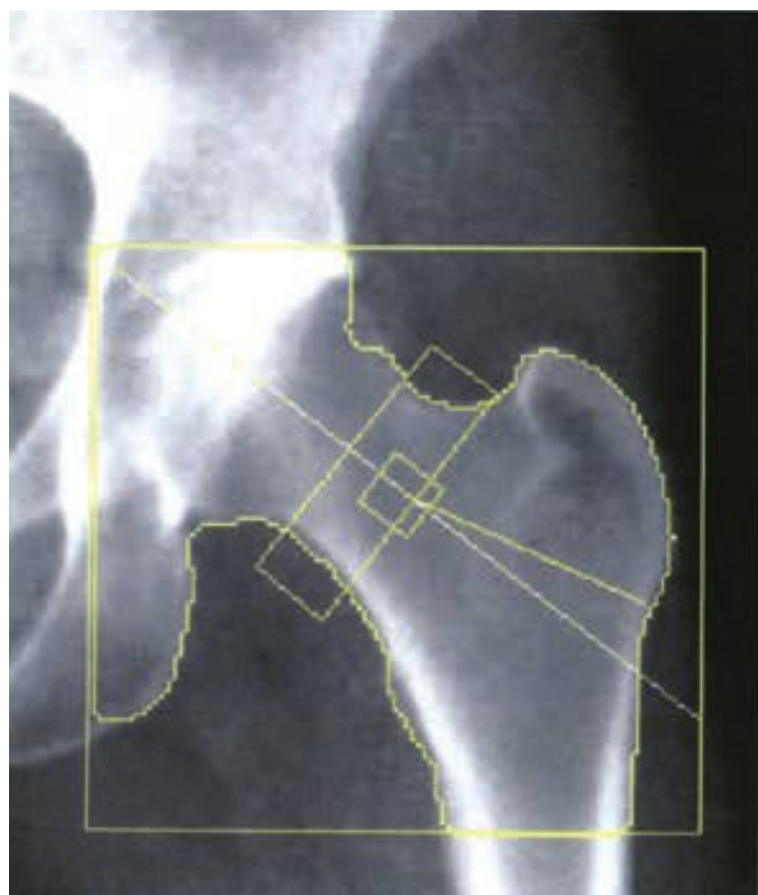


- a. 0.1 percent
b. 1 percent
c. 10 percent
d. 30 percent
- 21–15.** In postmenopausal women, unopposed estrogen may be derived from which of the following sources?
a. Exogenous estrogen
b. Extragonadal endogenous estrogen production
c. Decreased sex hormone-binding globulin levels
d. All of the above
- 21–16.** A 51-year-old woman asks for relief from an array of recent-onset physical and psychological symptoms. What is the most common medical complaint of women during menopausal transition?
a. Depression
b. Vasomotor symptoms
c. Painful intercourse
d. Stress urinary incontinence
- 21–17.** Longitudinal studies show thermoregulation dysfunction is associated with which of the following?
a. Smoking
b. Low exercise levels
c. Socioeconomic status
d. All of the above
- 21–18.** A tabulation of published epidemiologic studies determined that up to what percentage of menstruating women develop vasomotor symptoms during menopausal transition?
a. 60 percent
b. 70 percent
c. 80 percent
d. 90 percent
- 21–19.** Thermoregulatory changes that accompany a hot flush have been well documented. An individual hot flush typically lasts how many minutes?
a. < 1 minute
b. 1 to 5 minutes
c. 6 to 10 minutes
d. 11 to 15 minutes
- 21–20.** Hot flushes and the concurrent increase in metabolic rate may be accompanied by which of the following?
a. Panic
b. Irritability
c. Palpitations
d. All of the above
- 21–21.** Physiologic increases during a hot flush include all of the following **EXCEPT**:
a. Heart rate
b. Mean skin temperature
c. Systolic blood pressure
d. Plasma levels of estradiol
- 21–22.** A menstruating 48-year-old patient undergoes a total vaginal hysterectomy and bilateral salpingo-oophorectomy for symptomatic uterine leiomyomas. Surgical menopause is associated with what percentage probability of hot flushes during the first year after oophorectomy?
a. 40 percent
b. 60 percent
c. 90 percent
d. 100 percent
- 21–23.** A 55-year-old postmenopausal, thin, patient who smokes asks for counseling regarding osteoporosis due to her concern for future bone fracture risk. In addition to the vertebrae and femoral neck, which of the following is most commonly fractured?
a. Rib
b. Wrist
c. Fibula
d. Humerus

21–24. Osteopenia and osteoporosis are disorders characterized by a progressive reduction in bone mass and predispose patients to fractures in the spine, hips, and other sites. What is the approximate mortality rate from hip fracture alone?

- a. 10 percent
- b. 30 percent
- c. 50 percent
- d. 70 percent

21–25. Bone mineral density (BMD) values for sex, age, and ethnicity have been determined. For diagnostic purposes, results of BMD testing are reported as *T-scores*. What T-score value is associated with osteopenia?

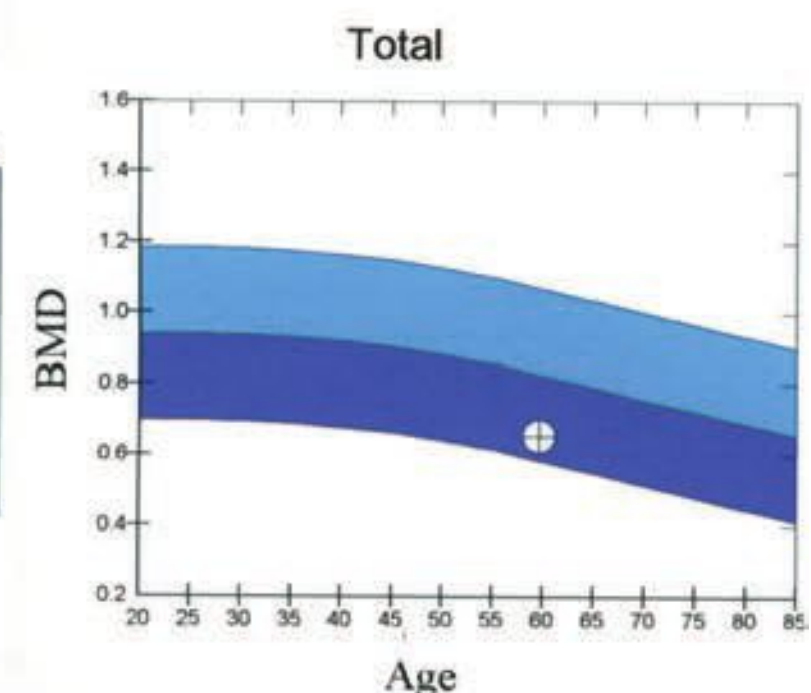


DXA Results Summary:

Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)	T - Score	Z - Score
Neck	4.97	2.74	0.552	-2.7	-1.4
Troch	11.53	5.62	0.487	-2.1	-1.3
Inter	18.92	14.78	0.781	-2.1	-1.4
Total	35.43	23.14	0.653	-2.4	-1.4
Ward's	1.16	0.38	0.331	-3.4	-1.5

Total BMD CV 1.0%

WHO Classification: Osteopenia
Fracture Risk: Increased



Reproduced with permission from Bradshaw KD: Menopausal transition. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 21-8B.

- a. T-score between + 2.5 and - 1.0
- b. T-score between + 1.0 and - 1.0
- c. T-score between + 1.0 and - 2.5
- d. T-score between - 1.0 and - 2.5

21–26. Age and race are nonmodifiable risk factors for osteoporosis. Menopausal osteoporosis is most common in which racial group?

- a. Asian
- b. White
- c. African–American
- d. Pacific Islander

21–27. Which of the following are secondary causes of osteoporosis that should be screened for in any patient with osteoporosis?

- a. Hypothyroidism
- b. Hypoparathyroidism
- c. Chronic renal disease
- d. None of the above

21–28. Genetic influence on osteoporosis and bone mineral density (BMD) is important. Heredity is estimated to account for up to what percentage of bone mineral density variability?

- a. 20 percent
- b. 40 percent
- c. 60 percent
- d. 80 percent

21–29. Modifiable factors that may benefit femoral neck and lumbar vertebral bone mineral density in postmenopausal women include which of the following?

- a. Alcohol use
- b. Low body mass
- c. Sedative drug use
- d. Progressive resistance training

21–30. Therapy with glucocorticoids lasting more than 2 to 3 months is a major risk factor for bone loss and fracture, particularly among postmenopausal women. Of chronic daily prednisone doses, which minimum threshold should prompt assessment and clinical intervention to prevent or treat glucocorticoid-induced osteoporosis?

- a. 5 mg
- b. 10 mg
- c. 15 mg
- d. 20 mg

- 21–31.** In women older than 50 years, what accounts for approximately 40 percent of deaths?
- Stroke
 - Lung cancer
 - Breast cancer
 - Atherosclerotic cardiovascular disease
- 21–32.** Before menopausal transition, women have a much lower risk for cardiovascular events compared with men of their same age. Reasons for protection from cardiovascular disease in premenopausal women are complex. However, a significant contribution can be assigned to an effect of estrogen that results in which of the following?
- Increased low-density lipoprotein levels
 - Decreased high-density lipoprotein levels
 - Increased high-density lipoprotein levels
 - Increased total cholesterol and low-density lipoprotein levels
- 21–33.** A 53-year-old multigravida postmenopausal patient reports her physical activity level is less than when she was younger and that she has not altered her eating habits. This has resulted in weight gain. You counsel her that gaining weight during menopausal transition is associated with fat deposition in the abdomen, increasing the likelihood of developing which of the following?
- Diabetes mellitus
 - Insulin resistance
 - Cardiovascular disease
 - All of the above
- 21–34.** The effect of hormone deficiency on skin aging has been widely studied but its contribution toward dermatologic changes is difficult to determine. Skin aging results from the synergistic effects of intrinsic aging along with which of the following?
- Photoaging
 - High body mass index
 - Reduced follicle-stimulating hormone (FSH) levels
 - None of the above
- 21–35.** Decreasing estrogen levels seen in late menopausal transition result in which of the following dental changes?
- Increased salivation
 - Buccal epithelium atrophy
 - Increased oral alveolar bone osteoblasts
 - All of the above
- 21–36.** The North American Menopause Society term *genitourinary syndrome of menopause* (GSM) encompasses which of the following signs and symptoms?
- Dyspareunia
 - Vulvar dryness
 - Urinary urgency and dysuria
 - All of the above
- 21–37.** Estrogen receptors have been identified in the vulva, vagina, urethra, pelvic floor musculature, and endopelvic fascia. Which of the following is a result of decreased estrogen trophic influence?
- Vaginal pH greater than 4.5
 - Lower rates of abnormal cervical cytology
 - Increased vaginal concentrations of *Lactobacilli*
 - Higher rates of Bartholin gland duct cyst formation
- 21–38.** Symptoms of vulvovaginal atrophy include vaginal dryness, itching, irritation, and dyspareunia. These complaints during menopausal transition have an estimated prevalence that reaches what percentage?
- 30 percent
 - 50 percent
 - 70 percent
 - 90 percent
- 21–39.** A 38-year-old nulligravida complains of no menses for the last 12 months and denies a history of radiation or chemotherapy exposure, galactorrhea, headache, or cigarette smoking. A markedly elevated follicle-stimulating hormone (FSH) level is obtained on repeated occasions. Which of the following causative categories should now be considered?
- Infection
 - Autoimmune disorders
 - Chromosomal abnormalities
 - All of the above

Chapter 21 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
21-1	d	p. 471	Menopausal Transition	21-21	d	p. 475	Pathophysiology of Vasomotor Symptoms
21-2	c	p. 471	Definitions	21-22	c	p. 476	Risk Factors for Vasomotor Symptoms
21-3	b	p. 471	Definitions	21-23	b	p. 477	Osteopenia and Osteoporosis
21-4	d	p. 471	Influential Factors	21-24	b	p. 477	Osteopenia and Osteoporosis
21-5	c	p. 471	Table 21-1	21-25	d	p. 479	Table 21-3
21-6	d	p. 472	Hypothalamus-Pituitary-Ovarian Axis	21-26	b	p. 481	Nonmodifiable Factors
21-7	d	p. 472	Hypothalamus-Pituitary-Ovarian Axis	21-27	c	p. 479	Table 21-4
21-8	b	p. 472	Hypothalamus-Pituitary-Ovarian Axis	21-28	d	p. 481	Nonmodifiable Factors
21-9	b	p. 473	Figure 21-3	21-29	d	p. 482	Modifiable Factors
21-10	c	p. 473	Ovary	21-30	a	p. 482	Modifiable Factors
21-11	b	p. 473	Ovary	21-31	d	p. 483	Cardiovascular Changes
21-12	a	p. 473	Ovary	21-32	c	p. 483	Cardiovascular Changes
21-13	d	p. 473	Ovary	21-33	d	p. 483	Weight Gain and Fat Distribution
21-14	c	p. 474	Menstrual Disturbances	21-34	a	p. 484	Dermatologic Changes
21-15	d	p. 474	Menstrual Disturbances	21-35	b	p. 484	Dental Changes
21-16	b	p. 474	Central Thermoregulation	21-36	d	p. 486	Lower Reproductive Tract Changes
21-17	d	p. 474	Central Thermoregulation	21-37	a	p. 486	Vulvovaginal Changes
21-18	a	p. 474	Central Thermoregulation	21-38	b	p. 486	Vulvovaginal Changes
21-19	b	p. 474	Vasomotor Symptoms	21-39	d	p. 487	Patient Evaluation
21-20	d	p. 474	Vasomotor Symptoms				

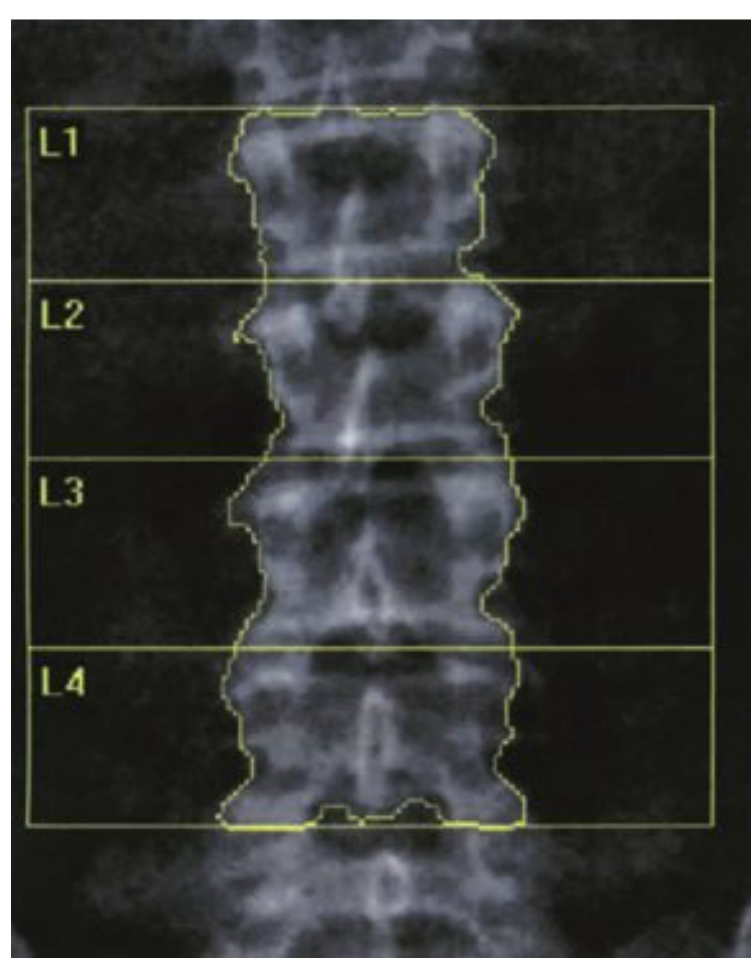
CHAPTER 22

The Mature Woman

- 22–1.** Menopause may be identified by which of the following?
- The point in time 1 year after cessation of menses
 - The time when menstruation permanently stops due to loss of ovarian function
 - The state associated with physical symptoms and with metabolic and structural changes related to declining estrogen levels
 - All of the above
- 22–2.** Regarding the findings from the large observational Nurses' Health Study (Stampfer, 1985), all of the following are correct **EXCEPT**:
- It identified a significant reduction in heart disease among postmenopausal hormone users.
 - It suggested at least a doubling of cerebrovascular disease among postmenopausal hormone users.
 - Its findings likely were confounded by timing of the initiation of postmenopausal hormone therapy.
 - It was likely biased by including participants that were not representative of the U.S. postmenopausal population.
- 22–3.** The Writing Group for the Postmenopausal Estrogen/Progestin Interventions (PEPI) Trial (1995) reported which of the following regarding women receiving placebo compared with those receiving hormones?
- Fibrinogen levels were increased.
 - Cardiac morbidity declined by 50 percent.
 - Low-density lipid levels declined.
 - High-density lipid levels increased.
- 22–4.** Which of the following is correct regarding the Heart and Estrogen/Progestin Replacement Study (HERS) and HERS II.
- They included healthy women without preexisting heart disease.
 - They showed that estrogen was a useful medication for secondary prevention of cardiac disease progression.
 - They showed (at 1 year) an increased rate of myocardial infarction in women who received conjugated equine estrogen and continuous medroxyprogesterone acetate.
 - They showed (at 4 years) a sustained increased risk of myocardial infarction in women receiving combined hormone therapy.
- 22–5.** A 56-year-old woman has been amenorrheic for 4 years and asks whether hormone therapy will lead to heart attack. You explain that results from the Women's Health Initiative (WHI) suggest which of the following regarding coronary heart disease risk?
- It is decreased among older users (70–79 years).
 - It is increased among younger users (50–59 years).
 - It is increased among all postmenopausal users of combined estrogen and progestin hormone therapy.
 - It is likely decreased among women who initiate combined hormone therapy within 10 years of the menopause.
- 22–6.** Results from the Women's Health Initiative (WHI) suggest which of following regarding stroke risk?
- It is decreased among older users (70–79 years).
 - It is decreased among younger users (50–59 years).
 - It is increased among all postmenopausal users of combined estrogen and progestin hormone therapy.
 - It is likely decreased among women who initiate combined hormone therapy within 10 years of the menopause.

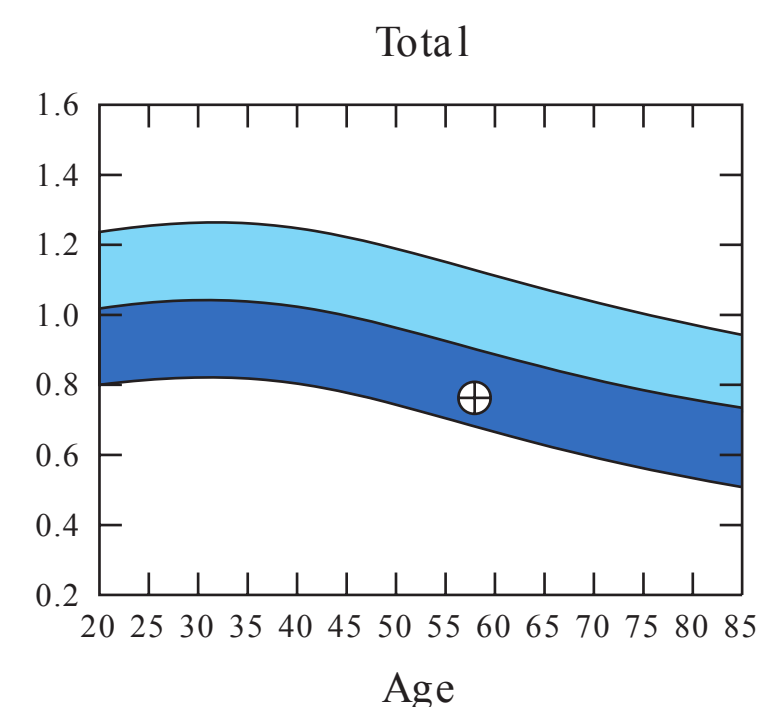
- 22–7.** A summary of postmenopausal systemic hormone therapy risks and benefits indicates an increased risk of all of the following **EXCEPT**:
- Stroke
 - Breast cancer
 - Colorectal cancer
 - Venous thromboembolism
- 22–8.** A 54-year-old woman is bothered by vasomotor symptoms and vaginal dryness. She is interested in starting hormone therapy. Her surgical history is negative for hysterectomy. Which of these treatment options is most appropriate?
- Oral 17 β -estradiol
 - Transdermal 17 β -estradiol
 - Vaginal estradiol acetate
 - Oral conjugated equine estrogen plus bazedoxifene
- 22–9.** Estrogen replacement therapy is contraindicated in women with all of the following **EXCEPT**:
- Vasomotor symptoms
 - Active liver disease
 - Known or suspected breast carcinoma
 - Abnormal genital bleeding of unknown etiology
- 22–10.** Hot flushes are experienced by approximately what percentage of postmenopausal women?
- 10 to 35 percent
 - 35 to 50 percent
 - 50 to 85 percent
 - 85 to 100 percent
- 22–11.** Which of the following is true of estrogen as treatment for hot flushes and sleep disturbances?
- It generally is prescribed at the lowest effective dose.
 - It is approved in oral, transdermal, and intravaginal formulations.
 - It reduces hot flush frequency by 18 events per week (75-percent reduction compared with placebo).
 - All of the above
- 22–12.** All of the following are true of progestin-only hormone treatment **EXCEPT**:
- It decreases the risk for breast cancer.
 - It may attenuate estrogen's beneficial effects on lipids.
 - It provides protection against estrogen-induced endometrial hyperplasia and cancer.
 - Its use is limited by its adverse effects of weight gain and irregular vaginal bleeding.
- 22–13.** In general, compared with placebo, bazedoxifene plus conjugated equine estrogen leads to which of the following?
- Higher rate of hot flushes
 - Higher rate of endometrial hyperplasia
 - Higher rate of bone mineral density loss
 - None of the above
- 22–14.** A 53-year-old postmenopausal woman reports that her elder sister is quite happy using a bioidentical hormone (estriol) via subdermal implant. She asks for similar hormone therapy. Counseling regarding such therapy should include which of the following points?
- Safer than oral hormone therapy
 - Not approved by the Food and Drug Administration (FDA)
 - More effective than commercially available hormone therapy
 - Periodic salivary testing of hormone levels aids dose adjustments
- 22–15.** For treatment of vasomotor symptoms, currently suggested alternatives to hormones include all of the following **EXCEPT**:
- Bellergal
 - Clonidine
 - Gabapentin
 - Selective serotonin-reuptake inhibitors
- 22–16.** A 58-year-old woman reports that she is very bothered by persistent hot flushes. She had previously undergone mastectomy for breast cancer but has had no other surgeries. All of the following are reasonable options for treatment **EXCEPT**:
- Clonidine
 - Escitalopram
 - Paroxetine mesylate
 - Oral micronized progesterone
- 22–17.** Which of the following is true of dong quai?
- It contains addictive barbiturates and is not recommended for long-term use.
 - It contains numerous coumarin-like derivatives that may cause excessive bleeding.
 - It is rich in α -linolenic acid and touted to reduce inflammation, heart disease, and cancer.
 - It significantly reduces vasomotor symptoms compared with placebo in double-blinded controlled trials.

- 22–18.** Which of the following agents has demonstrated efficacy in reducing vasomotor symptoms compared with placebo in randomized controlled trials?
- Vitamin E
 - Red clover
 - Wild yam cream
 - None of the above
- 22–19.** Which of the following does **NOT** have an indication for osteoporosis treatment?
- Denosumab
 - Calcitonin
 - Bisphosphonates
 - Estrogen replacement
- 22–20.** Which of the following is true of raloxifene?
- It is a potent bisphosphonate.
 - It increases breast cancer risk.
 - It increases thromboembolism risk.
 - It significantly decreases nonvertebral fracture risk.
- 22–21.** A 57-year-old nonsmoking Caucasian multigravida reports reaching menopause at the age 52. She has no family history of osteoporosis, no history of prolonged corticosteroid use, no hyperparathyroidism, or malabsorption syndrome. An evaluation for severe back pain reveals an anterior wedge fracture. Bone mineral density screening was performed and gives a T-score of -1.7 . Which of the following is the most effective and appropriate intervention?
- Limit physical activity.
 - Initiate oral calcium, 1000 mg daily.
 - Initiate physical therapy and analgesia.
 - Initiate an oral bisphosphonate therapy for bone fracture prevention and treatment.
- 22–22.** Which of the following is a safety concern with oral bisphosphonates?
- Osteonecrosis of the jaw
 - Atypical femur fractures
 - Upper gastrointestinal inflammation and ulceration
 - All of the above
- 22–23.** A 66-year-old woman has fallen twice in the last month and has a total hip T-score of -2.0 . You plan therapy with a bisphosphonate, but she is concerned that she will have difficulty remaining adherent with a daily pill. Which of these is an oral option offering a more convenient once-monthly dosing schedule?
- Alendronate
 - Ibandronate
 - Risedronate
 - Zoledronate
- 22–24.** Which of the following is a Food and Drug Administration (FDA)-approved medication for osteoporosis treatment that works by increasing osteoblast numbers and stimulating bone formation?
- Calcitonin
 - Alendronate
 - Raloxifene
 - Recombinant parathyroid hormone
- 22–25.** The patient with a bone density scan result presents for further management. Which of the following is true of the medication prescribed, chosen for the goals of increasing bone density and size by increasing osteoblast numbers?
- It is dosed once a week orally.
 - It may be delivered by nasal spray.
 - It is not recommended for patients at increased risk of skeletal malignancy.
 - It may cause upper gastrointestinal inflammation, ulceration, and bleeding.

**DXA results summary:**

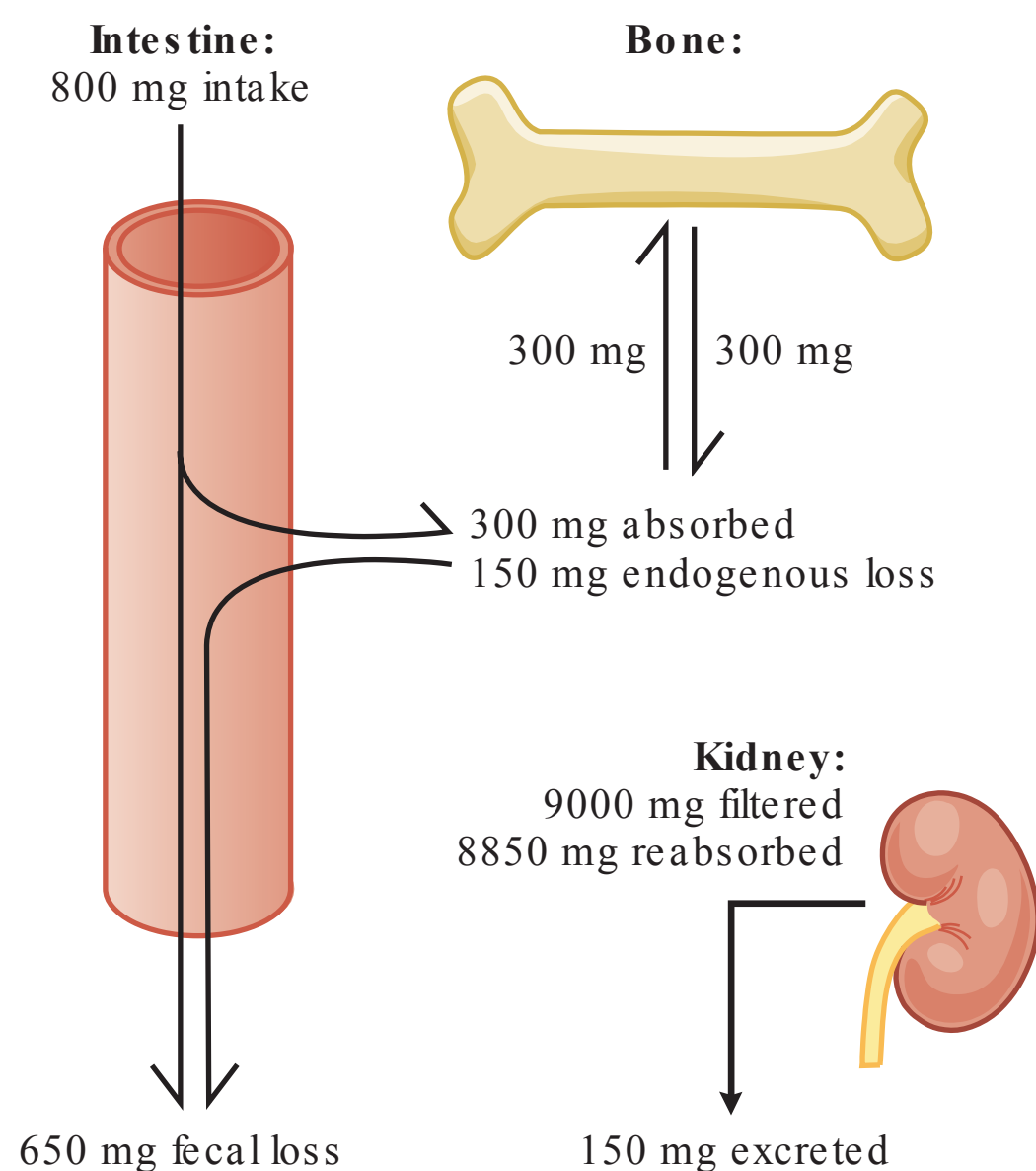
Region	Area (cm ²)	BMC (g)	BMD (g/cm ²)	T-Score	Z-Score
L1	11.73	8.03	0.684	-2.2	-1.0
L2	12.60	9.70	0.770	-2.3	-1.0
L3	14.59	11.70	0.802	-2.6	-1.1
L4	14.44	11.01	0.763	-3.2	-1.7
Total	53.36	40.44	0.758	-2.6	-1.2

Total BMD CV 1.0%, ACF = 1.028, BCF = 0.998, TH = 5.974
 WHO classification: osteoporosis
 Fracture risk: high



- 22–26.** Vitamin D deficiency leads to which of the following?
- Decreased bone turnover
 - Decreased rate of bone loss
 - Improved calcium absorption
 - Secondary hyperparathyroidism

- 22–27.** The image presents a schematic of the daily whole-body turnover of calcium. All of the following interventions are expected to benefit bone health and calcium absorption **EXCEPT**:



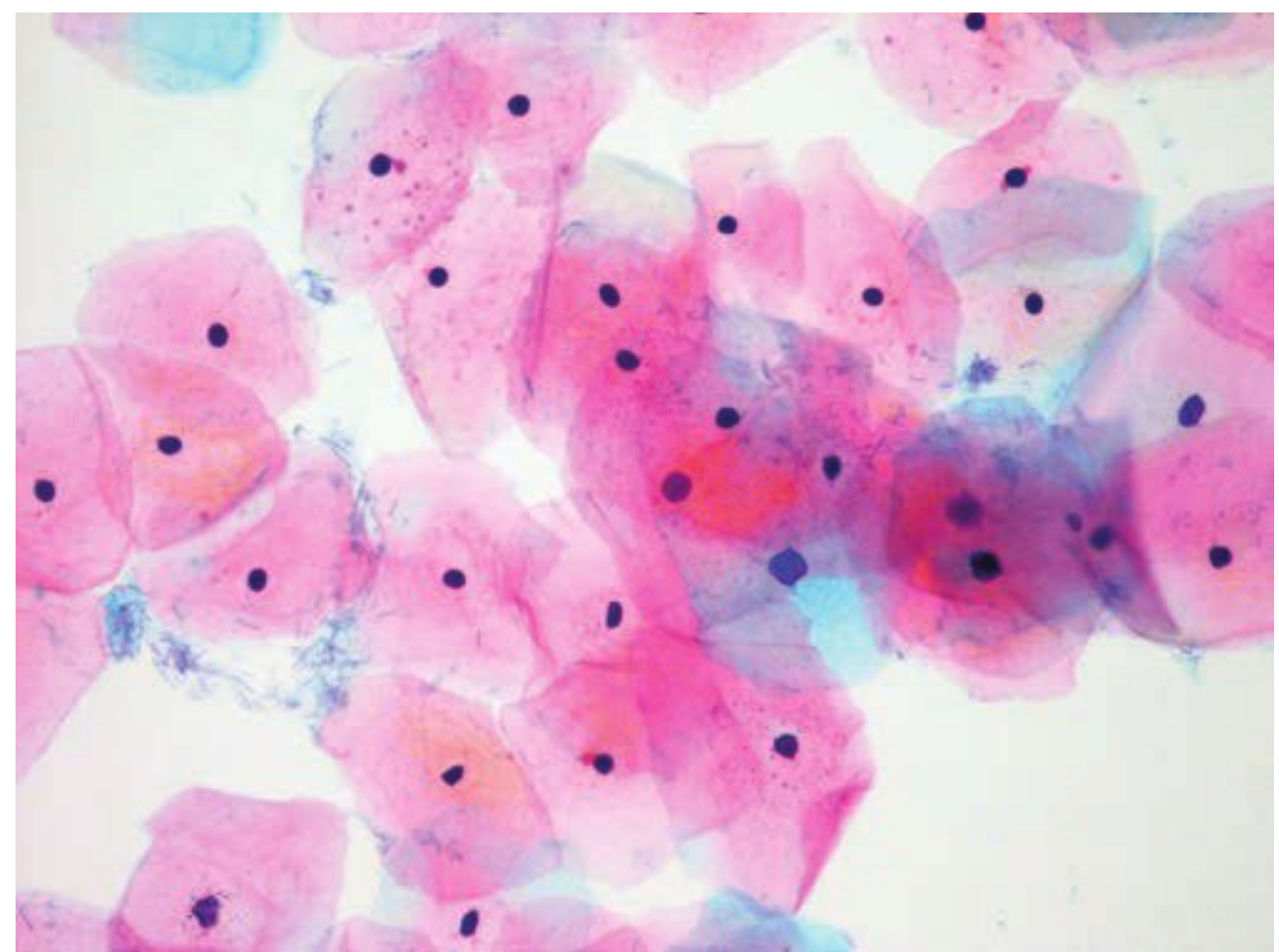
Reproduced with permission from Friedman PA: Agents affecting mineral ion homeostasis and bone turnover. In Brunton LL, Chabner BA, Knollmann BC (eds): Goodman and Gilman's the Pharmacological Basis of Therapeutics, 12th ed. New York, McGraw-Hill, 2011, Figure 44-2.

- Increase caffeine intake
 - Increase calcium intake to reach a daily dose of 1000 to 1200 mg
 - Improve absorption by increasing daily vitamin D to at least 600 IU per day
 - Decrease renal excretion by decreasing sodium excretion (i.e., low-sodium diet)
- 22–28.** Vaginal products for estrogen replacement in postmenopausal women have which of the following effects?
- Decrease vaginal mucosal sensorimotor responses
 - Increase vaginal mucosal fluid secretions and elasticity
 - Have lower patient-acceptance rates compared with systemic therapies
 - Have similar systemic estradiol concentrations compared with systemic therapies

- 22–29.** Which of the following statements is correct regarding newer vaginal estrogen delivery systems compared with conjugated estrogen cream?

- 17β -estradiol tablet suppositories offer equivalent relief of atrophic vaginitis symptoms.
- Continuous low-dose estradiol-releasing intravaginal rings are more acceptable to patients.
- Continuous low-dose estradiol-releasing intravaginal rings are prescribed as a single unit and worn for 90 days.
- All of the above

- 22–30.** A 61-year-old postmenopausal woman is bothered by vaginal dryness and associated dyspareunia. After 6 weeks of treatment with vaginal 17β -estradiol tablets, a cytological smear of her vaginal wall is collected and shown here. Expected effects of her therapy include all of the following **EXCEPT**:



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- Improved dyspareunia
- A decrease in vaginal pH
- Increased superficial cell numbers on vaginal cytology
- A predominance of parabasal and basal cells on vaginal cytology

- 22–31.** Which of these products is an acidic hydrophilic insoluble polymer that can hold water and act as a sustained moisturizer to the vagina?

- Replens
- K-Y Jelly
- Astroglide
- Slippery Stuff

- 22–32.** Prolonged treatment of decreased libido using androgens in postmenopausal women could contribute to all of the following **EXCEPT**:
- a.** Acne and hirsutism
 - b.** Clitoral hypertrophy
 - c.** Worsening lipid profile
 - d.** Decreased bone mineral density
- 22–33.** The top 4 causes of mortality in women older than 65 years include all of the following **EXCEPT**:
- a.** Cancer
 - b.** Heart disease
 - c.** Diabetes mellitus
 - d.** Cerebrovascular disease

- 22–34.** Which of the following may be reasons to suggest estrogen therapy for a postmenopausal patient with mild urinary incontinence?
- a.** Periurethral vascularity is diminished by hypoestrogenism.
 - b.** Estrogen receptors are found throughout the lower urinary tract.
 - c.** Hypoestrogenism is associated with deleterious changes in collagen.
 - d.** All of the above

References

Stampfer MJ, Willett WC, Colditz GA, et al: A prospective study of postmenopausal estrogen therapy and coronary heart disease. *N Engl J Med* 313(17):1044, 1985.

The Writing Group for the PEPI Trial. Effects of estrogen or estrogen/progestin regimens on heart disease risk factors in postmenopausal women. The Postmenopausal Estrogen/Progestin Interventions (PEPI) Trial. *JAMA* 273:199, 1995.

Chapter 22 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
22-1	d	p. 492	The Mature Woman	22-17	b	p. 498	Phytoestrogens
22-2	b	p. 492	Early Estrogen Administration Trends	22-18	d	p. 499	Vitamin E
22-3	a	p. 493	Postmenopausal Estrogen/Progestin Interventions Trial	22-19	d	p. 500	Table 22-4
22-4	c	p. 493	Heart and Estrogen/Progestin Replacement Study	22-20	c	p. 501	Raloxifene
22-5	d	p. 493	Women's Health Initiative	22-21	d	p. 501	Bisphosphonates
22-6	c	p. 493	Women's Health Initiative	22-22	d	p. 501	Bisphosphonates
22-7	c	p. 494	Risks and Benefits	22-23	b	p. 503	Ibandronate, Table 22-4
22-8	d	p. 494	Indications and Contraindications	22-24	d	p. 503	Parathyroid Hormone
22-9	a	p. 495	Table 22-1	22-25	c	p. 503	Parathyroid Hormone, Table 22-4
22-10	c	p. 495	Treatment of Vasomotor Symptoms	22-26	d	p. 504	Vitamin D
22-11	d	p. 495	Estrogen	22-27	a	p. 504	Diet
22-12	a	p. 495	Progestins	22-28	b	p. 505	Estrogen Replacement
22-13	d	p. 497	Bazedoxifene	22-29	d	p. 505	Estrogen Replacement
22-14	b	p. 497	Bioidentical Hormones	22-30	d	p. 505	Estrogen Replacement
22-15	a	p. 497	Table 22-3	22-31	a	p. 506	Vaginal Lubricants and Moisturizers
22-16	d	p. 497	Serotonin and Norepinephrine	22-32	d	p. 506	Libido
				22-33	c	p. 507	Table 22-6
				22-34	d	p. 507	Urogynecologic Disease

Section 3

Female Pelvic medicine and
Reconstructive surgery

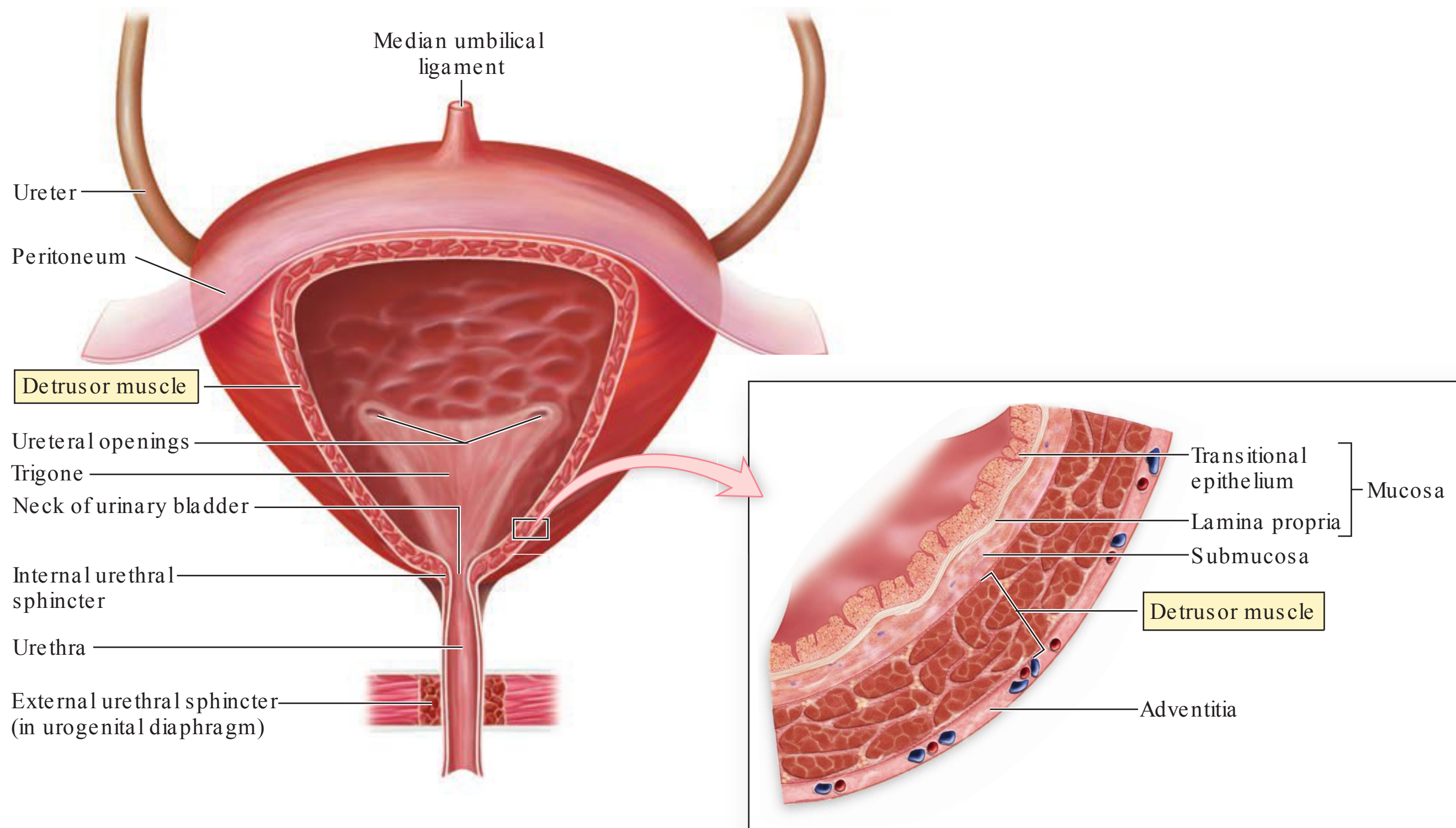


CHAPTER 23

Urinary Incontinence

- 23-1.** A 45-year-old multipara presents with involuntary loss of urine with coughing or sneezing that has become progressively more frequent during the past 2 years. This complaint typically reflects which of the following incontinence forms?
- Stress incontinence
 - Urgency incontinence
 - Overflow incontinence
 - Functional incontinence
- 23-2.** A 55-year-old postmenopausal woman reports involuntary urine loss that is always preceded by a sudden, strong sensation of the need to void. She has had several episodes of losing bladder control because she could not find a restroom quickly enough. This history reflects which of the following incontinence forms?
- Stress incontinence
 - Urgency incontinence
 - Overflow incontinence
 - Functional incontinence
- 23-3.** If the symptoms of overactive bladder or urgency incontinence are objectively demonstrated during urodynamic testing, which of the following terms is used?
- Detrusor overactivity
 - Functional incontinence
 - Genuine urgency incontinence
 - Verified urgency incontinence
- 23-4.** If stress incontinence is documented during urodynamic testing, which of the following terms is used?
- Detrusor overactivity
 - Functional incontinence
 - Verified urge incontinence
 - Urodynamic stress incontinence
- 23-5.** In the United States, which form of urinary incontinence is most common in the general ambulatory female population?
- Stress
 - Urgency
 - Overflow
 - Functional
- 23-6.** Between 2010 and 2050, how is the number of women with urinary incontinence in the United States expected to change?
- Decrease by 10 to 20 percent
 - Increase by 10 to 20 percent
 - Increase by 50 to 60 percent
 - Plateau and remain essentially unchanged
- 23-7.** Which age-related physiologic change predisposes to incontinence or voiding difficulties?
- Increase in urinary flow rate
 - Increase in total bladder capacity
 - Increase in involuntary detrusor contractions
 - Diurnal-predominant (daytime) fluid excretion
- 23-8.** A 36-year-old woman complains of urinary incontinence. She wants to avoid use of medications for the leakage. Her body mass index is elevated above the normal range. She can be counseled that an improvement in urinary incontinence symptoms may be observed with what magnitude of change in body weight?
- Decrease by 5 to 10 percent
 - Increase by 5 to 10 percent
 - Increase by 10 to 20 percent
 - No substantial relationship to change in body weight
- 23-9.** Hypoestrogenism is linked to a greater risk of incontinence through which of the following mechanisms?
- Increased urethral collagen volume
 - Atrophy of the urethral mucosal seal
 - Increased compliance of urethral sphincter musculature
 - All of the above
- 23-10.** A 30-year-old woman presents with increasingly frequent episodes of urinary incontinence during the past several years. She has had two vaginal births and two cesarean deliveries. Childbirth likely contributes to urinary incontinence through which of the following mechanisms?
- Nerve damage from stretch injury
 - Prolonged pudendal nerve latency
 - Direct injury to connective tissue attachments
 - All of the above

- 23–11.** What component of the uroepithelium contributes most to the urine–plasma barrier?
- Submucosa
 - Lamina propria
 - Squamous epithelium
 - Umbrella cell layer
- 23–12.** The detrusor muscle layer of the bladder, as indicated by the highlighted label in the image below, is responsible for what function?

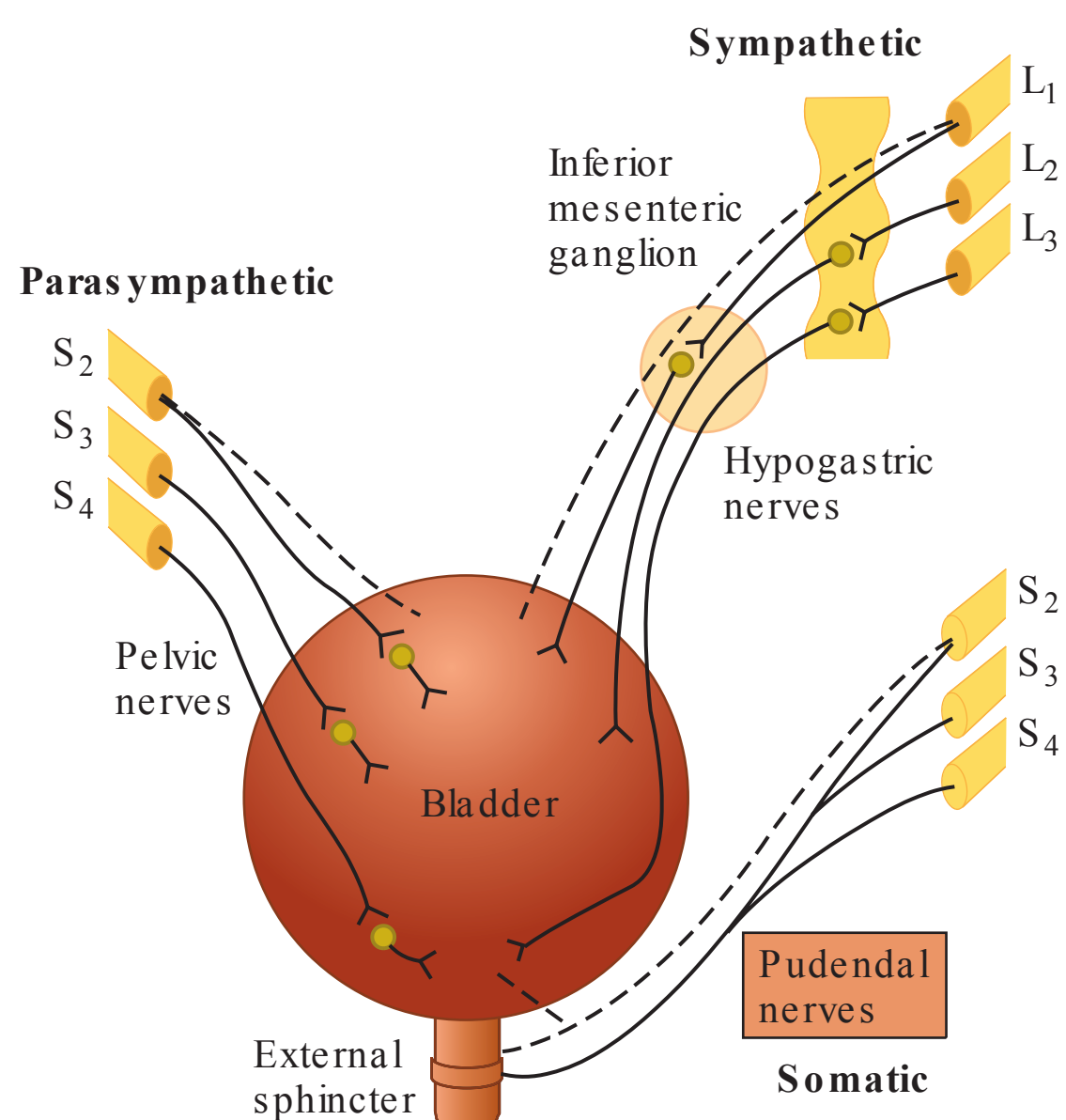


Reproduced with permission from McKinley M, O'Loughlin VD (eds): Urinary system. In Human Anatomy. New York, McGraw-Hill, 2006, p 843, Figure 27-9.

- Aids greater permeability at urine–plasma barrier
- Prohibits bacterial adherence and prevent urothelial damage
- Allows for rapid multidimensional expansion during bladder filling
- All of the above

- 23–13.** Which statement correctly describes innervation of the bladder?
- The autonomic division of the peripheral nervous system innervates striated muscle.
 - The sympathetic system acts via acetylcholine binding to α - or β -adrenergic receptors.
 - The somatic component of the peripheral nervous system innervates smooth muscle.
 - Autonomic fibers supplying the pelvic viscera course in the inferior and superior hypogastric plexi.
- 23–14.** Which statement correctly characterizes Onuf somatic nucleus?
- Located in the dorsal horn white matter of spinal levels S2, S3, and S4.
 - Contains neurons that innervate the striated urogenital sphincter complex.
 - Connects to the urogenital sphincter via the superior and inferior hypogastric plexi.
 - All of the above

23–15. How do the pudendal nerves, highlighted in the image below, contribute to the bladder's capacity for urine storage or emptying?



Reproduced with permission from Barrett KE, Barman SM, Boitano S, et al (eds): Renal function and micturition. In Ganong's Review of Medical Physiology, 23rd ed. New York, McGraw-Hill, 2010, Figure 38-20. L = lumbar; S = sacral.

- a. Voluntary contraction or relaxation of the urogenital sphincter complex
 - b. Involuntary relaxation of the detrusor muscle for bladder filling
 - c. Involuntary contraction of the detrusor muscle for bladder emptying
 - d. None of the above
- 23–16.** All of the following muscles contribute to the urogenital sphincter complex **EXCEPT**:
- a. Sphincter urethrae
 - b. Compressor urethrae
 - c. Urethrovaginal sphincter
 - d. Detrusor muscle fibers of the bladder base
- 23–17.** The urethra's ability to maintain a tight seal and prevent urinary incontinence requires which of the following?
- a. Urethral mucosal coaptation
 - b. Healthy underlying vascular plexus
 - c. Contraction of muscles surrounding the urethra
 - d. All of the above

- 23–18.** Which of the following statements regarding the parasympathetic division of the autonomic nervous system and its innervation of the bladder is correct?
- a. Acetylcholine acts via α - or β -adrenergic receptors.
 - b. The urethra's outlet must contract in concert with detrusor contraction to aid voiding.
 - c. Muscarinic antagonist medications will augment detrusor contraction and worsen urinary incontinence.
 - d. Of the five subtypes of muscarinic receptors, M_2 and M_3 are the ones predominantly responsible for detrusor smooth muscle contraction.

- 23–19.** Which statement correctly characterizes *detrusor sphincter dyssynergia*?
- a. Treatment is with α -agonists to promote urethral sphincter contraction.
 - b. This may occur as a result of spinal cord injury or other neurologic disease.
 - c. The bladder muscle contracts in concert with urethral sphincter relaxation.
 - d. None of the above
- 23–20.** A 38-year-old multipara presents with urinary incontinence for more than 1 year. She frequently loses urine with vigorous exercise, coughing, and sneezing. She occasionally has the sudden need to void at rest or when walking, and she has leaked urine when she could not get to a toilet quickly. When the patient's history suggests an overlap in both stress and urgency incontinence symptoms, which of the following terms is used?
- a. Overflow incontinence
 - b. Mixed urinary incontinence
 - c. Complex urinary incontinence
 - d. Augmented urinary incontinence
- 23–21.** A 3-day voiding diary is most useful for measuring which of the following?
- a. Detrusor overactivity
 - b. Functional bladder capacity
 - c. Urodynamic stress incontinence
 - d. All of the above
- 23–22.** Which group of medications is **NOT** likely to contribute to urinary retention?
- a. Antihistamines
 - b. Narcotic analgesics
 - c. Calcium-channel blockers
 - d. α -Adrenergic blockers
- 23–23.** Diabetes mellitus likely contributes to urinary incontinence through which mechanism?
- a. Decreased urine output
 - b. Worsening peripheral edema
 - c. Bladder mucosal inflammation
 - d. Osmotic diuresis and polyuria

23–24. A urethral diverticulum is suggested by which of the following?



Used with permission from Dr. Dustin Manders.

- a. Postvoid dribbling
- b. Suburethral bulging of the anterior vaginal wall
- c. Transurethral expression of fluid when compressing the anterior vaginal wall
- d. All of the above

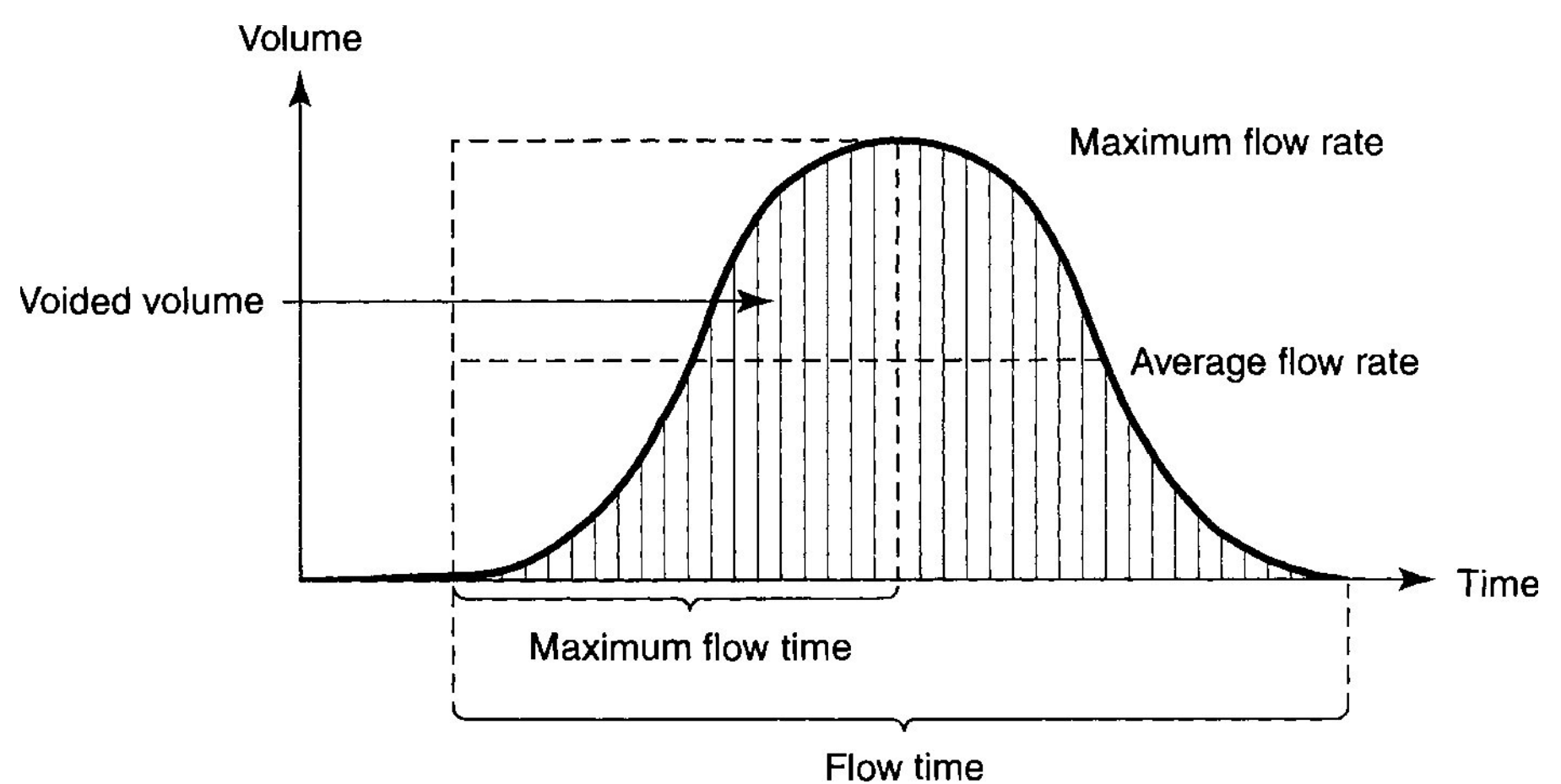
23–25. A 39-year-old multipara with no significant past surgical or medical history presents with very bothersome stress-predominant urinary incontinence. She strongly desires surgical treatment. You are considering a midurethral sling but wish to avoid urodynamic testing to expedite surgical planning. Which of the following need **NOT** be a part of your *minimum* office evaluation?

- a. Urinalysis
- b. 3-day voiding diary
- c. Postvoid residual measurement
- d. Examination for leakage during Valsalva maneuver

23–26. Which of the following **CANNOT** be assessed or measured using simple cystometrics?

- a. Total bladder capacity
- b. Stress urinary incontinence
- c. Intrinsic sphincteric deficiency
- d. First sensation of bladder filling

23–27. The test depicted below, which graphically demonstrates a patient's maximum rate, duration, and pattern of flow during voiding, is known as which of the following?



Reproduced with permission from Absoeif SR, Tanagho EA: Urodynamic studies. In McAninch JW, Lue TF (eds): Smith & Tanagho's General Urology, 18th ed. New York, McGraw-Hill, 2013, Figure 29-1.

- a. Uroflowmetry
- b. Cystometrography
- c. Cystourethrography
- d. Urethral pressure profile

23–28. Pressure flowmetry is useful for determining which of the following?

- a. Maximum flow rate
- b. Incomplete bladder emptying from obstructive causes
- c. Incomplete bladder emptying from poor detrusor contractility
- d. All of the above

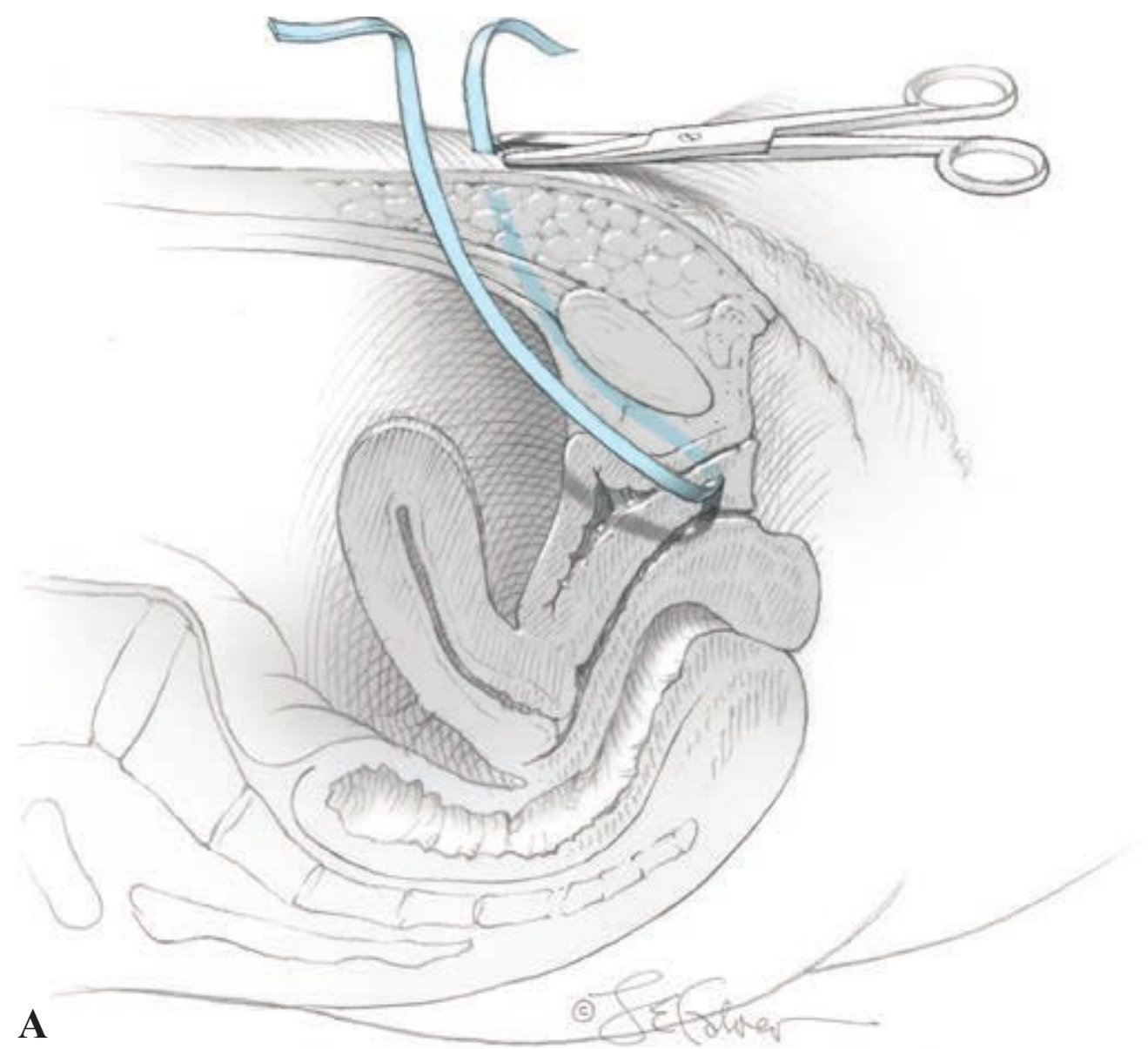
23–29. Regarding pelvic floor muscle therapy (PFMT) for treatment of urinary incontinence, all of the following statements are true **EXCEPT**:

- a. A predictor of poor response to PFMT is baseline prolapse beyond the hymenal ring.
- b. Patients are asked to forcefully contract their abdominal muscles just before a cough or sneeze.
- c. Over several weeks, patients steadily increase the duration of pelvic floor muscle contraction.
- d. Rapid contraction and relaxation (i.e., quick flicks) of the pelvic floor muscles may help treat urinary urgency incontinence.

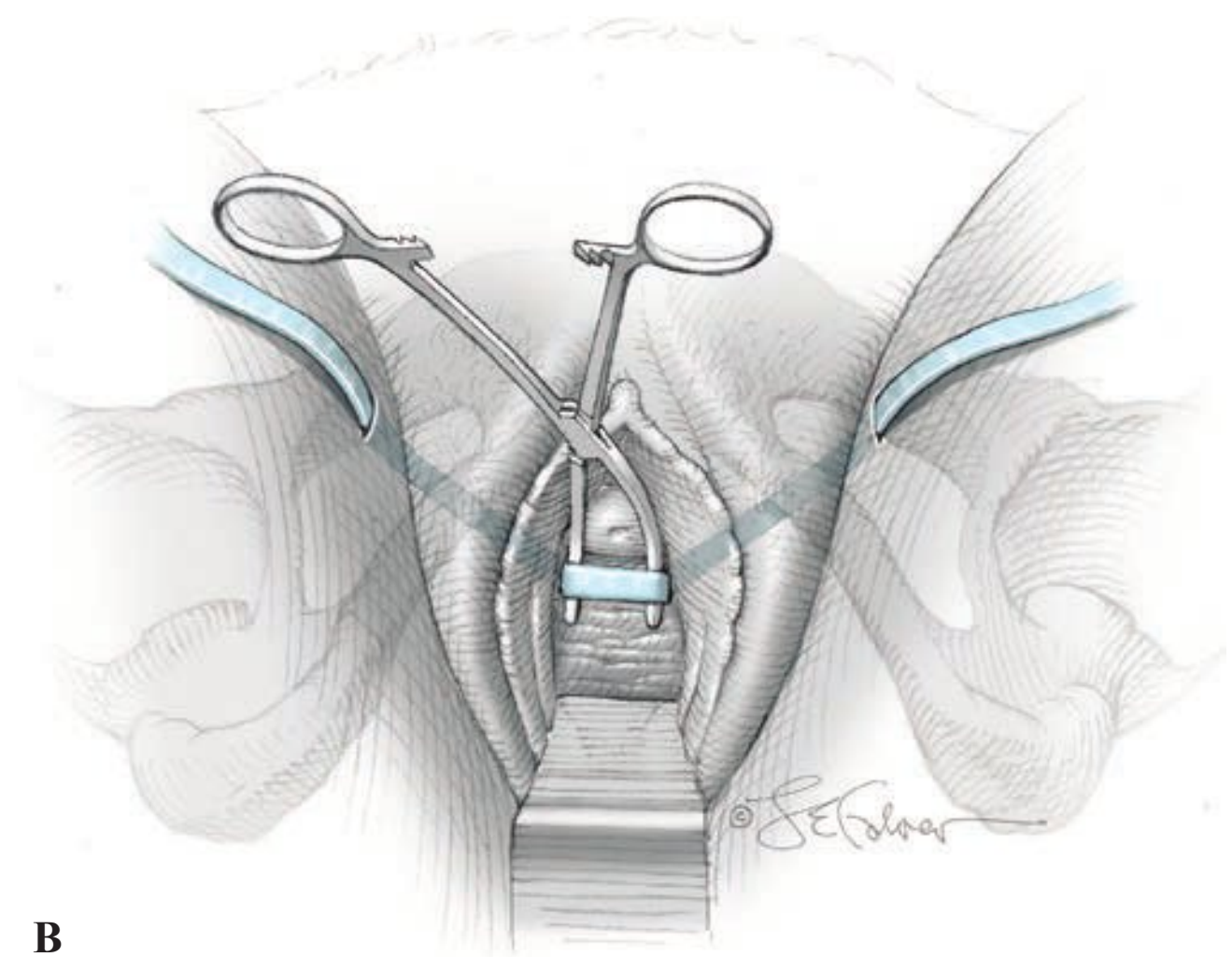
23–30. Local estrogen therapy may help treat mild urinary incontinence via which mechanism?

- a. Increased collagen deposition
- b. Increased α -adrenergic receptor sensitivity
- c. Increased vascularity of the periurethral capillary plexus
- d. All of the above

23–31. Regarding the two procedures demonstrated in the images below, all of the following statements are true **EXCEPT**:



A



B

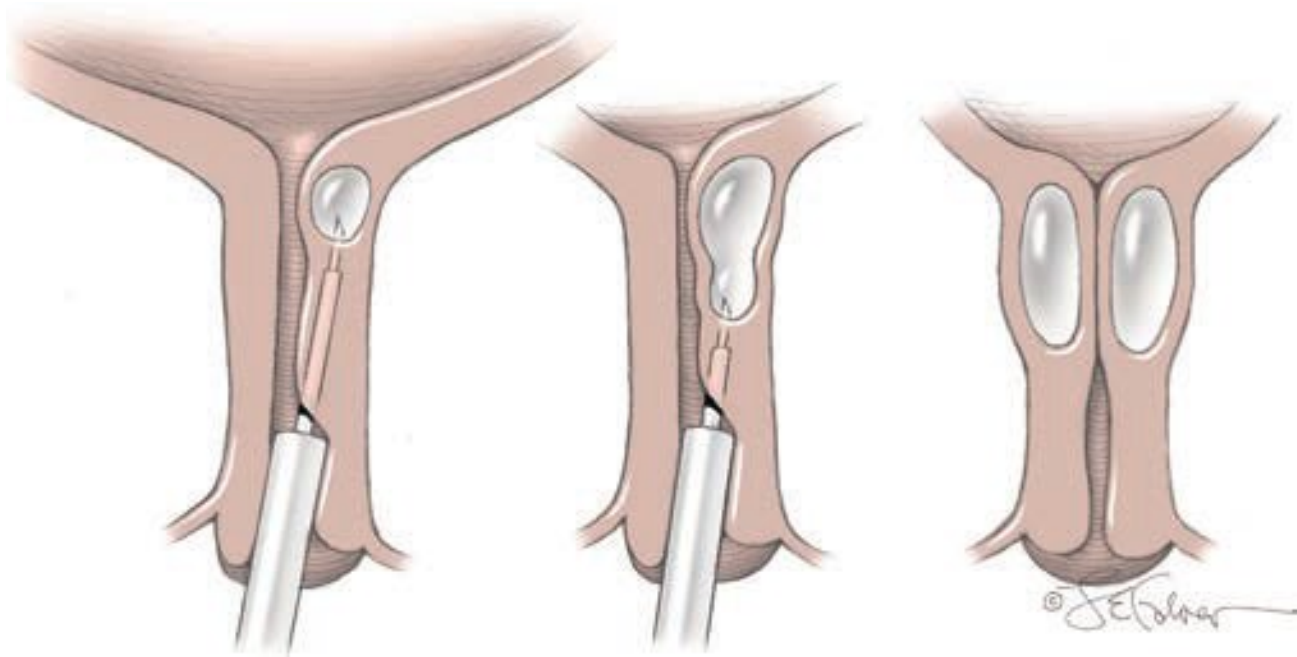
Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figures 45-3.5 and 45-4.4.

- a. Long-term urinary incontinence cure rates are 75 to 85 percent.
- b. T is can usually be performed in a day-surgery or outpatient setting.
- c. Bladder injury is more common in the transobturator route compared with the retropubic route.
- d. Possible complications include worsening urinary urgency, mesh erosion, urinary retention, and vascular injury.

23–32. The antiincontinence procedures described by Burch and Marshall-Marchetti-Krantz are examples of which of the following?

- Midurethral sling procedures
- Periurethral bulking techniques
- Retropubic urethropexy procedures
- Transvaginal needle suspension procedures

23–33. Which of the following statements regarding the procedure depicted in the image is true?



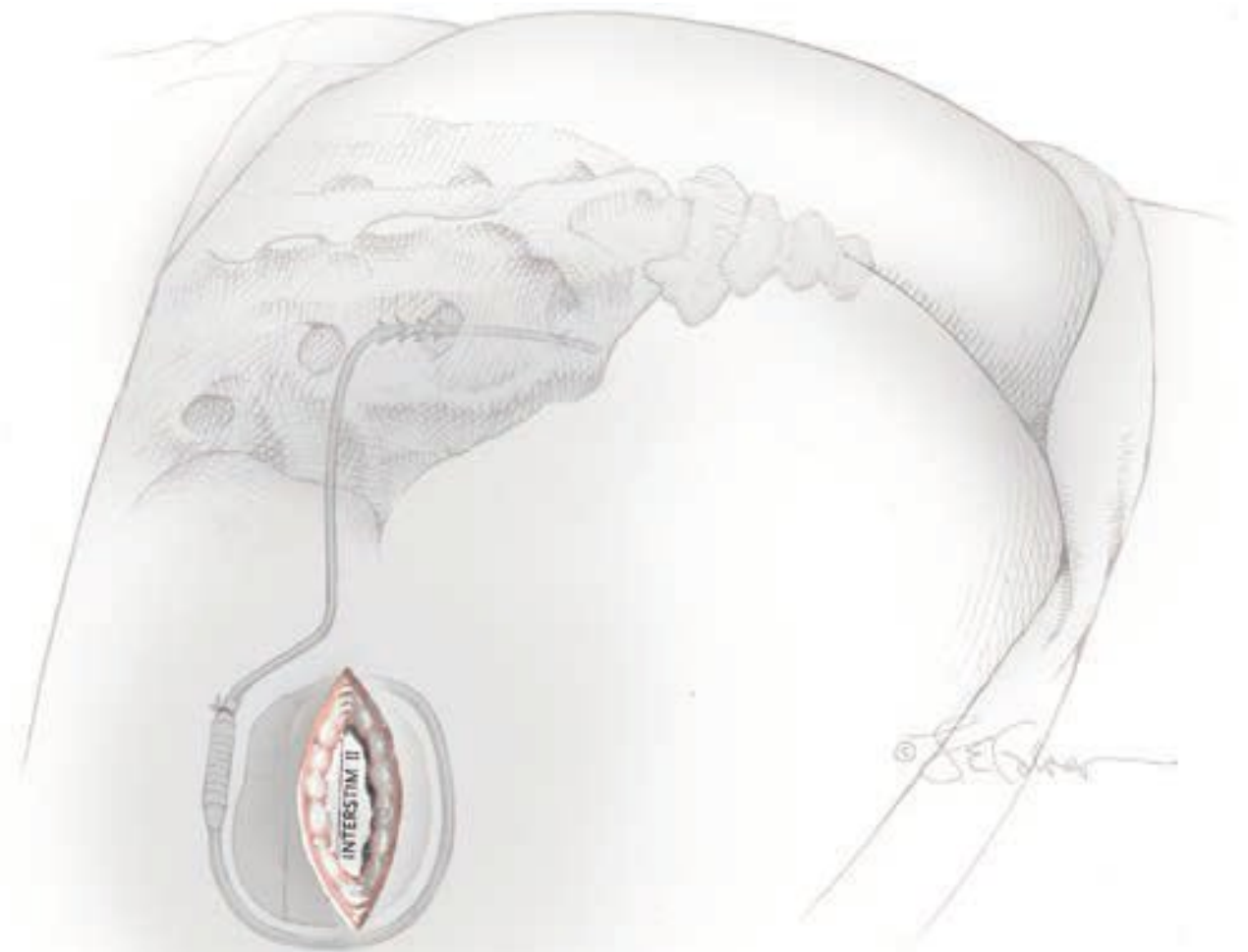
Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 45-6.1.

- This should be performed only on women with intrinsic sphincteric deficiency.
- It is best performed only in an operating room under adequate regional or general anesthesia.
- The mechanism of action is to recreate the structural support of the pubourethral ligaments and pubococcygeus muscle.
- This is a viable treatment option for women with multiple medical problems poorly suited for other surgeries and general anesthesia.

23–34. What are the most common side effects that patients complain about when using oral oxybutynin or tolterodine?

- Nausea and vomiting
- Headaches and tinnitus
- Dry mouth and constipation
- Skin irritation and pruritus

23–35. The surgical illustration below depicts the placement of a device as part of a two-stage procedure. Which statement regarding this procedure is accurate?



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 45-12.5.

- The L5 foramen is targeted for electrode placement.
- Improvement rates for urinary symptoms range from 60 to 75 percent.
- This requires overnight admission for observation and pain control.
- It is Food and Drug Administration approved for interstitial cystitis and pelvic pain.

23–36. Before botulinum toxin A is used for idiopathic detrusor overactivity, the patient should be informed of which of the following?

- The effects will likely last for 3 to 4 years.
- Temporary self-catheterization may be required if urinary retention develops.
- Postprocedural urinary retention usually leads to painful distention, urinary tract infections, or pyelonephritis.
- All of the above.

Chapter 23 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
23-1	a	p. 514	Definitions	23-20	b	p. 523	Table 23-2
23-2	b	p. 514	Definitions	23-21	b	p. 523	Voiding Diary
23-3	a	p. 514	Definitions	23-22	d	p. 523	Table 23-3
23-4	d	p. 514	Definitions	23-23	d	p. 524	Past Medical History
23-5	a	p. 514	Epidemiology	23-24	d	p. 524	General Inspection and Neurologic Evaluation
23-6	c	p. 514	Epidemiology	23-25	b	p. 526	Urodynamic Studies
23-7	c	p. 514	Risks	23-26	c	p. 526	Simple Cystometrics
23-8	a	p. 515	Other Factors	23-27	a	p. 527	Uroflowmetry
23-9	b	p. 515	Other Factors	23-28	d	p. 527	Pressure Flowmetry
23-10	d	p. 515	Other Factors	23-29	b	p. 528	Pelvic Floor Strengthening
23-11	d	p. 516	Bladder Anatomy	23-30	d	p. 530	Estrogen Replacement
23-12	c	p. 516	Bladder Anatomy	23-31	c		Midurethral Slings
23-13	d	p. 516	Innervation	23-32	c	p. 532	Retropubic Urethropexy
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23-15	a	p. 516	Innervation	23-34	c	p. 533	Oxybutynin, Tolterodine, and Fesoterodine
23-16	d	p. 516	Urogenital Sphincter	23-35	b	p. 534	Sacral Neuromodulation
23-17	d	p. 519	Urethral Coaptation	23-36	b	p. 535	Botulinum Toxin A
23-18	d	p. 521	Innervation Related to Voiding				
23-19	b	p. 521	Muscular Activity with Voiding				

CHAPTER 24

Pelvic Organ Prolapse

- 24-1.** What is the cumulative lifetime risk of a woman undergoing surgery for pelvic organ prolapse?
- 0.1 to 0.15 percent
 - 1 to 5 percent
 - 10 to 15 percent
 - > 30 percent
- 24-2.** Based on physical examination, what percentage of adult women presenting for routine gynecologic care demonstrate prolapse coming to within 1 cm of the plane of the hymen?
- 0.1 percent
 - 1 percent
 - 10 percent
 - ≥ 30 percent
- 24-3.** Compared with selective use, elective episiotomy at the second stage of labor has been associated with all of the following **EXCEPT**:
- Periurethral tears
 - Anal sphincter laceration
 - Increased postpartum pain
 - Postpartum anal incontinence
- 24-4.** Risk factors for the development of pelvic organ prolapse include which of the following?
- Black race
 - Elective cesarean delivery
 - Increased ratio of collagen types III and IV to type I
 - All of the above
- 24-5.** Which statement is correct regarding measurements taken for the Pelvic Organ Prolapse Quantification (POP-Q) examination?
- All are taken at rest, except for total vaginal length, which is obtained during Valsalva.
 - Point D is omitted in the absence of a cervix.
 - GH is measured from the midline of the posterior hymeneal ring to the midanal opening.
 - Point Aa corresponds to the most distal portion of any part of the upper/proximal anterior vaginal wall.
- 24-6.** Which POP-Q point represents the level of uterosacral ligament attachment to the proximal posterior cervix?
- Point Ap
 - Point Bp
 - Point D
 - Point TVL
- 24-7.** A 52-year-old multipara complains of vaginal pressure and fullness, which is especially notable when she bears down to defecate. During examination, with straining, the leading edge of the bulging tissue extends to a point 1 cm past the hymen. What stage is her prolapse?
- Stage I
 - Stage II
 - Stage III
 - Stage IV
- 24-8.** Using the Baden–Walker halfway system, descent of the prolapse to halfway past the hymen is considered which of the following?
- Grade 1
 - Grade 2
 - Grade 3
 - Grade 4



Used with permission from Dr. Marlene Corton.

- 24–9.** Pelvic organ support is maintained in part by the levator ani muscle. Which is not a component of this muscle?
- Puborectalis muscle
 - Iliococcygeus muscle
 - Pubococcygeus muscle
 - Obturator internus muscle
- 24–10.** Which statement is true regarding the arcus tendineus fascia pelvis?
- It is “recreated” or reinforced during levator muscle plication.
 - It provides the distal anchoring sites for the antero-posterior vagina.
 - It is a condensation of parietal fascia covering the obturator externus and coccygeus muscles.
 - Tearing of this structure is an inciting factor in apical as well as anterior vaginal wall prolapse.
- 24–11.** When describing levels of vaginal support, which statement is most accurate?
- Level I support describes the upper/proximal vaginal support via lateral attachments to the arcus tendineus fascia pelvis.
 - Level II support describes midvaginal support via the cardinal and uterosacral ligaments.
 - Level III support describes attachment of the distal vagina to surrounding structures: the perineal body, superficial and deep perineal muscles.
 - Level IV support describes the global support of an intact “endopelvic fascia.”
- 24–12.** Which symptom is most reliably associated with prolapse and usually worsens as prolapse progresses?
- Pelvic pain
 - Constipation
 - Pelvic pressure
 - Anal incontinence

- 24–13.** A 55-year-old multipara with a connective tissue disease presents with the physical finding shown in the photograph below. You elicit a symptom history from her. Patients with this type of prolapse most commonly complain of which of the following?



Used with permission from Dr. Marlene Corton.

- Dyspareunia
 - Constipation
 - Anal incontinence
 - The need for digital decompression of the bulge to defecate
- 24–14.** A 62-year-old woman complains of feeling as if she were “sitting on a ball.” During examination, her anterior vaginal wall prolapses to the level of her hymen. The lateral vaginal sulcus sags but rugae are still seen. This suggests which type of anatomic defect?
- Central
 - Midline
 - Transverse
 - Paravaginal
- 24–15.** A postmenopausal woman with symptomatic vaginal prolapse undergoes preoperative planning. During examination, her vaginal apex descends significantly with minimal Valsalva maneuver. An enterocele may definitively be diagnosed during examination by which of the following methods?
- Assessing the vaginal apex with a bivalve speculum
 - Observing small bowel peristalsis behind the vaginal wall
 - Displacing the posterior vaginal wall with a split speculum
 - All of the above

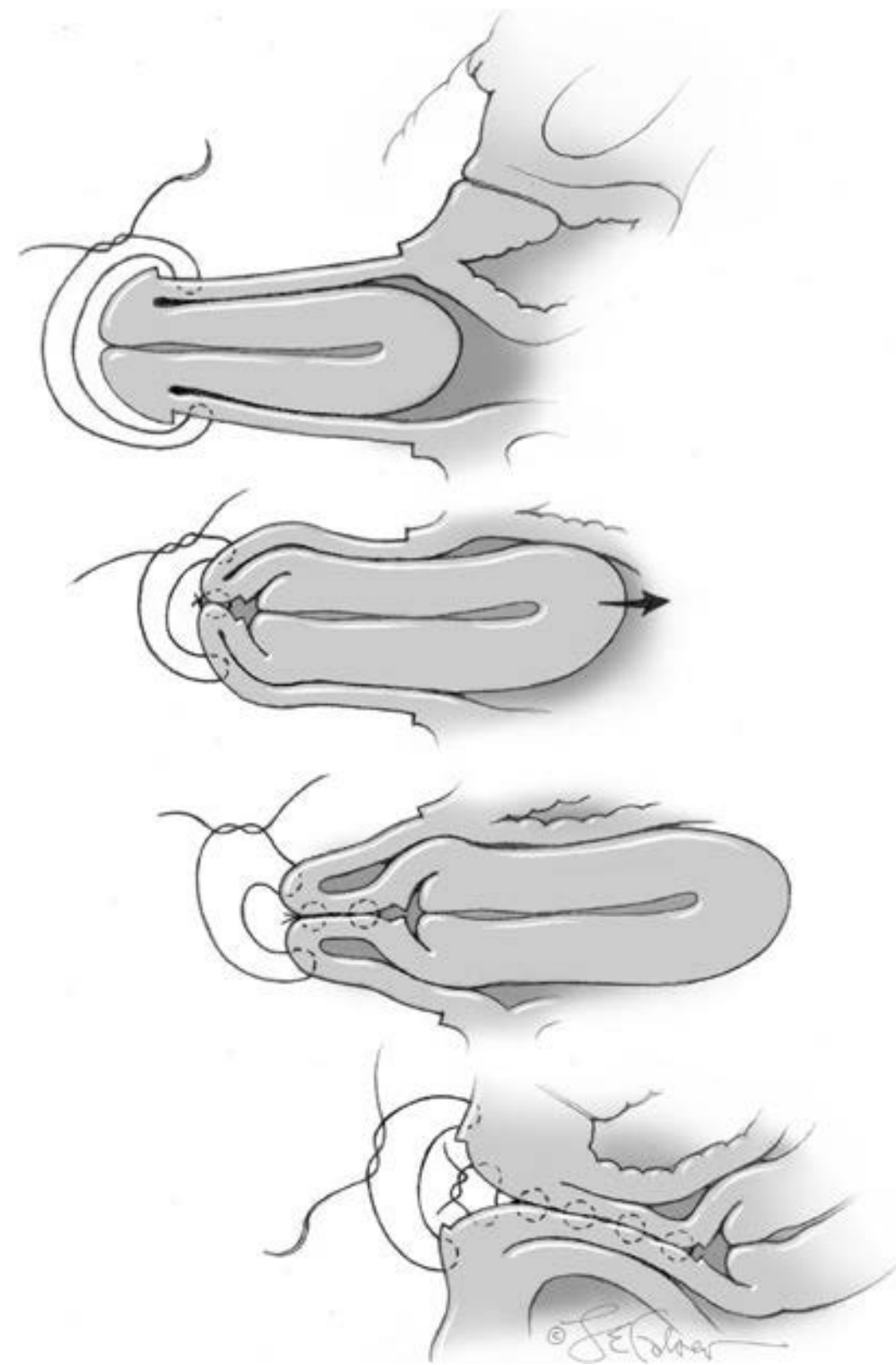
- 24–16.** Which of the following characteristics is true of the ring pessary?
- Is an example of a space-filling pessary.
 - Works by creating suction between the vaginal walls and the pessary.
 - Is most effective for patients with stage III or IV prolapse.
 - Is appropriately positioned behind the pubic symphysis anteriorly and behind the cervix posteriorly.
- 24–17.** Which of the following characteristics is true of this pessary type?



- It is a space-filling pessary.
 - It creates a diameter larger than the genital hiatus.
 - It is often used for moderate to severe prolapse or procidentia.
 - All of the above
- 24–18.** Which of the following statements regarding pessary management is **FALSE**?
- Urinary leakage may occur due to new support of the vaginal wall.
 - Pelvic pain with a pessary may indicate its size is too large.
 - Ideally, the pessary is removed once every 4 to 6 months, washed with soap and water, and replaced.
 - Ulcerations or abrasions on the vaginal wall may be from an ill-fitting pessary or from the initial prolapse itself.

- 24–19.** After being fitted with a pessary 1 year ago, your patient is very satisfied with the resultant relief from pelvic prolapse symptoms. However, she is dissatisfied with the vaginal discharge and unpleasant odor that she has noticed over the past few months. She is now considering discontinuation of pessary use for this reason. Options for management of foul odors associated with pessary use include all of the following **EXCEPT**:
- Broad-spectrum antibiotics
 - Warm-water or dilute-vinegar douches
 - Use of Trimo-San gel (Milex Products)
 - Increased frequency of pessary removal and washing

- 24–20.** Which circumstance best describes the typical operative candidate for the obliterative procedure demonstrated in the image?



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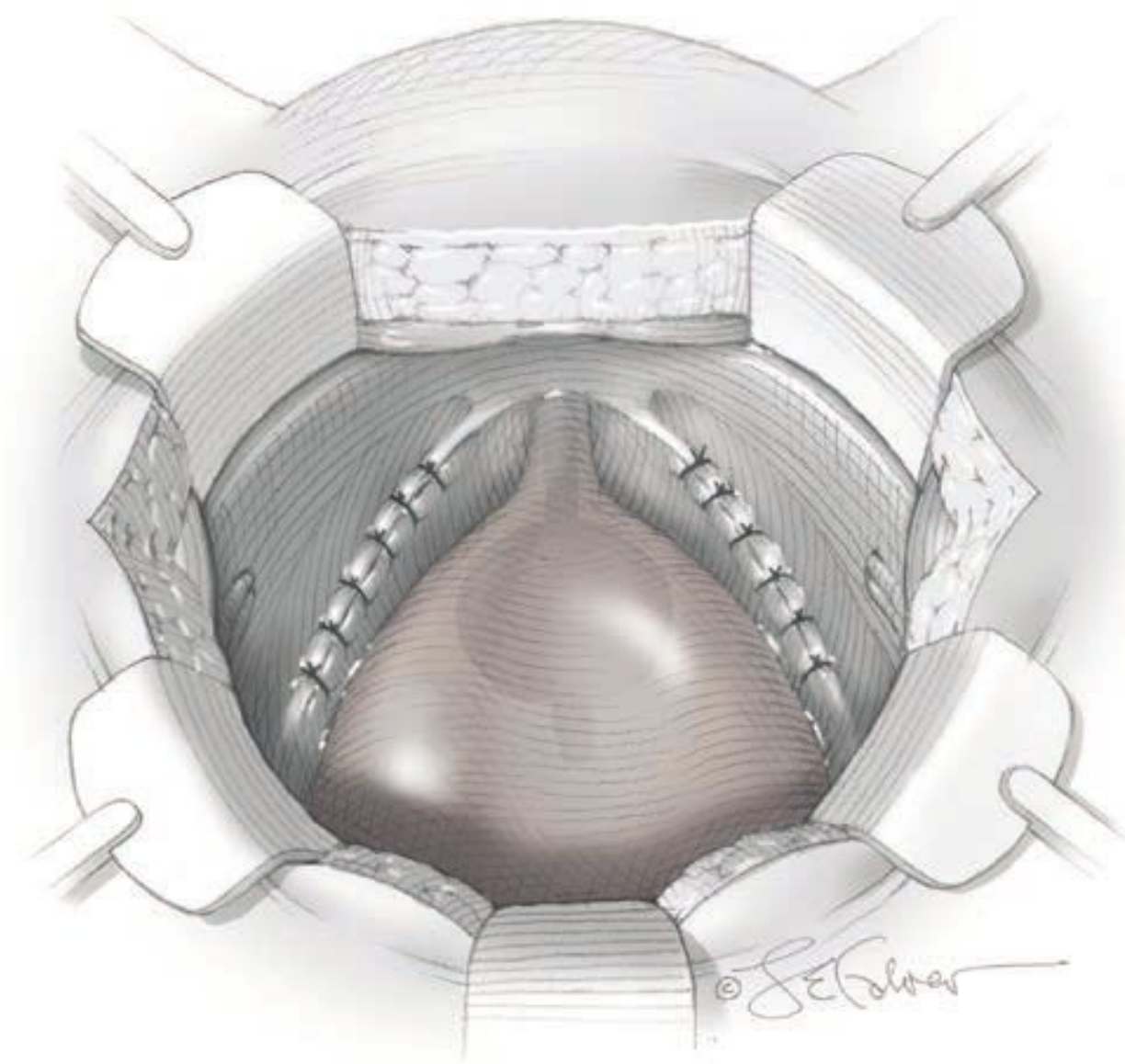
- Desires future fertility
- Desires future coital activity
- Is medically compromised or elderly
- Has abnormal uterine bleeding requiring concomitant hysterectomy

- 24–21.** Compared with reconstructive procedures for prolapse correction, colpocleisis generally has which of the following characteristics?
- Is technically more difficult
 - Requires longer operating time
 - Has a less-successful, long-term anatomic outcome
 - None of the above

- 24–22.** A vaginal reconstructive procedure for prolapse correction may be preferable to an abdominal route for which of the following reasons?
- A prior vaginal approach has failed.
 - A short total vaginal length is present.
 - A higher risk of recurrent prolapse is expected.
 - A quicker return to daily activities is desired.

- 24–23.** Performing an abdominal sacrocolpopexy or uterosacral ligament suspension addresses which detachment defect of anterior wall prolapse and should offer an improved repair over traditional anterior colporrhaphy alone.
- Central
 - Midline
 - Transverse
 - Paravaginal

- 24–24.** In the procedure depicted here, the fibromuscular layer of the anterior vaginal wall is reattached to which of the following?



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 45-14.3.

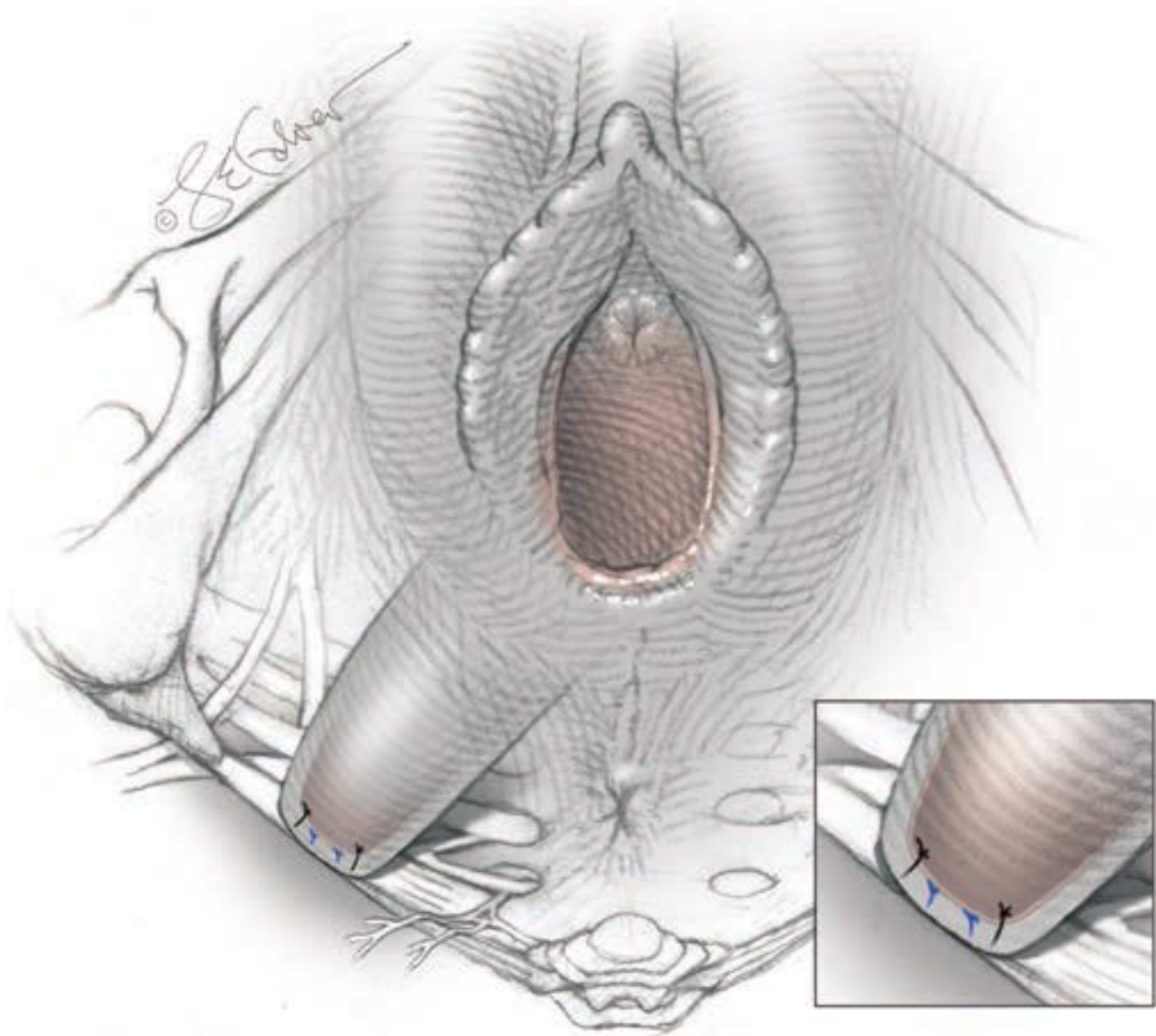
- Cardinal ligaments
- Uterosacral ligaments
- Arcus tendineus fascia pelvis
- Iliopectineal (Cooper) ligaments

- 24–25.** A 39-year-old woman presents with uterine procidentia that developed soon after her third vaginal delivery. She is understandably uncomfortable and distressed at this development and wants surgical correction as soon as possible. For this patient, which of the following is essential during reconstructive surgeries to correct this degree of prolapse?



- Perineorrhaphy
 - Apical resuspension
 - Burch colposuspension
 - Paravaginal defect repair
- 24–26.** Effective procedures for addressing prolapse at the vaginal apex include all of the following **EXCEPT**:
- Simple hysterectomy
 - Abdominal sacrocolpopexy
 - Sacrospinous ligament fixation
 - Uterosacral ligament vault suspension

- 24–27. Which of the following statements regarding the surgery depicted here is true?



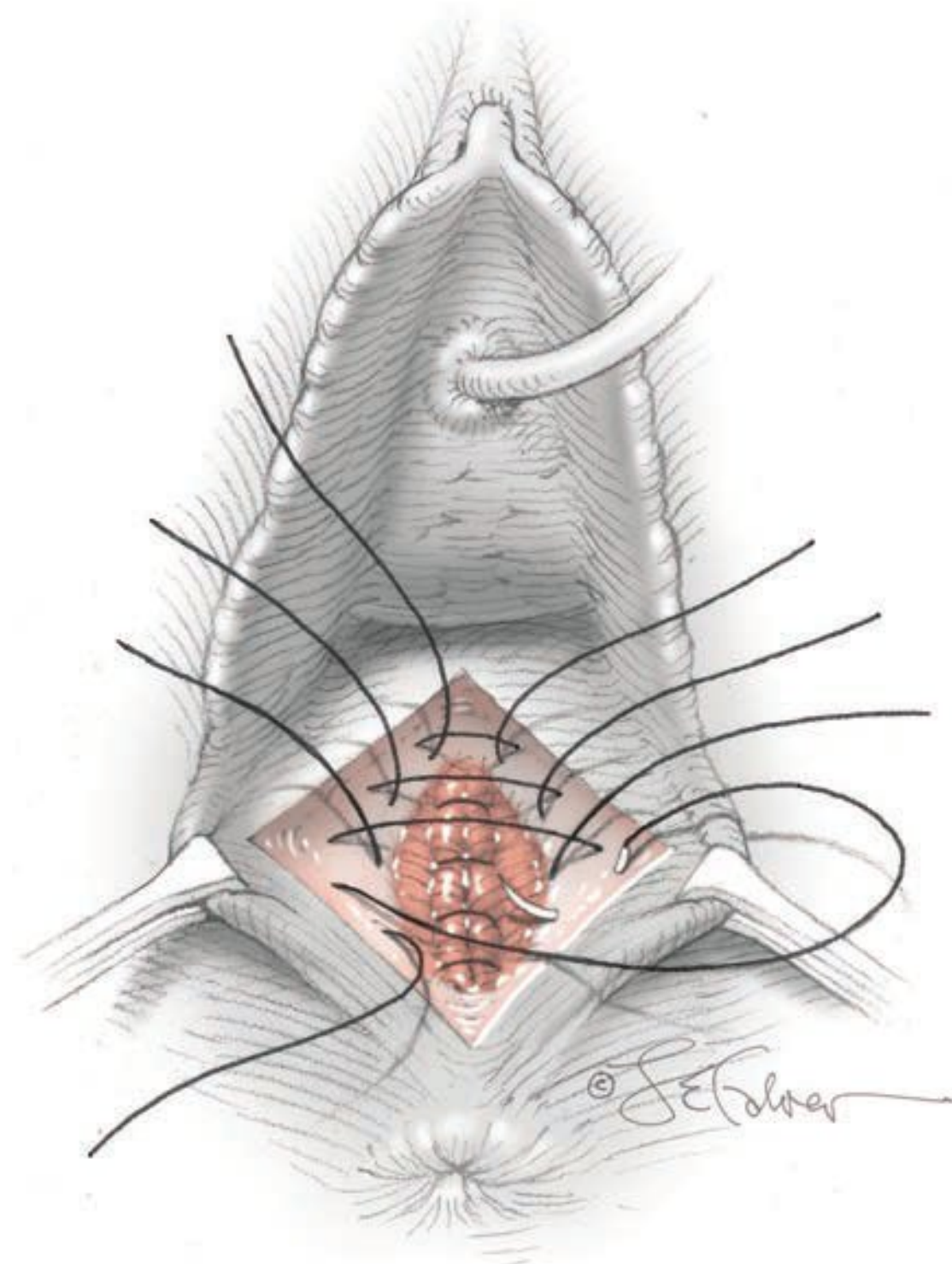
Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 45-21.8.

- a. Requires an intraperitoneal approach
 - b. May be performed unilaterally or bilaterally
 - c. Results in buttock pain or vascular injury in 10 to 15 percent of cases
 - d. Supports the apex well but results in frequent recurrent prolapse of the posterior vaginal wall
- 24–28. Comparing the uterosacral ligament vaginal vault suspension (USLS) to the sacrospinous ligament fixation (SSLF), which statement is correct?
- a. The USLS defects the vaginal apex posteriorly and laterally.
 - b. The USLS attaches the vaginal apex to the ligament at the level of the ischial spines or higher.
 - c. The SSLF has been adopted to attempt to reduce the rates of anterior vaginal prolapse recurrence following USLS.
 - d. A randomized controlled trial of the two has demonstrated significantly fewer recurrences in the SSLF group at 2 years.

- 24–29. Regarding repair of posterior vaginal wall prolapse, all of the following are correct **EXCEPT**:

- a. Site-specific repairs and traditional colporrhaphy have comparable anatomic success rates.
- b. Concurrent levator muscle plication narrows the genital hiatus but may increase dyspareunia.
- c. Site-specific repairs discretely close fibromuscular defects that may be midline, lateral, distal, or proximal.
- d. To achieve its high, 76- to 96-percent anatomic cure rate, posterior colporrhaphy generally requires addition of biologic or synthetic mesh materials.

- 24–30. In the surgery pictured here, which plicates tissues of the distal posterior vaginal wall, which of the following is true?



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 45-16.1.

- a. Level III support is being reestablished.
- b. The risk of posterior wall prolapse recurrence is decreased.
- c. Overly aggressive plication may narrow the introitus and lead to entry dyspareunia.
- d. All of the above

- 24–31.** Which statement correctly describes xenografts?
- Synthetic, multifilament mesh material
 - Biologic graft from a human other than the patient
 - Biologic graft such as porcine dermis or bovine pericardium
 - Synthetic mesh with pore sizes $< 10 \mu\text{m}$ in at least one dimension
- 24–32.** Compared with Type II or III mesh materials, Type I mesh has which of the following characteristics?
- Has smaller pore size of $< 1 \mu\text{m}$
 - Has a higher rate of infection
 - Allows better tissue ingrowth, angiogenesis, and flexibility
 - Is harvested from another part of the body (e.g., rectus abdominis fascia)
- 24–33.** A 61-year-old multipara presents with symptoms and signs of pelvic organ prolapse and opts to proceed with a transvaginal native tissue repair. She denies symptoms of urinary incontinence or voiding dysfunction, and no leakage is observed during initial examination. Which of the following statements regarding her preoperative evaluation and counseling is correct?
- Without a concomitant continence procedure, only 5 percent of patients develop incontinence within 12 months.
 - Urodynamic testing should be avoided given its invasiveness and patient's lack of baseline urinary complaints.
 - A pessary could first be placed diagnostically to identify whether the patient is at risk for urinary incontinence after her prolapse-correcting surgery.
 - All of the above

Chapter 24 ANSWER KEY

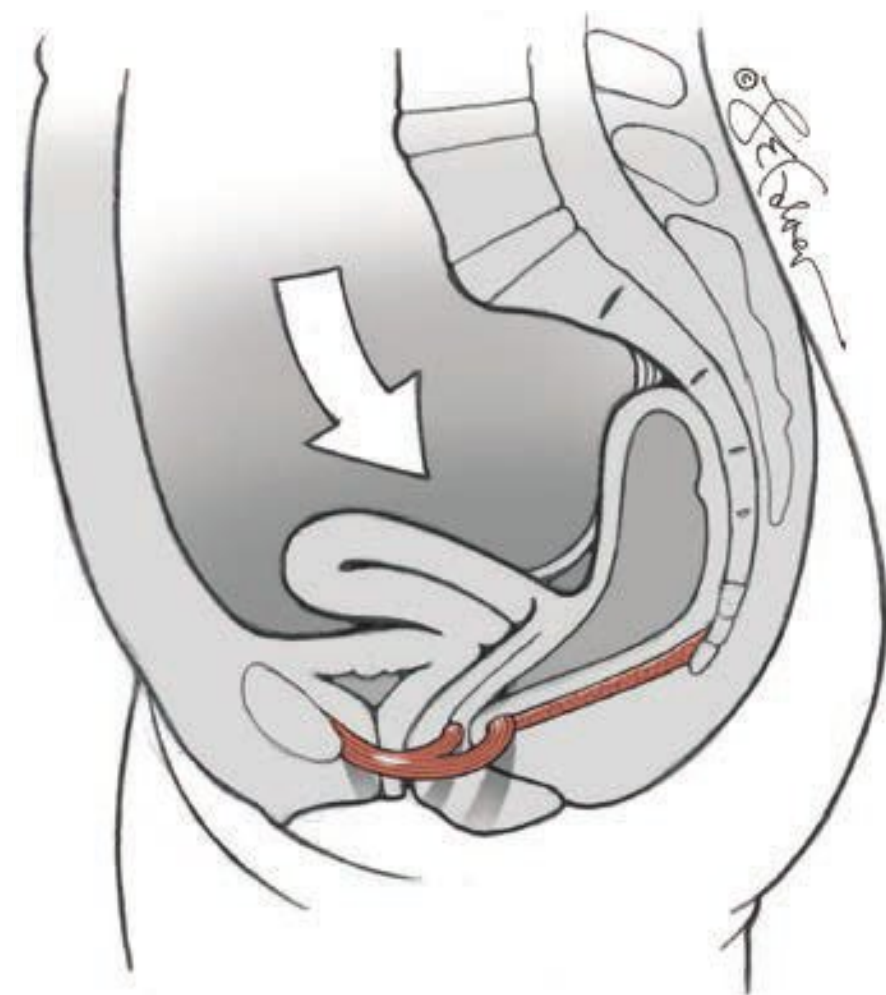
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
24-1	c	p. 538	Epidemiology	24-18	c	p. 552	Patient Evaluation and Pessary Placement
24-2	d	p. 538	Epidemiology	24-19	a	p. 553	Pessary Complications
24-3	a	p. 538	Obstetric-Related Risks	24-20	c	p. 554	Obliterative Procedures
24-4	c	p. 539	Connective Tissue Disease	24-21	d	p. 554	Obliterative Procedures
24-5	b	p. 540	Apical Vaginal Points	24-22	d	p. 554	Reconstructive Procedures
24-6	c	p. 540	Apical Vaginal Points	24-23	c	p. 555	Anterior Compartment
24-7	b	p. 542	Table 24-2	24-24	c	p. 555	Anterior Compartment
24-8	c	p. 542	Table 24-3	24-25	b	p. 555	Vaginal Apex
24-9	d	p. 542	Levator Ani Muscle	24-26	a	p. 555	Vaginal Apex
24-10	d	p. 543	Connective Tissue	24-27	b	p. 555	Vaginal Apex
24-11	c	p. 544	Levels of Vaginal Support	24-28	b	p. 555	Vaginal Apex
24-12	c	p. 545	Symptoms	24-29	d	p. 556	Posterior Compartment
24-13	d	p. 545	Symptoms	24-30	d	p. 556	Perineum
24-14	d	p. 548	Vaginal Examination	24-31	c	p. 557	Mesh Material
24-15	b	p. 548	Vaginal Examination	24-32	c	p. 557	Mesh Material
24-16	d	p. 551	Pessary Selection	24-33	c	p. 557	Concomitant Prolapse and Incontinence Surgery
24-17	d	p. 551	Pessary Selection				

CHAPTER 25

Anal Incontinence and Functional Anorectal Disorders

- 25-1.** The definition of fecal incontinence excludes which of the following?
- Incontinence to flatus
 - Incontinence to liquid
 - Incontinence to solid stool
 - None of the above
- 25-2.** Which of these statements regarding the epidemiology of anal incontinence in adults is correct?
- Anal incontinence prevalence decreases with age.
 - Anal incontinence is more common in women than in men.
 - Incontinence to liquid stool is more common than mucus or solid stool.
 - Anal incontinence including flatal incontinence is uncommon, affecting less than 1 percent of community-dwelling adults.
- 25-3.** Which of the following are required for normal defecation?
- Normal anorectal sensation
 - Competent anal sphincter complex
 - Adequate rectal capacity and compliance
 - All of the above
- 25-4.** Which muscle contributes most to the anal canal's resting pressure and fecal continence at rest?
- Puborectalis muscle
 - Pubococcygeus muscle
 - External anal sphincter
 - Internal anal sphincter
- 25-5.** Which of the following statements regarding the external anal sphincter is **FALSE**?
- It consists of striated muscle.
 - It allows for voluntary increases in squeeze pressure.
 - It is responsible for approximately 50 percent of anal resting pressure.
 - It is innervated primarily by somatic motor fibers coursing in the inferior rectal branch of the pudendal nerve.

- 25-6.** A 32-year-old woman complains of chronic pelvic pain and dyspareunia. She also is diagnosed with *paradoxical* contraction of the red-shaded muscles during increases in abdominal pressure. What would be the most likely result of this?



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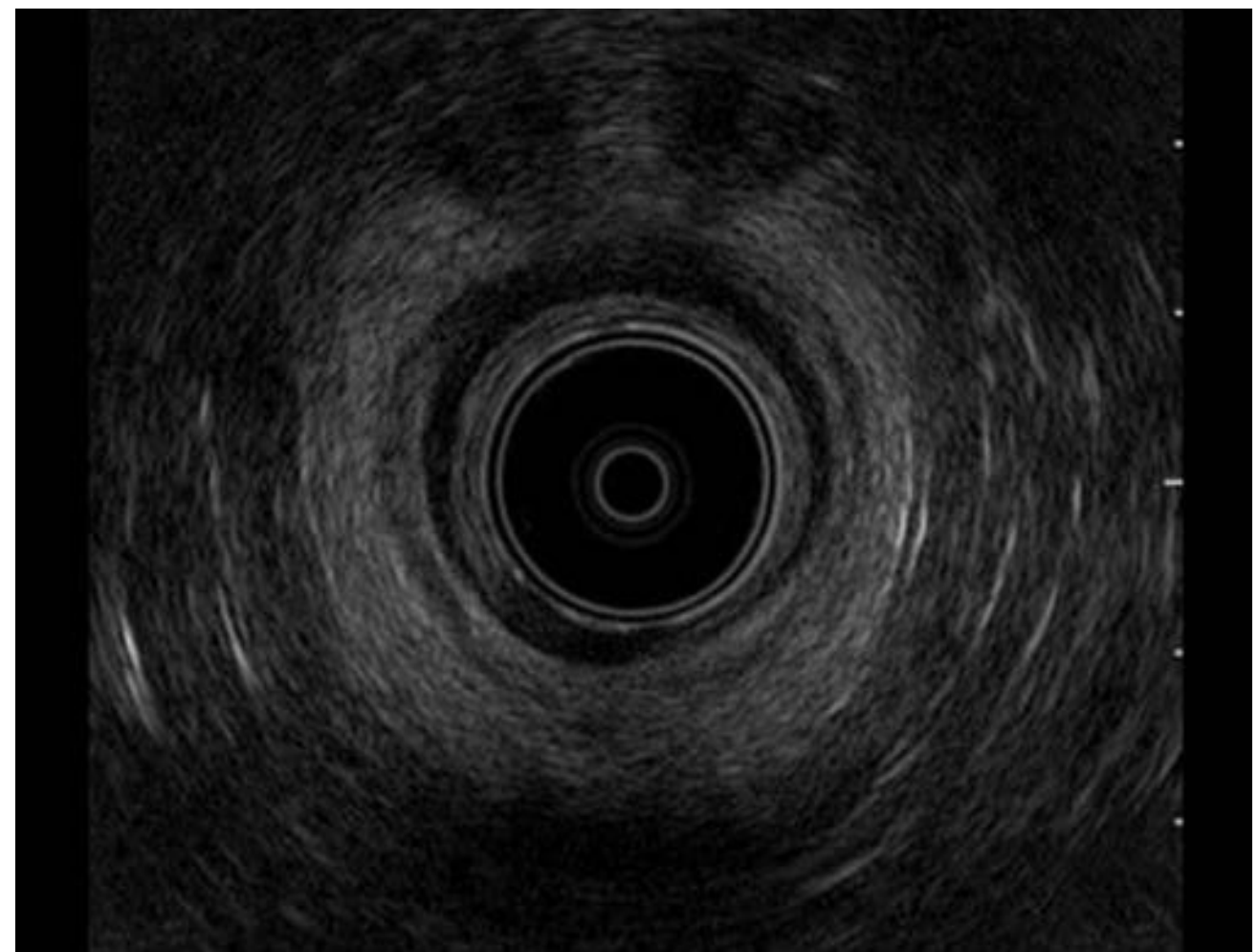
- Anal incontinence
 - Anal mucoid seepage
 - Impaired evacuation
 - Better longitudinal alignment of the rectoanal lumen during defecation
- 25-7.** Which of the following is true of the rectoanal inhibitory reflex?
- Allows “sampling” of the rectum’s contents
 - Mediated by the middle rectal branch of the pudendal nerve
 - Disappears in patients with cauda equina lesions or spinal cord transection
 - Involves transient relaxation of the external anal sphincter and contraction of the internal anal sphincter

- 25–8.** Which statement correctly describes anal incontinence related to obstetric trauma?
- Sphincter tears in the United States occur in 2 to 5 percent of vaginal births.
 - Elective cesarean delivery reliably eliminates the risk of subsequent anal incontinence.
 - The incidence of fecal and flatal incontinence following vaginal delivery has declined during the past two decades.
 - At 6 months postpartum, parous women who sustain an anal sphincter tear during delivery have eight times the risk of fecal incontinence than women delivered without evidence of sphincter disruption.
- 25–9.** Which instrument permits assessment of coping behaviors related to anal incontinence such as staying near a restroom as much as possible?
- Bristol Stool Scale
 - Fecal Incontinence Severity Index
 - St. Mark (Vaizey) Incontinence Score
 - Fecal Incontinence Quality of Life Scale
- 25–10.** A 28-year-old G3P3 woman underwent a forceps-assisted vaginal delivery 2 years ago and presents now with fecal incontinence to soft stool every few weeks. On physical examination, you see the perineum and anus as pictured below. What explains these skin findings?



- Avulsion of the puborectalis muscle
- Poor healing after a midline episiotomy
- Levator muscle spasm with flattening of the perineal skin
- Absence of radial skin spines from 10 to 2 o'clock signaling disruption of the external anal sphincter

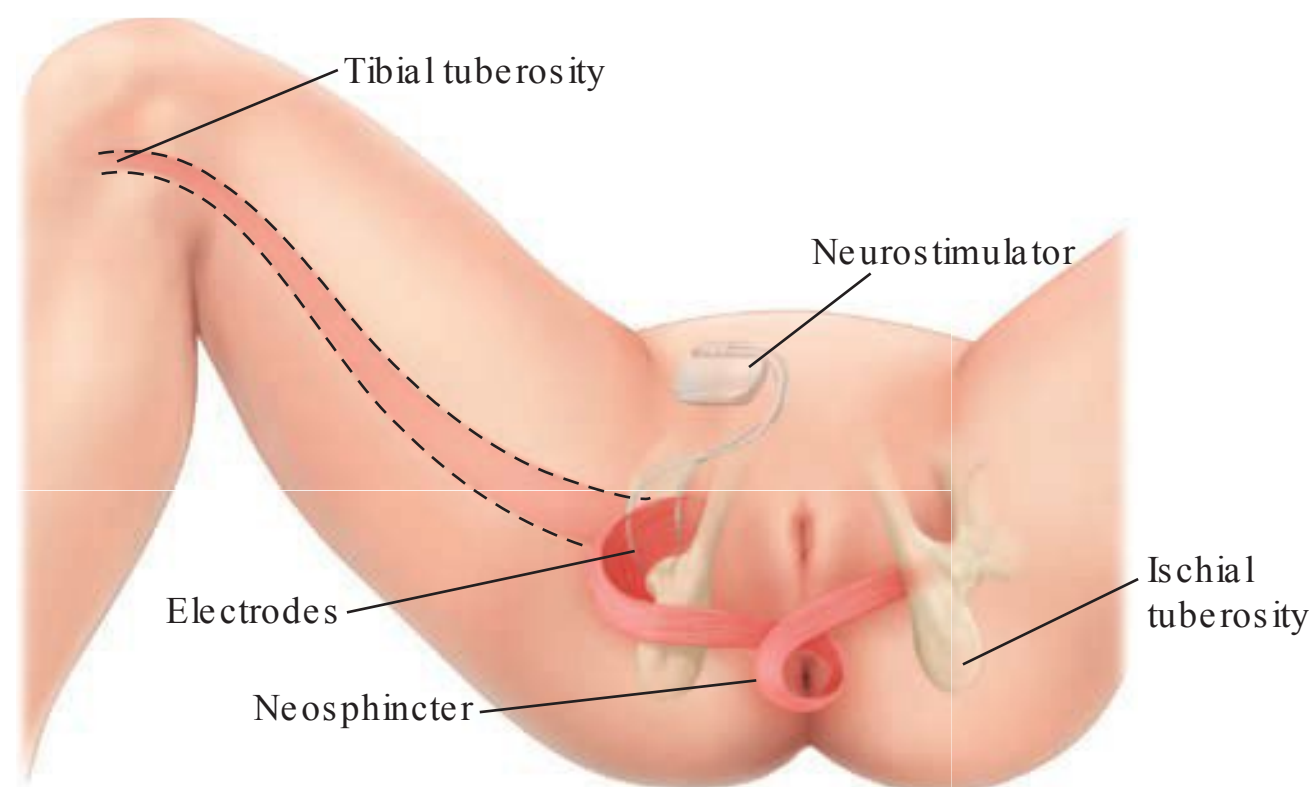
- 25–11.** Anorectal manometry allows assessment of all of the following **EXCEPT**:
- Anal reflexes
 - Rectal sensation
 - Rectal compliance
 - Electrical activity of muscles at rest and during contraction
- 25–12.** Decreased perception of balloon insufflation during anorectal manometry is most indicative of which of the following?
- Neuropathy
 - Decreased rectal compliance
 - Ulcerative or radiation proctitis
 - A rectal reservoir unable to appropriately store stool
- 25–13.** Endoanal sonography is a diagnostic imaging technique used for assessment of which of the following?
- Puborectalis muscle
 - External anal sphincter
 - Perineal body thickness
 - All of the above
- 25–14.** This endoanal sonogram demonstrates which of the following?



Used with permission from Dr. Marlene Corton.

- Increased anorectal angle
 - Increased pudendal nerve motor latency
 - Disruption of the puborectalis muscle
 - Disruption of the external anal sphincter
- 25–15.** Defecography may be helpful for the evaluation of which of the following?
- Enteroceles
 - Intussusception
 - Internal rectal prolapse
 - All of the above

- 25–16.** Compared with endoanal sonography, which of the following is true of magnetic resonance imaging?
- Less expensive
 - Better detection of external anal sphincter atrophy
 - More sensitive for detecting abnormalities of the internal anal sphincter
 - None of the above
- 25–17.** Which statement correctly describes needle electromyography (EMG)?
- No risk of infection.
 - Minimal or no patient discomfort.
 - Previously injured muscle may show characteristic EMG patterns of denervation and compensatory reinnervation.
 - Convenient tool during repetitive biofeedback sessions to coach patients in muscle strengthening and relaxation.
- 25–18.** The anorectal angle is best assessed using which test?
- Defecography
 - Electromyography
 - Anorectal manometry
 - Pudendal nerve motor latency testing
- 25–19.** Loperamide hydrochloride may help treat fecal incontinence by which of the following mechanisms?
- Reducing stool volume
 - Increasing anal resting tone
 - Slowing fecal intestinal transit time
 - All of the above
- 25–20.** An 84-year-old nursing home resident is found to have liquid stool leaking into her diaper, but you note hard impacted stool in her rectum during your examination. Which agent is most likely to be helpful in treating her fecal incontinence?
- Lactulose
 - Amitriptyline
 - Loperamide hydrochloride
 - Diphenoxylate hydrochloride
- 25–21.** Which of the following is true of bulking agents such as methylcellulose and psyllium?
- May cause abdominal distention and bloating
 - Improve bowel control via their anticholinergic properties
 - Increase the time available for the intestines to remove fluid from stool
 - All of the above
- 25–22.** A 52-year-old woman suffers from fecal incontinence to both solid and liquid stool. Biofeedback sessions may help improve which of the following?
- External anal sphincter strength
 - Sensory awareness of stool presence
 - Coordination between the rectum and the anal sphincter
 - All of the above
- 25–23.** A 37-year-old woman is distressed by intermittent fecal incontinence and is found using endoanal sonography to have a defect in her external anal sphincter. An overlapping anal sphincteroplasty is planned. How should you counsel her regarding her chances of complete continence to liquid and solid stool 10 years after her surgery?
- < 20 percent
 - 50 to 60 percent
 - 70 to 80 percent
 - > 80 percent
- 25–24.** As shown here, which of the following anal incontinence treatment surgeries requires an implantable generator device to stimulate muscle?

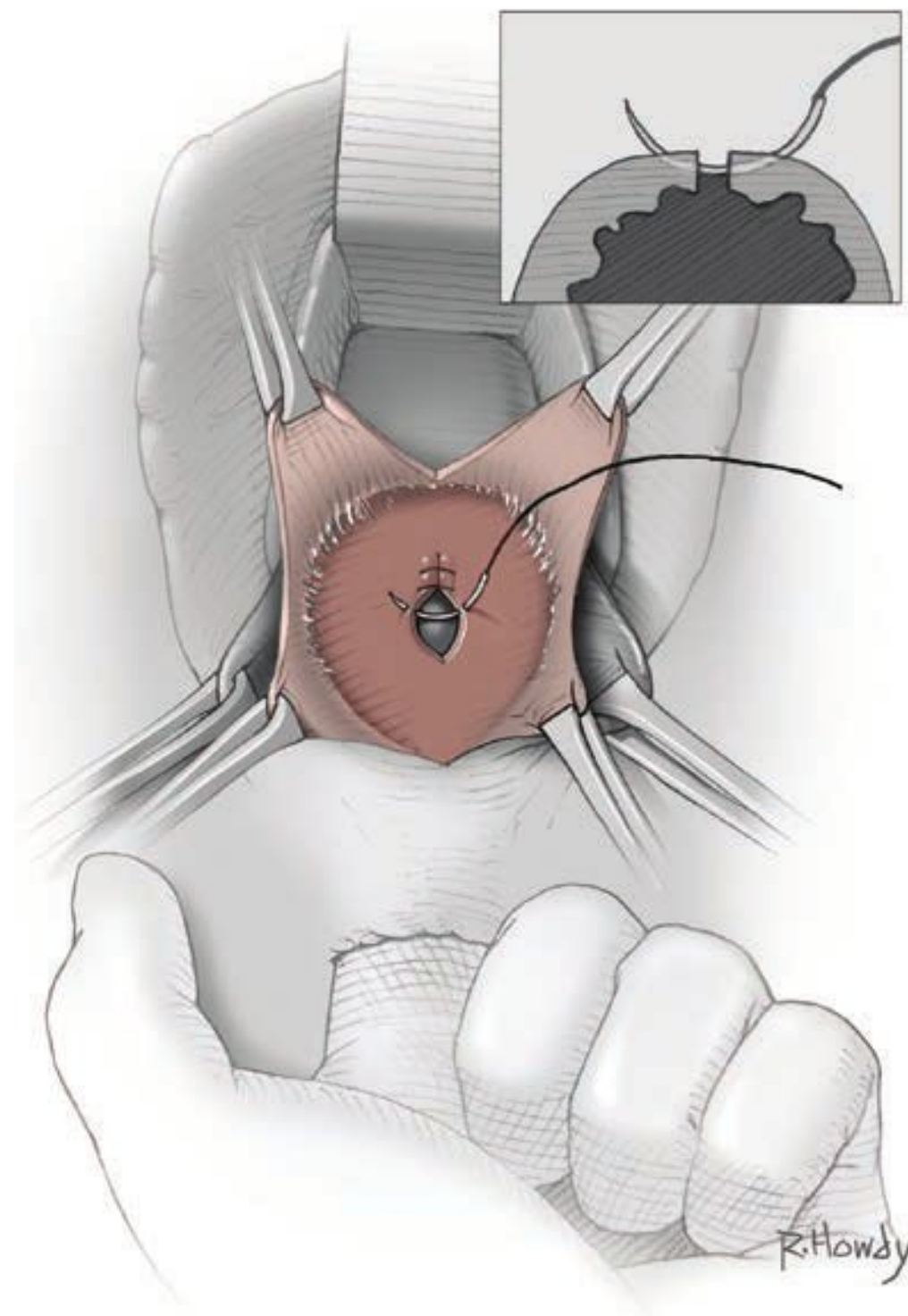


Reproduced with permission from Corton MM: Anal incontinence and functional anorectal disorders. In Hoffman BL, Schorge JO, Schaffer JI, et al (eds): Williams Gynecology, 2nd ed. New York, McGraw-Hill, 2012, Figure 25-9.

- Secca procedure
 - Sartorius muscle mobilization
 - Gracilis muscle transposition
 - Overlapping anal sphincteroplasty
- 25–25.** Which of the following anal incontinence treatment surgeries uses temperature-controlled radiofrequency energy directed to the anal sphincter muscles?
- Secca procedure
 - Sacral nerve stimulation
 - Gracilis muscle transposition
 - Overlapping anal sphincteroplasty

- 25–26.** Examples of functional anorectal disorders include all of the following **EXCEPT**:
- Proctalgia fugax
 - Dyssynergic defecation
 - External anal sphincter defect
 - Inadequate defecatory propulsion
- 25–27.** Functional fecal incontinence may be due to which of the following?
- Poor rectal compliance
 - Abnormal intestinal motility
 - Weakened pelvic floor muscles
 - All of the above
- 25–28.** A 37-year-old G3P3 woman presents to her gynecologist at the time of her annual examination with complaints of severe anal pain every few months that is incapacitating. These bouts of pain only last approximately 2 minutes. After exclusion of organic pathology, how is this condition best managed?
- Reassurance
 - Secca procedure
 - Opioid analgesics
 - Sacral nerve stimulation
- 25–29.** Which of the following statements is true of dyssynergic defecation?
- Associated with mucoid seepage and anal incontinence
 - May be confirmed by anorectal manometry or Electromyography
 - Accounts for less than 5 percent of cases of chronic constipation
 - Treated with diphenoxylate hydrochloride or loperamide hydrochloride
- 25–30.** What portion of the vagina is most commonly involved with rectovaginal fistula?
- Upper third
 - Middle third
 - Distal third
 - Equally distributed along the vagina
- 25–31.** In addition to developing as an obstetric complication, rectovaginal fistula may be associated with which of the following?
- Coital trauma
 - Cervical cancer
 - Tuberculosis infection
 - All of the above

- 25–32.** Which of the following is **LEAST** likely to aid the diagnosis of a rectovaginal fistula?
- Vaginoscopy
 - Barium enema
 - Noncontrast computed tomography
 - Tampon in the vagina with methylene blue instilled in the rectum
- 25–33.** The rectovaginal fistula repair depicted here is which of the following?



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figures 45-26.4.

- Transanal episiopectomy
 - Endorectal flap advancement
 - Transvaginal episiopectomy
 - Fistulotomy with tension-free layered closure
- 25–34.** Regarding surgical repair of rectovaginal fistulas, all of the following are true statements **EXCEPT**:
- The rate of successful repair after obstetric injury is usually very good and ranges from 78 to 100 percent.
 - Generally, successful repair rates are highest with the first surgical attempt.
 - Surgical repair is ideally delayed until surrounding tissues are free of edema and infection.
 - Fistulas in the midvagina are commonly repaired by a transabdominal approach using bowel resection and primary reanastomosis.

Chapter 25 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
25-1	a	p. 561	Anal Incontinence	25-18	a	p. 567	Table 25-5
25-2	c	p. 561	Epidemiology	25-19	d	p. 569	Medical Management
25-3	d	p. 561	Physiology	25-20	a	p. 569	Medical Management
25-4	d	p. 561	Muscular Contributions	25-21	a	p. 569	Medical Management
25-5	c	p. 561	Muscular Contributions	25-22	d	p. 570	Biofeedback and Pelvic Floor Therapy
25-6	c	p. 561	Muscular Contributions	25-23	a	p. 571	Anal Sphincteroplasty
25-7	a	p. 562	Anorectal Sensation	25-24	c	p. 571	Other Major Surgeries
25-8	c	p. 563	Obstetric	25-25	a	p. 572	Secca Procedure
25-9	d	p. 565	Table 25-4	25-26	c	p. 572	Functional Anorectal Disorders
25-10	d	p. 566	Figure 25-4, Physical Examination	25-27	d	p. 572	Functional Fecal Incontinence
25-11	d	p. 567	Anorectal Manometry	25-28	a	p. 572	Functional Anorectal Pain
25-12	a	p. 567	Anorectal Manometry	25-29	b	p. 573	Functional Defecation Disorders
25-13	d	p. 568	Endoanal Ultrasonography	25-30	c	p. 573	Definition and Classification
25-14	d	p. 568	Figure 25-7, Endoanal Ultrasonography	25-31	d	p. 573	Table 25-7
25-15	d	p. 568	Evacuation Proctography	25-32	c	p. 574	Diagnosis
25-16	b	p. 568	Magnetic Resonance Imaging	25-33	d	p. 574	Treatment
25-17	c	p. 569	Electromyography	25-34	d	p. 574	Treatment

CHAPTER 26

Genitourinary Fistula and Urethral Diverticulum

- 26-1.** What is the most common type of genitourinary fistula?
- Vesicovaginal
 - Vesicouterine
 - Ureterovaginal
 - Urethrovaginal
- 26-2.** Which of the following is the correct sequence of events in wound healing?
- Angiogenesis → fibrosis → remodeling
 - Angiogenesis → remodeling → fibrosis
 - Fibrosis → remodeling → angiogenesis
 - Remodeling → angiogenesis → fibrosis
- 26-3.** How long after tissue injury do most fistulas present?
- 3 to 5 days
 - 1 to 3 weeks
 - 4 to 6 months
 - More than 1 year
- 26-4.** Which of the following anatomic communications has **NOT** been described?
- Vesicocervical
 - Ureterouterine
 - Urethrouterine
 - Ureterocervical
- 26-5.** Examples of complicated vesicovaginal fistulas (VVF) include all of the following **EXCEPT**:
- VVF with concurrent pelvic malignancy
 - VVF following pelvic radiation therapy
 - Posthysterectomy high VVF and vaginal length of 9 cm
 - Posthysterectomy VVF that is distant from the vaginal cuff
- 26-6.** A 27-year-old postpartum woman presents with a fistula measuring 2 cm in diameter. The fistula has moderate-to-severe surrounding fibrosis and is located 5 cm from the external urethral meatus. According to the more comprehensive fistula classification system introduced by Goh (2004), how would you classify this fistula?
- Type 1 a i
 - Type 1 b ii
 - Type 3 a ii
 - Type 2 c iii
- 26-7.** In developing countries, most genitourinary fistulas are attributable to which of the following?
- Malignancy
 - Pelvic surgery
 - Obstetric trauma
 - Sexual trauma or foreign body
- 26-8.** In developed countries, most genitourinary fistulas are attributable to which of the following?
- Malignancy
 - Pelvic surgery
 - Obstetric trauma
 - Sexual trauma or foreign body
- 26-9.** A 38-year-old woman with heavy menstrual bleeding is considering hysterectomy. When counseling regarding possible risks of pelvic surgery, which of these hysterectomy routes do you describe as having the greatest incidence of vesicovaginal fistula?
- Vaginal
 - Laparoscopic
 - Supracervical
 - Abdominal (total)

26–10. A 43-year-old woman who underwent laparoscopic hysterectomy 3 weeks ago complains of persistent wetness on her underwear but denies frank stress or urgency incontinence. During examination, her cough stress test is negative, but there is a small pool of fluid in the vaginal vault. No definitive fistulous track is identified. If the fluid's creatinine concentration is measured, which value would most be consistent with urine?

- a. 0.04 mg/dL
- b. 0.4 mg/dL
- c. 4 mg/dL
- d. 40 mg/dL

26–11. Which of the following diagnostic tools or techniques would help identify a ureterovaginal fistula?

- a. Cystourethroscopy
- b. Intravenous pyelogram
- c. Voiding cystourethrogram
- d. “T ree-swab” or tampon test using a dilute solution of methylene blue instilled via urinary catheter into the bladder

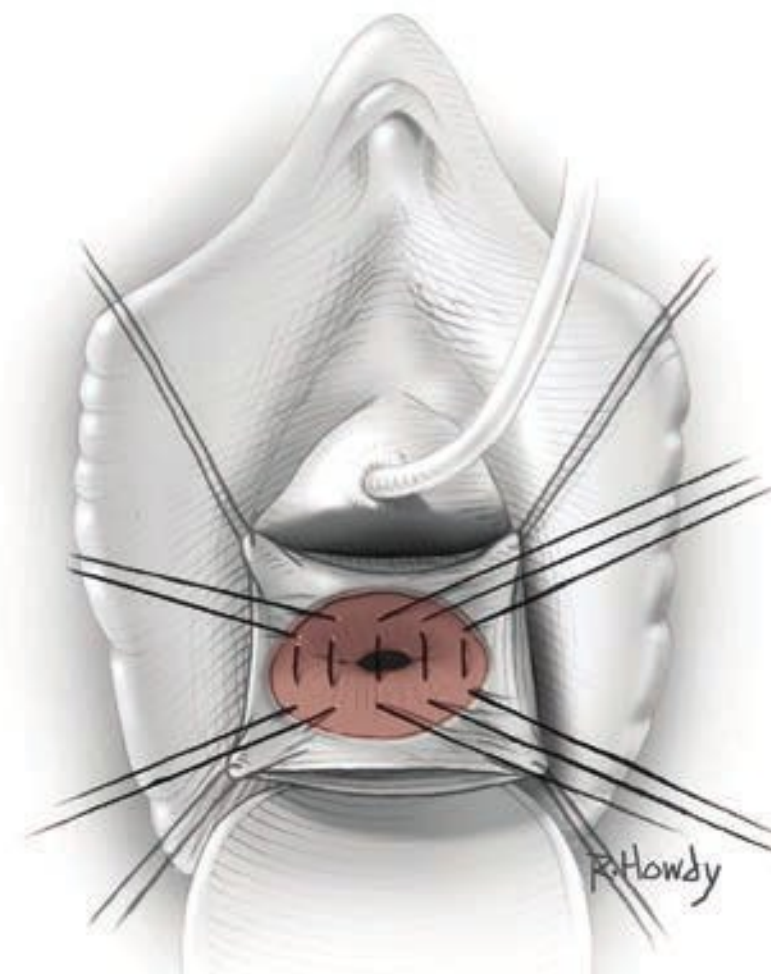
26–12. Voiding cystourethrogram, when viewed laterally, may help diagnose all of the following **EXCEPT**:

- a. Urethral diverticulum
- b. Vesicovaginal fistula
- c. Ureterovaginal fistula
- d. Urethrovaginal fistula

26–13. A 27-year-old woman develops a vesicovaginal fistula soon after cesarean delivery. Surgery was indicated for a prolonged, obstructed labor at term during an attempt at home birth. Both surgical and conservative management are considered. One conservative option is continuous bladder drainage using an indwelling urinary catheter. If this is elected, the fistula is more likely to spontaneously heal in which of the following settings?

- a. The fistula is large, > 2 cm.
- b. The fistula is small, 2 to 3 mm.
- c. The fistula is related to pelvic radiation.
- d. The catheter is left in place for a minimum of 8 weeks.

26–14. Compared with an abdominal (transperitoneal) approach for genitourinary fistula repair, the route of surgery depicted in this figure is associated with which of the following?



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- a. Greater blood loss
- b. Longer hospital stay
- c. Less overall morbidity
- d. Greater operative time

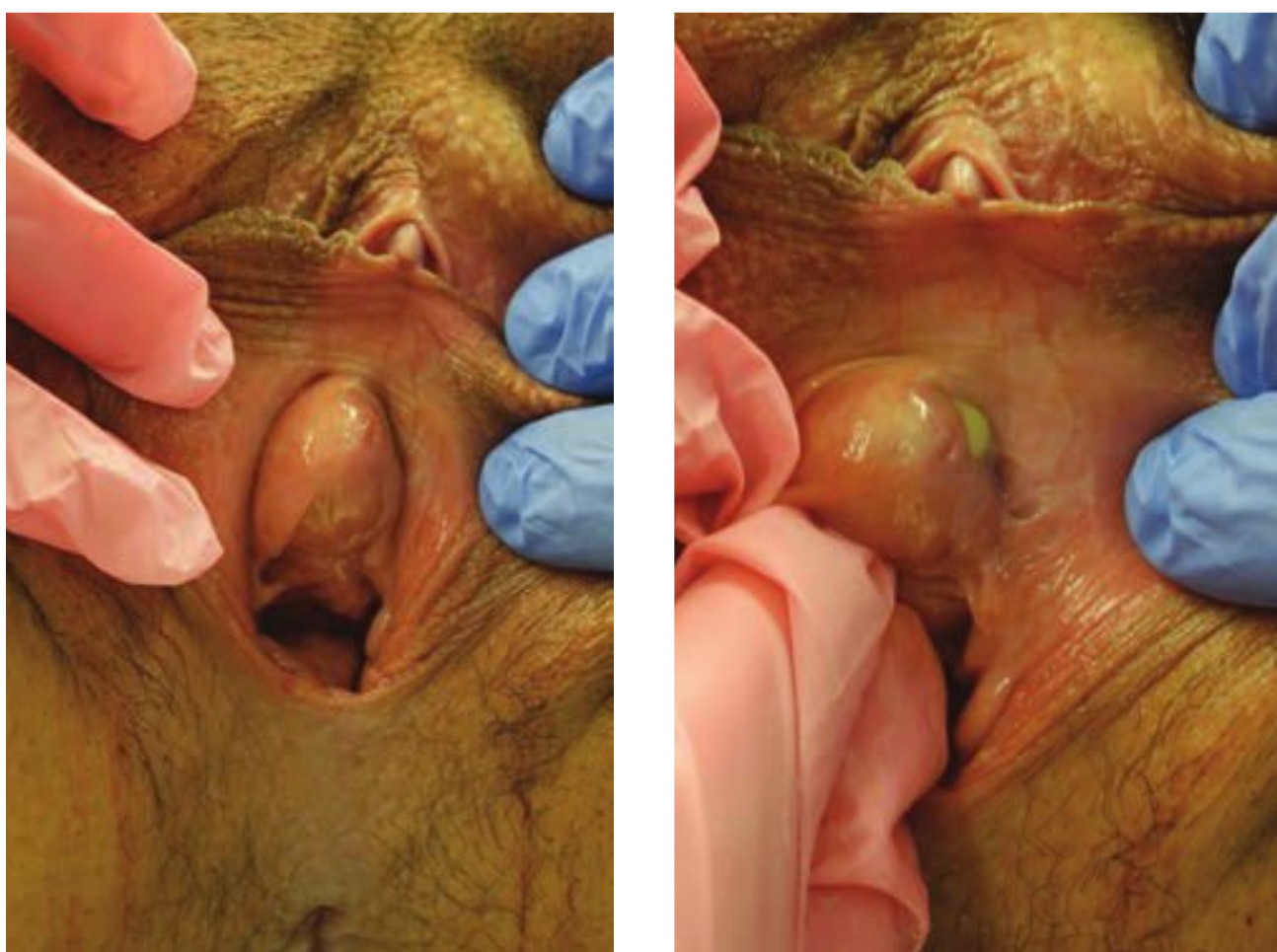
26–15. Indications for an abdominal approach to genitourinary fistula repair include which of the following?

- a. Recurrent fistula
- b. Complex or large fistula
- c. Concomitant ureteric fistula or fistula in close proximity to ureteral orifices
- d. All of the above

26–16. If the intervening tissue used for surgical closure of a fistula is poorly vascularized, which of the following would be an appropriate intervention?

- a. Use synthetic graft material to reinforce the repair
- b. Consider an abdominal approach with an omental interpositional flap
- c. Abort the procedure in favor of conservative management with a long-term indwelling urinary catheter
- d. All of the above

- 26–17.** In developed countries, urethrovaginal fistulas are most commonly attributed to which of the following?
- Obstetric trauma
 - Pelvic infection
 - Prior hysterectomy
 - Prior anterior colporrhaphy or urethral diverticulectomy
- 26–18.** In developing countries, urethrovaginal fistulas are most commonly attributed to which of the following?
- Obstetric trauma
 - Pelvic infection
 - Prior hysterectomy
 - Prior anterior colporrhaphy or urethral diverticulectomy
- 26–19.** Which of the following statements regarding urethral diverticula is correct?
- They commonly are associated with urethral cancer.
 - They are often associated with infectious urethritis.
 - They are identified exclusively in postmenopausal women.
 - They usually are congenital, arising from small foci of persistent squamous epithelium of the urogenital sinus.
- 26–20.** This cyst, which deviates the urethra to the contralateral side, most likely represents which of the following?



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- Skene gland cyst
- Ectopic breast tissue
- Bartholin gland duct cyst
- Lesser vestibular gland cyst

- 26–21.** The largest pair of the paraurethral glands (Skene glands) is clustered along which portion of the urethra?
- Distal
 - Proximal
 - Surrounding the bladder neck
 - Evenly distributed along the length of the urethra
- 26–22.** The communication point between the diverticular ostium and the urethra most commonly occurs at which location along the length of the urethra?
- Midurethra
 - Distal urethra
 - Proximal urethra
 - Midurethra and distal urethra with approximately equal frequency
- 26–23.** Among women presenting with *symptomatic* urethral diverticula, which of the following statements is correct?
- Urinary retention is the most common complaint.
 - The mass is soft, pliable, and generally nontender.
 - Associated urinary incontinence or postvoid dribbling is rare, occurring in less than 10 percent of patients.
 - Dyspareunia may be either with entry or deeper penetration, depending on whether the diverticulum is distal or proximal.
- 26–24.** Which symptom is commonly associated with a urethral diverticulum?
- Urinary incontinence
 - Symptoms of urinary tract infection
 - Urinary retention with postvoid dribble
 - All of the above
- 26–25.** Which of the following statements is true regarding calculi that develop within a urethral diverticulum?
- They are usually uric acid or struvite stones.
 - They result from stagnation of urine and precipitation of salts.
 - They are associated with approximately 25 percent of urethral diverticula.
 - None of the above

26–26. A 2-cm, firm suburethral mass is noted during routine pelvic examination of a 48-year-old woman. Her only symptom has been recent difficulty fully emptying her bladder and weaker urinary stream. Subsequent biopsy shows malignancy. Urethral cancers that are related to urethral diverticula are usually which histologic type?

- a. Sarcoma
- b. Adenocarcinoma
- c. Squamous cell carcinoma
- d. Transitional cell carcinoma

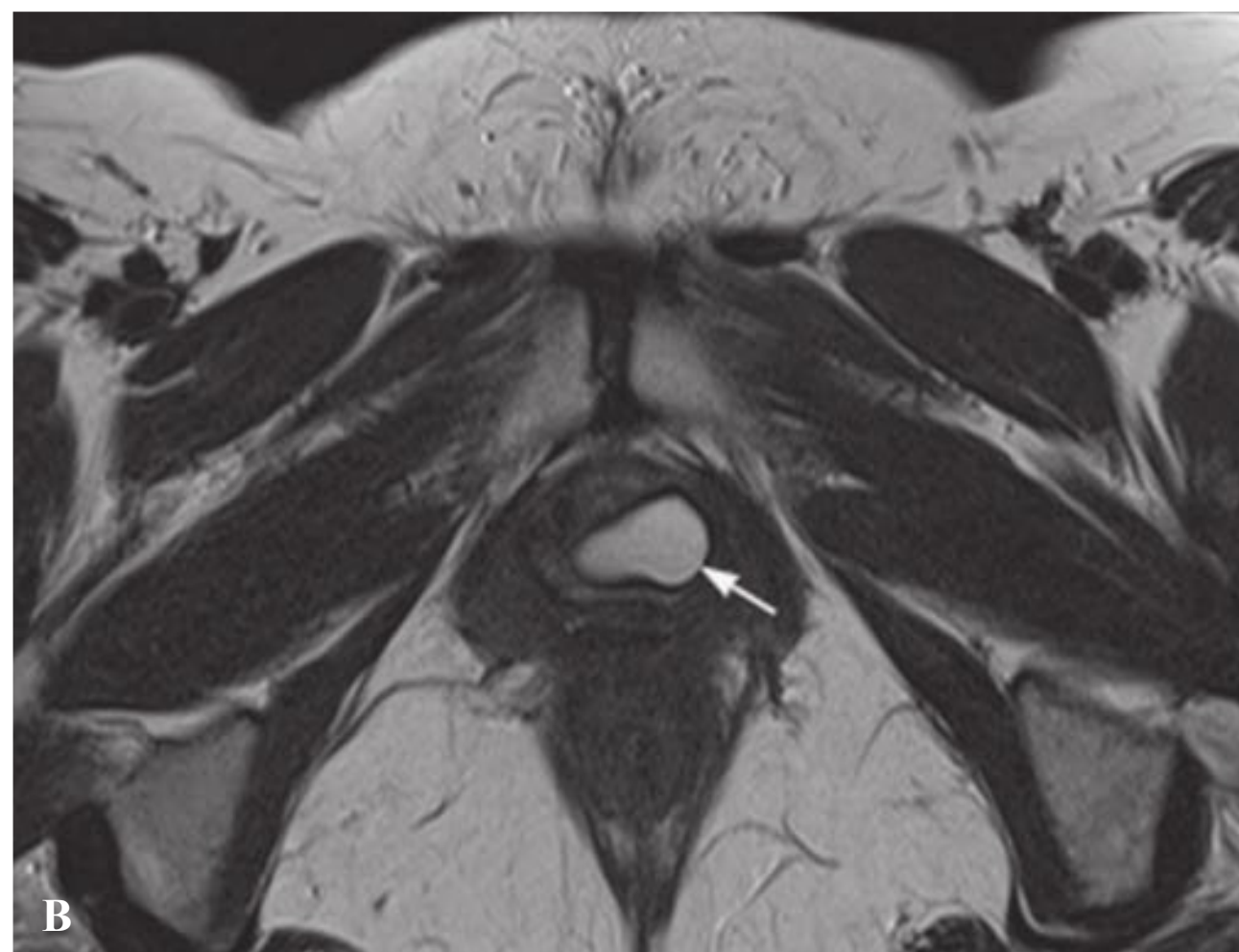
26–27. Cystourethroscopy for the detection of urethral diverticula is best performed with which of the following endoscopes?

- a. A 0-degree rigid endoscope
- b. A 30-degree rigid endoscope
- c. A 70-degree rigid endoscope
- d. A 120-degree rigid endoscope

26–28. Use of cystourethroscopy for the diagnosis of urethral diverticula is beneficial for all of the following reasons **EXCEPT:**

- a. May be performed as an office-based procedure
- b. Generally allows the diverticular ostium location to be identified
- c. Permits exclusion of other pathology such as lower urinary tract calculi
- d. Permits characterization of diverticular size and circumferential extent

26–29. This 32-year-old woman presented with discomfort from the suburethral cyst shown in Figure A. She subsequently underwent magnetic resonance (MR) imaging to further characterize this mass, which is marked by the arrow in Figure B. Which of the following characterizes MR imaging of periurethral pathology?

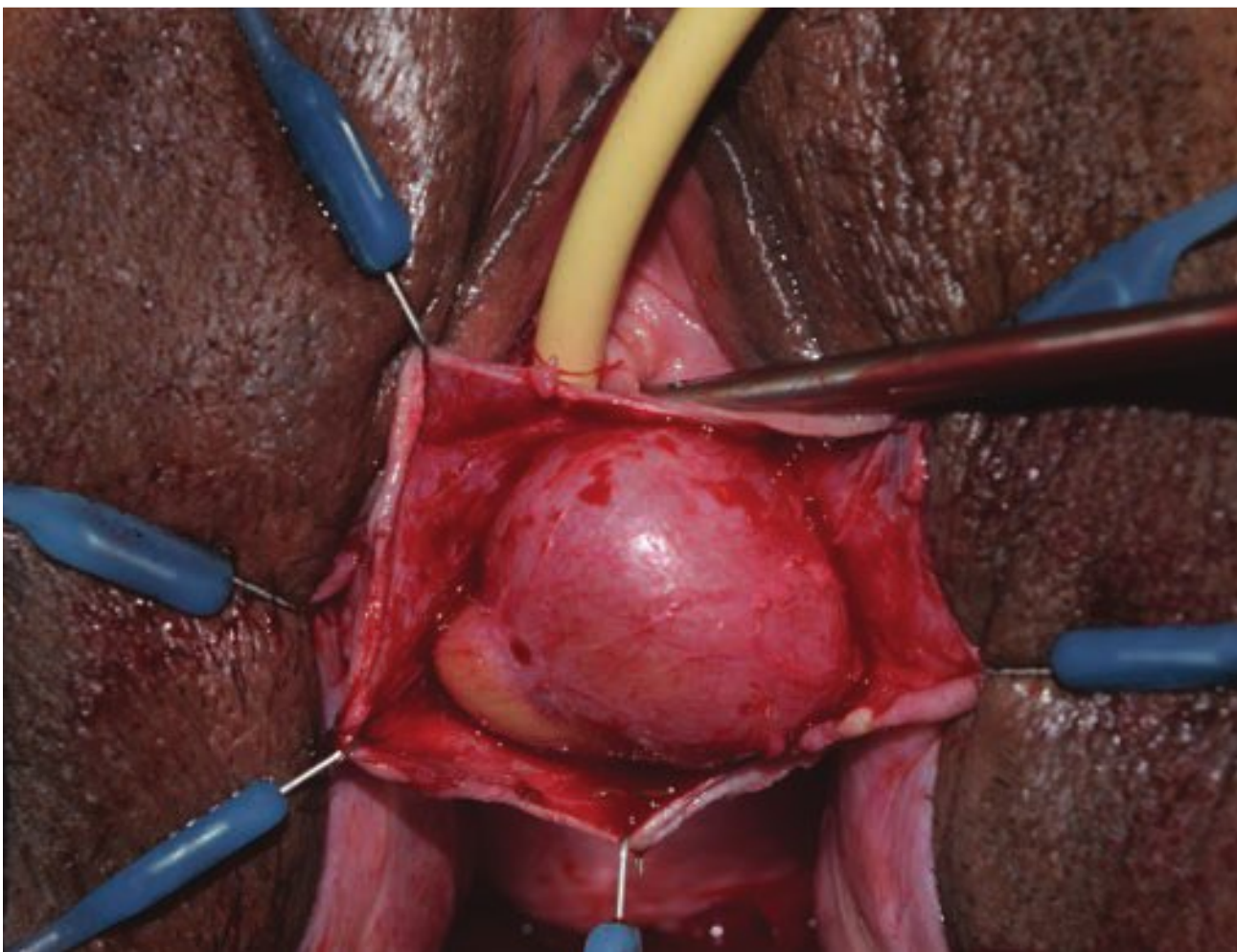


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- a. It requires ionizing radiation and contrast exposure.
- b. It generally is less expensive than other imaging modalities.
- c. It has limited ability to identify location, extent, and internal characteristics of masses.
- d. Compared with other imaging modalities, it has equal or superior sensitivity for detecting urethral diverticula.

- 26–30.** A 51-year-old multipara presents with voiding difficulties and recurrent bladder infections. A voiding cystourethrogram is performed, and a large irregular urethral diverticulum is identified. Which of the following is true regarding this diagnostic modality?
- It is no longer available in most hospital centers.
 - It is painful for patients and complicated to perform.
 - It requires exposure of the patient to ionizing radiation.
 - Compared with positive-pressure urethrography, it is more sensitive for detecting diverticula.

- 26–31.** The procedure depicted in the figure below places patients at risk for which of the following?



Used with permission from Dr. Clifford Wai.

- Urinary leakage
- Urethral stenosis
- Urethrovaginal fistula
- All of the above

- 26–32.** Which of the following would be the preferred treatment of this urethral diverticulum?



- Diverticulectomy
- Spence marsupialization
- Partial ablation of the diverticular sac
- Transurethral incision of the diverticular ostium to widen the ostium

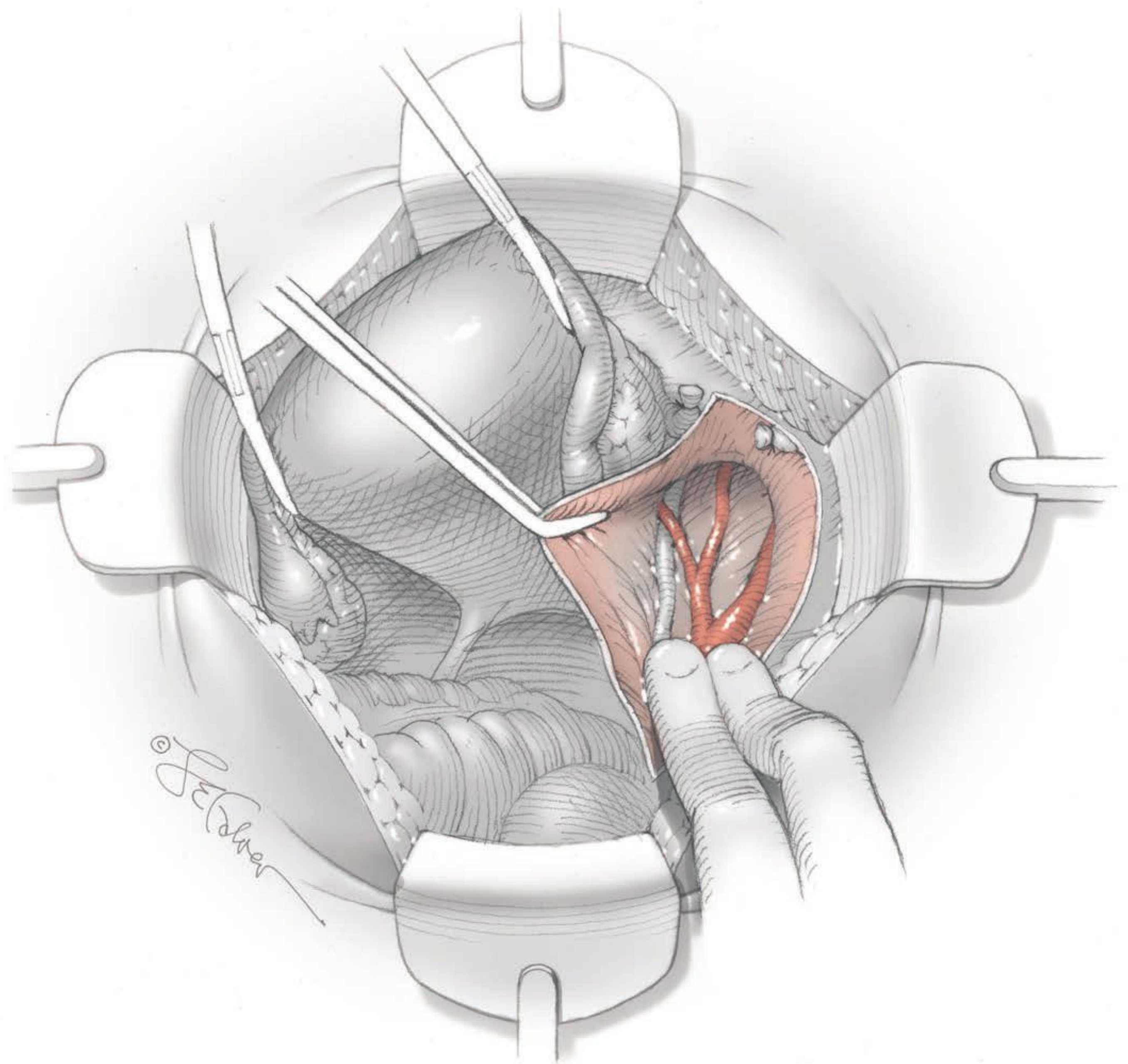
Reference

Goh JT: A new classification for female genital tract fistula. *Aust N Z J Obstet Gynaecol* 44:502, 2004.

Chapter 26 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
26-1	a	p. 577	Genitourinary Fistula	26-17	d	p. 582	Other Genitourinary Fistulas
26-2	a	p. 577	Pathophysiology	26-18	a	p. 582	Other Genitourinary Fistulas
26-3	b	p. 577	Pathophysiology	26-19	b	p. 583	Etiology
26-4	c	p. 578	Table 26-1	26-20	a	p. 583	Etiology
26-5	c	p. 578	Classification, Table 26-2	26-21	a	p. 583	Etiology
26-6	b	p. 578	Table 26-3	26-22	a	p. 584	Classification
26-7	c	p. 578	Obstetric Trauma	26-23	d	p. 584	Symptoms
26-8	b	p. 579	Pelvic Surgery	26-24	d	p. 584	Symptoms
26-9	b	p. 579	Pelvic Surgery	26-25	b	p. 584	Symptoms
26-10	d	p. 579	Diagnosis	26-26	b	p. 584	Symptoms
26-11	b	p. 579	Diagnosis	26-27	a	p. 585	Cystourethroscopy
26-12	c	p. 579	Diagnosis	26-28	d	p. 585	Cystourethroscopy
26-13	b	p. 581	Conservative Treatment	26-29	d	p. 586	Magnetic Resonance Imaging
26-14	c	p. 582	Vaginal	26-30	c	p. 586	Other Imaging Tools
26-15	d	p. 582	Abdominal (Transperitoneal)	26-31	d	p. 587	Chronic Diverticula
26-16	b	p. 582	Interpositional Flaps	26-32	a	p. 587	Chronic Diverticula

SECTION 4
GYNECOLOGIC ONCOLOGY



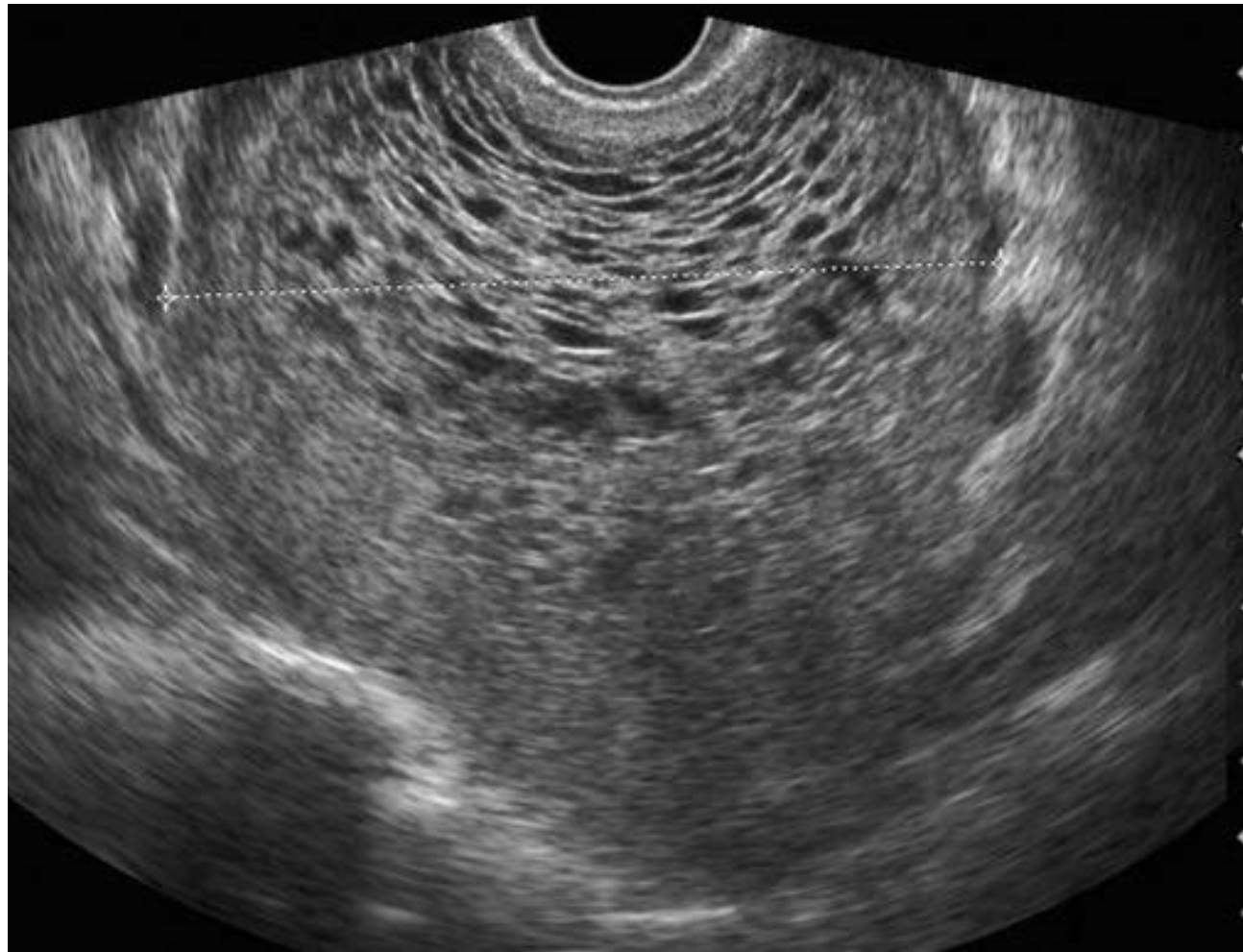
CHAPTER 27

Principles of Chemotherapy

- 27-1.** In which phase of the cell cycle, do protein synthesis, RNA synthesis, and DNA repair occur?
- M
 - S
 - Gap 1 (G1)
 - Gap 2 (G2)
- 27-2.** Compared with normal cells within the same tissue, tumor cells have which characteristic that leaves them more vulnerable to chemotherapy?
- Greater cell membrane permeability
 - Faster completion of the cell cycle
 - Slower completion of the cell cycle
 - A greater percentage of cells in active phases of replication
- 27-3.** Which of the following tumors is **LEAST** susceptible to chemotherapy?
- Metastatic tumor
 - Large primary tumor mass
 - Nonpalpable, microscopic tumor
 - Residual tumor after optimal surgical debulking
- 27-4.** Patients with an advanced malignancy and no feasible alternative treatment option can be treated with which type of chemotherapy?
- Salvage
 - Adjuvant
 - Induction
 - Consolidation
- 27-5.** In what clinical scenario would consolidation chemotherapy be used?
- Treating recurrent disease
 - Decreasing the extent of disease prior to surgical resection
 - Preventing relapse after elimination of cancer with the initial therapy
 - Destroying remaining microscopic cells present after primary tumor resection
- 27-6.** Which of the following is **NOT** a benefit of combination chemotherapy?
- Providing maximum cell kill
 - Minimizing the emergence of drug resistance
 - Decreasing adverse side effects and toxicities
 - Increasing effectiveness in attacking heterogeneous populations of cells
- 27-7.** Chemotherapy doses are most commonly calculated based on what patient parameter?
- Height
 - Weight
 - Body mass index
 - Body surface area
- 27-8.** Which of the following is a benefit of intraperitoneal chemotherapy compared with systemic chemotherapy?
- More rapid pharmacologic clearance
 - Ability to penetrate fibrotic tumor encapsulations
 - Longer exposure of cancer cells to the chemotherapy drug
 - Effectiveness in treating large gross residual disease after surgical debulking
- 27-9.** Extravasation of which type of chemotherapy drug can result in severe pain and necrosis of the subcutaneous tissue?
- Irritants
 - Vesicants
 - Exfoliants
 - Inflammants
- 27-10.** Which of the following chemotherapy agents can cause skin exfoliation on extravasation?
- Cisplatin
 - Carboplatin
 - Dactinomycin
 - Methotrexate

- 27–11.** A 35-year-old woman is diagnosed with gestational trophoblastic neoplasia and treatment is planned with methotrexate. She is taking warfarin due to a history of deep-vein thrombosis. Which of the following is considered when planning her care?
- Reducing her warfarin dose
 - Reducing the methotrexate dose
 - Altering the route of methotrexate administration
 - Prolonging the duration of her methotrexate course
- 27–12.** What is the first step in managing an anaphylactic reaction to a chemotherapeutic agent?
- Stop the chemotherapy infusion
 - Administer intravenous antihistamine
 - Administer intravenous normal saline
 - Assess the patient's airway, breathing, and circulation
- 27–13.** What is the definition of a partial response to chemotherapy?
- Identification of one or more new lesions
 - Disappearance of all measurable “target” lesions
 - A decrease of at least 30 percent in the sum of diameters of all target lesions
 - An increase of no more than 20 percent in the sum of diameters of target lesions
- 27–14.** Methotrexate inhibits the action of what enzyme?
- Methionine synthetase
 - Thymidylate synthetase
 - Dihydrofolate reductase
 - Serine hydroxymethyltransferase
- 27–15.** Which of the following is a benefit of incorporating leucovorin into a methotrexate treatment schedule?
- Decreases drug clearance
 - Minimizes myelosuppression
 - Expands cell-cycle specificity
 - Enhances tumor radiosensitivity
- 27–16.** Gemcitabine is approved by the Food and Drug Administration specifically for treatment of what type of gynecologic malignancy?
- Uterine sarcoma
 - Recurrent ovarian cancer
 - Endometrial adenocarcinoma
 - Advanced-stage cervical cancer
- 27–17.** Myelosuppression is typically the **LEAST** common dose-limiting side effect of which of the following chemotherapeutic agents?
- Doxorubicin
 - Gemcitabine
 - Dactinomycin
 - 5-Fluorouracil
- 27–18.** A 52-year-old woman is being treated for ovarian cancer with ifosfamide. Three days after beginning chemotherapy, she presents to the emergency room reporting blood in her urine. This side effect could have been prevented with pretreatment of which medication?
- Mesna
 - Amifostine
 - Leucovorin
 - Gonadotropin-releasing hormone agonist
- 27–19.** A 48-year-old woman is undergoing high-dose salvage chemotherapy with ifosfamide. Her family brings her to the office reporting lethargy, confusion, and hallucinations since her last chemotherapy cycle. What is the likely cause of her presentation, specific to this drug?
- Insufficient pretreatment hydration
 - Accumulation of the acrolein metabolite
 - Accumulation of the chloroacetaldehyde metabolite
 - Metastatic disease to the central nervous system
- 27–20.** Dactinomycin and bleomycin are examples of which chemotherapeutic class?
- Antimetabolites
 - Alkylating agents
 - Plant-derived agents
 - Antitumor antibiotics

27–21. A 25-year-old woman presents with vaginal bleeding and cramping and reports a last menstrual period approximately 8 weeks ago. A suction curettage is performed due to the ultrasound finding depicted below. During postoperative surveillance, low-risk gestational trophoblastic neoplasia is diagnosed. Which of the following is a suitable single agent for primary treatment?



- a. Cisplatin
- b. Doxorubicin
- c. Gemcitabine
- d. Dactinomycin

27–22. A 73-year-old woman is receiving bleomycin for recurrent vulvar cancer. She subsequently presents with cough and shortness of breath, and her examination is notable for inspiratory crackles. Pulmonary function tests (PFTs) are performed to confirm the suspicion of pulmonary fibrosis. Which PFT measurement is most important in making this diagnosis?

- a. Total lung capacity (TLC)
- b. Inspiratory reserve volume (IRV)
- c. Diffusing capacity for carbon monoxide (DLCO)
- d. Forced expiratory volume in 1 second (FEV₁)

27–23. Compared with doxorubicin, its liposomal form is associated with a decrease in which of the following?

- a. Alopecia
- b. Cardiotoxicity
- c. Gastrointestinal toxicity
- d. All of the above

27–24. A 59-year-old woman is receiving chemotherapy for recurrent epithelial ovarian cancer. She presents after her third cycle reporting severe pain, swelling, and redness of her skin. She reports the changes initially began on her hands and feet but now involve the skin underneath her undergarments. Her examination is notable for the finding below. Which of the following chemotherapy agents is the most likely cause of this toxicity?



Used with permission from Dr. John Schorge.

- a. Bleomycin
- b. Doxorubicin
- c. Dactinomycin
- d. Liposomal doxorubicin

27–25. Taxanes exert their cytotoxic effect on what structure involved in DNA synthesis?

- a. Microtubules
- b. Purine bases
- c. Mitochondria
- d. Pyrimidine bases

27–26. Which of the following statements is **NOT** true regarding the side effects of paclitaxel (Taxol)?

- a. Alopecia is typically limited to the scalp.
- b. Neurotoxicity occurs in a stocking-glove distribution.
- c. Myelosuppression is the usual dose-limiting side effect.
- d. Hypersensitivity reactions can occur as a response to an emulsifying agent used in its formulation.

- 27–27.** A 68-year-old woman with recurrent epithelial ovarian cancer is being treated with docetaxel. She presents shortly after her second chemotherapy cycle reporting weight gain and swelling. Imaging is notable for the finding depicted below. What prophylactic measure would have likely prevented this side effect?



- a. Mannitol
 - b. Furosemide
 - c. Dexamethasone
 - d. Fluid restriction
- 27–28.** Which of the following statements is true regarding topotecan?
- a. It binds to topoisomerase-II (TOPO-II) enzyme.
 - b. Myelosuppression is the main dose-limiting side effect.
 - c. Drug toxicity can be predicted by the patient's albumin level.
 - d. It is not Food and Drug Administration (FDA) approved for use in gynecologic cancers.
- 27–29.** What is the most common secondary malignancy associated with administration of etoposide?
- a. Hodgkin lymphoma
 - b. Multiple myeloma
 - c. Acute myelogenous leukemia
 - d. Chronic lymphocytic leukemia
- 27–30.** Carboplatin dosing is based on what patient parameter?
- a. Weight
 - b. Body mass index
 - c. Body surface area
 - d. Glomerular filtration rate

- 27–31.** A 55-year-old woman being evaluated for abdominal pain and bloating is found to have a complex adnexal mass, ascites, and omental thickening on computed tomography scan. Her cancer antigen (CA125) level is extremely elevated, and all other tumor markers are normal. The patient undergoes surgery for planned tumor debulking and the following image depicts what is encountered. Which of the following chemotherapy agents would be the most appropriate to incorporate into adjuvant therapy following surgery?



Reproduced with permission from Schorge JO: Epithelial ovarian cancer. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 35-14.

- a. Bleomycin
 - b. Carboplatin
 - c. Methotrexate
 - d. 5-Fluorouracil
- 27–32.** Which of the following is decreased with cisplatin administration compared with carboplatin?
- a. Ototoxicity
 - b. Hematologic toxicity
 - c. Electrolyte abnormalities
 - d. Gastrointestinal toxicity

27–33. A 20-year-old woman presents with pelvic pain and increasing abdominal girth. A large pelvic mass is palpable during examination. The mass is confirmed during imaging and is marked by calipers below. Tumor markers are significant for an elevated serum human chorionic gonadotropin (hCG) level. She undergoes fertility-sparing surgery but is advised to undergo adjuvant chemotherapy. Which of the following chemotherapy agents would be most likely used in her regimen?



- a. Cisplatin
b. Vincristine
c. Dactinomycin
d. Methotrexate
- 27–34.** Risks and side effects of tamoxifen include all of the following **EXCEPT**:
- a. Osteoporosis
b. Thromboembolism
c. Endometrial cancer
d. Vasomotor symptoms
- 27–35.** What is the usual dosing of megestrol acetate (Megace) when treating endometrial hyperplasia or malignancy?
- a. 40 mg twice daily
b. 60 mg twice daily
c. 80 mg twice daily
d. 100 mg twice daily
- 27–36.** Biologic agents that act on vascular endothelial growth factor (VEGF) treat cancer by interfering with what process?
- a. DNA repair
b. Angiogenesis
c. Free radical formation
d. Cell cytoskeleton maintenance
- 27–37.** Which of the following chemotherapeutic agents commonly used in gynecologic oncology is associated with the highest risk for nausea and vomiting?
- a. Bleomycin
b. Cisplatin
c. Paclitaxel
d. Carboplatin
- 27–38.** Which of the following is **NOT** a measure often used to counter neurotoxicity associated with cisplatin?
- a. Amifostine
b. Gabapentin
c. Oral vitamin B₁₂
d. Substitution with carboplatin
- 27–39.** A 47-year-old woman with ovarian cancer is being treated with cisplatin and paclitaxel. She presents for her next cycle reporting numbness, tingling, and burning pain in her hands and feet for which she is prescribed gabapentin. What is the usual starting dose used to treat neuropathic pain?
- a. 150 mg daily
b. 300 mg daily
c. 450 mg daily
d. 600 mg daily
- 27–40.** Which of the following statements regarding epoetin alfa is **FALSE**?
- a. The usual dosage is 40,000 units administered subcutaneously.
b. Side effects include diarrhea, nausea, and pain at the injection site.
c. Use at higher hemoglobin levels may increase the risk for thromboembolic events.
d. Use for chemotherapy-associated anemia is recommended for hemoglobin concentrations less than the threshold of 12 g/dL.

27–41. Which of the following is an agent used to stimulate granulocyte production in patients with chemotherapy-associated neutropenia?

- a. Glutamine
- b. Filgrastim
- c. Leucovorin
- d. Darbepoetin alfa

27–42. At what minimum threshold is a granulocyte colony-stimulating factor (G-CSF) generally discontinued when treating chemotherapy-associated leukopenia?

- a. White blood cell count exceeding $1000/\text{mm}^3$ for three consecutive days
- b. White blood cell count exceeding $20,000/\text{mm}^3$ for three consecutive days
- c. Absolute neutrophil count exceeding $1000/\text{mm}^3$ for three consecutive days
- d. Absolute neutrophil count exceeding $500/\text{mm}^3$ for three consecutive days

Chapter 27 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
27-1	c	p. 592	The Cell Cycle	27-23	d	p. 600	Doxorubicin Hydrochloride Liposome
27-2	d	p. 592	The Cell Cycle	27-24	d	p. 600	Doxorubicin Hydrochloride Liposome
27-3	b	p. 592	Cancer Cell Growth	27-25	a	p. 600	Taxanes
27-4	a	p. 593	Clinical Setting	27-26	a	p. 601	Paclitaxel
27-5	c	p. 593	Clinical Setting	27-27	c	p. 601	Docetaxel
27-6	c	p. 594	Drug Regimens	27-28	b	p. 602	Topotecan
27-7	d	p. 594	Dosing and Dose Intensity	27-29	c	p. 602	Etoposide
27-8	c	p. 595	Administration Route and Excretion	27-30	d	p. 602	Carboplatin
27-9	b	p. 595	Table 27-1	27-31	b	p. 602	Cisplatin
27-10	a	p. 595	Table 27-1	27-32	b	p. 602	Cisplatin
27-11	a	p. 595	Drug Interactions and Allergic Reactions	27-33	a	p. 602	Cisplatin
27-12	a	p. 595	Drug Interactions and Allergic Reactions	27-34	a	p. 603	Tamoxifen
27-13	c	p. 596	Table 27-3	27-35	c	p. 603	Megestrol Acetate
27-14	c	p. 596	Figure 27-3	27-36	b	p. 604	Angiogenesis
27-15	b	p. 596	Methotrexate	27-37	b	p. 606	Table 27-9
27-16	b	p. 597	Gemcitabine	27-38	c	p. 606	Neurotoxicity
27-17	d	p. 598	5-Fluorouracil	27-39	b	p. 606	Neurotoxicity
27-18	a	p. 598	Ifosfamide	27-40	d	p. 606	Synthetic Erythropoietins
27-19	c	p. 598	Ifosfamide	27-41	b	p. 607	Granulocyte Colony-Stimulating Factors
27-20	d	p. 599	Antitumor Antibiotics	27-42	c	p. 607	Granulocyte Colony-Stimulating Factors
27-21	d	p. 599	Dactinomycin				
27-22	c	p. 599	Bleomycin				

CHAPTER 28

Principles of Radiation Therapy

28-1. Which of the following is **NOT** a role of radiation therapy in the management of gynecologic cancers?

- a. Primary treatment of vulvar cancer
- b. Primary treatment of cervical cancer
- c. Curative treatment of cervical cancer metastases
- d. Postsurgical adjunctive therapy of endometrial cancer

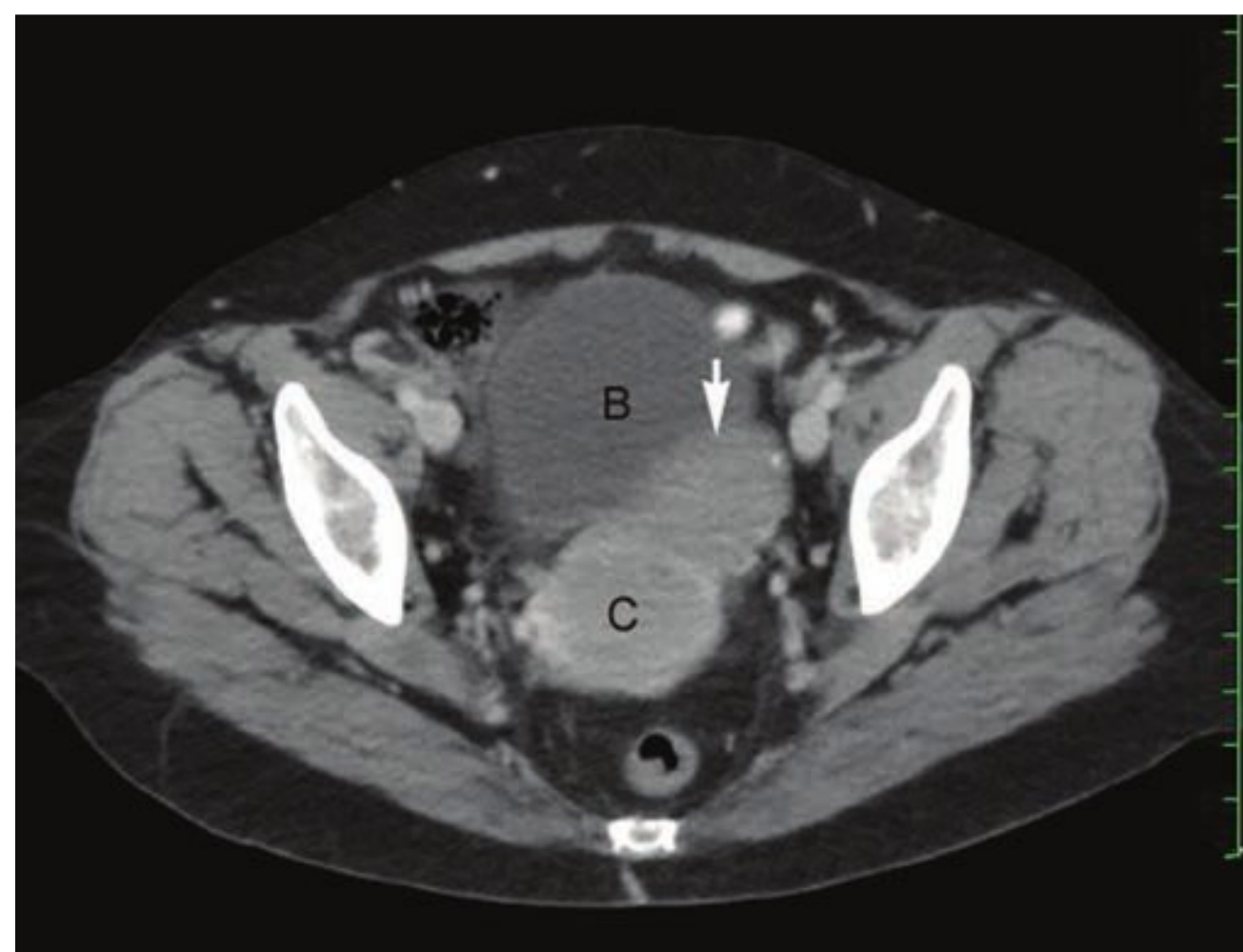
28-2. Which of the following statements regarding electromagnetic radiation is **FALSE**?

- a. An electromagnetic wave is defined by its mass.
- b. A gamma ray is an example of electromagnetic radiation.
- c. Electromagnetic radiation is commonly used in brachytherapy.
- d. Electromagnetic radiation can be produced by both a linear accelerator and a radionuclide.

28-3. Which of the following are **NOT** used in particle radiation?

- a. Photons
- b. Electrons
- c. Pi mesons
- d. Helium ions

28-4. A 41-year-old woman presents with pelvic pain and abnormal bleeding. Abdominal computed tomography (CT) is performed, diagnosing her with cervical cancer as shown below. When planning the radiation therapy used to treat this tumor, what type of particle would be the most effective? B = bladder; C = cervix.



- a. Proton
- b. Neutron
- c. Electron
- d. π meson

28-5. Which of the following radionuclides is **NOT** used in brachytherapy?

- a. Cobalt
- b. Cesium
- c. Iridium
- d. Phosphorus

28-6. Which of the following statements regarding linear accelerators is **NOT** true?

- a. Radiation is emitted by nuclear decay.
- b. Radiation is produced in the form of photons.
- c. Radiation is produced in the form on electrons.
- d. The radiation types produced can be used to treat both superficial and deep tumors.

- 28–7.** A 37-year-old woman with a history of vulvar cancer presents with a painful bump in her right groin, as pictured below. Biopsy confirms metastatic disease of her inguinal lymph node, and radiation therapy is planned using a linear accelerator. Which mode of use would be the most appropriate for this scenario?



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- a.** Photon-therapy mode
b. Proton-therapy mode
c. Electron-therapy mode
d. Gamma-ray therapy mode
- 28–8.** The photoelectric effect can be described most accurately by which of the following statements?
a. It is dominant in the mid- to high-energy ranges.
b. It dominates when the impacting energy is low (less than 100 kV).
c. It is the most important mechanism of energy transfer used in clinical radiation therapy.
d. It occurs when a photon beam with very high energy impacts the electromagnetic field of a nucleus.
- 28–9.** When planning radiation therapy, it would be ideal for the malignant tissue to absorb the entire prescribed dose while sparing the adjacent normal tissue. This concept is known as:
a. Bernoulli principle
b. Perfect conformality
c. Dosimetric-sparing effect
d. “Innocent bystander” theory
- 28–10.** What is the current Standard International unit for quantifying the absorbed radiation dose?
a. Rad
b. Gray
c. Joule
d. Becquerel
- 28–11.** Radiation therapy imparts its biologic effect on mammalian cells by targeting which of the following cell structures?
a. DNA
b. Ribosomes
c. Mitochondria
d. Endoplasmic reticulum
- 28–12.** Ionizing radiation can indirectly damage DNA through which of the following chemical intermediates?
a. Heavy ions
b. Carboxyl group
c. Hydroxyl radical
d. Hydrogen peroxide
- 28–13.** Which of the following statements accurately describes cell death by mitotic catastrophe?
a. DNA structural integrity is spared.
b. Cell death occurs immediately after DNA damage.
c. Cell death occurs as a result of entering mitosis prematurely with damaged DNA.
d. Nuclear fragmentation and apoptosis are phases involved in mitotic catastrophe.
- 28–14.** The chemical intermediates referred to in Question 28–12 target which cell type within a tumor?
a. Hypoxic tumor cells
b. Oxygenated tumor cells
c. Endothelial cells of blood capillaries within the tumor
d. Cells located more than 200 μm from blood capillaries
- 28–15.** Which of the following stages of the cell cycle is most sensitive to radiation?
a. Gap 1 (G1)
b. Gap 2 (G2)
c. Interphase (I)
d. DNA synthesis (S)

- 28–16.** After cell death, tumor shrinkage occurs and surviving cells are positioned closer to blood capillaries. T is represents which stage in the “Four R’s” of radiation biology?
- Repair
 - Reassortment
 - Repopulation
 - Reoxygenation
- 28–17.** Tissues known as “late responders” to radiation can be accurately characterized by which of the following statements?
- They require more time to repair sublethal damage.
 - They have a high α -to- β ratio on the linear-quadratic curve.
 - Reactions to radiation are manifested within a few days to weeks.
 - Examples include bone marrow, reproductive organs, and gastrointestinal tract mucosa.
- 28–18.** To reduce late damage to normal tissue, the total radiation dose needed for treatment can be divided into fractions containing smaller doses administered twice or more each day. T is type of fractionation is known as:
- Hyperfractionation
 - Microfractionation
 - Standard fractionation
 - Accelerated fractionation
- 28–19.** A 32-year-old woman is being evaluated for treatment of cervical cancer that involves the parametrial tissue and pelvic sidewall. Which of the following radiation therapies would be the most effective initial treatment for this patient?
- External beam therapy
 - Permanent brachytherapy
 - Interstitial brachytherapy
 - Intracavitary brachytherapy
- 28–20.** Radiation therapy simulation allows for which of the following?
- Maximize radiation dose to the tumor
 - Minimize damage to late-responding normal tissue
 - Minimize damage to early-responding normal tissue
 - All of the above
- 28–21.** Which of the following statements regarding brachytherapy is **NOT** true?
- It is indicated for only tumors of small volumes.
 - It can be administered directly into a body cavity.
 - It can be left permanently to decay within tissues.
 - It is typically administered prior to external beam radiation for large tumors.
- 28–22.** A 45-year-old is undergoing treatment planning for a gynecologic malignancy. She is told that the most effective treatment modality will be radiation therapy using a tandem and ovoid device. What type of cancer is this patient most likely being treated for?
- Ovarian cancer
 - Vaginal cancer
 - Cervical cancer
 - Endometrial cancer
- 28–23.** Which of the following cancer types is most sensitive to radiation therapy?
- Glioma
 - Dysgerminoma
 - Osteosarcoma
 - Squamous carcinoma
- 28–24.** A 52-year-old is undergoing radiation therapy for cervical cancer. After the fifth week of treatment, she asks if the next fraction can be delayed 1 month. Which of the following statements is the most appropriate response to her question?
- A treatment break does not affect long-term survival rates.
 - Delays in treatment can decrease the probability of tumor control.
 - Tumor control depends only on a tumor’s size and its intrinsic radiosensitivity.
 - Treatment breaks are beneficial as they provide the patient time to recover from the stress of radiation therapy.
- 28–25.** Which of the following is a major factor leading to poor tumor control by radiation therapy?
- Hypertension
 - Hyperglycemia
 - Severe anemia
 - Hyperlipidemia
- 28–26.** Which of the following is a commonly used treatment for tissue hypoxia that has been shown to increase radiation response?
- Accelerated radiotherapy with carbogen or nicotinamide
 - Bioreductive agents that selectively kill hypoxic cells
 - Blood transfusion to maintain hemoglobin level > 11 g/dL
 - Hyperbaric oxygen to increase oxygen delivery to hypoxic cells

- 28–27.** When treating gynecologic cancers, which chemotherapeutic class is most commonly used with radiation therapy?
- Taxanes
 - Antibiotics
 - Alkylating agents
 - Platinum compounds
- 28–28.** Which of the following statements is true regarding cisplatin use in conjunction with radiation therapy?
- It blocks cells at the G2/M junction.
 - It inhibits DNA synthesis at the G1/S checkpoint.
 - It enhances the effect of radiation by causing microtubule dysfunction.
 - It is a standard primary treatment of locally advanced cervical cancer.
- 28–29.** A 37-year-old with cervical cancer is scheduled to receive preoperative adjuvant radiation therapy. She desires to know what advantages this will have over proceeding directly to surgery. Which of the following is **NOT** a potential benefit?
- Decreased local tumor dissemination
 - Lower postoperative complication rate
 - Decrease in distant tumor dissemination
 - Increase likelihood of negative surgical margins
- 28–30.** The patient in Question 28–29 desires to know how long she must wait to have surgery after radiation is completed. What is typically the minimum amount of time required for acute radiation reactions to resolve?
- 1 week
 - 2 weeks
 - 3 weeks
 - 4 weeks
- 28–31.** Which of the following tissues is likely to be the first to show the signs of radiation damage?
- Kidney
 - Muscle
 - Nerves
 - Small intestine
- 28–32.** A 46-year-old has been undergoing radiation therapy for the last 5 weeks. When she presents for her next treatment, she is found to have dry desquamative skin changes. Which of the following is the most appropriate treatment for this degree of skin reaction?
- Apply aloe-vera-containing creams to promote dermal hydration
 - Wash daily with regular soap and leave the skin uncovered to keep dry
 - Cleanse the affected area with an alcohol-based cleanser to prevent superinfection
 - Apply a heating pad to the affected area to increase revascularization and perfusion
- 28–33.** A 56-year-old with cervical cancer is being treated with cisplatin and external beam radiation therapy. She has well-managed diabetes and hypertension. She has had two prior cesarean deliveries and is not currently sexually active. What element of her history is **LEAST** likely to contribute to her risk of vaginal stricture?
- Age
 - No sexual activity
 - Concurrent chemotherapy
 - Lack of vaginal deliveries
- 28–34.** In premenopausal women, what technique has been shown to reduce the risk of radiation-induced ovarian failure during treatment of gynecologic cancer?
- Omental sling
 - Ovarian transposition
 - Ovarian transplantation
 - All of the above

28–35. A 43-year-old presents with abdominal pain and vomiting. She has a history of ovarian cancer that was treated with surgery followed by chemoradiation therapy. After evaluation, small bowel obstruction is suspected. During exploratory laparotomy, obstruction is confirmed as depicted below. Which of the following is **NOT** a device used to prevent this complication when placed prior to radiation?



Used with permission from Dr. David Miller.

- a. Psoas hitch
- b. Omental sling
- c. Absorbable mesh
- d. Saline-filled tissue expander

28–36. A 71-year-old presents with long-standing foul vaginal discharge. She has a history of vulvar cancer treated with radiation therapy but has been in remission for the last several years. Her examination reveals the finding depicted below. Which of the following is the most appropriate treatment option for her condition?



Reproduced with permission from Corton MM: Anal incontinence and functional anorectal disorder. Vulvar cancer. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 25-8.

- a. Colpocleisis
- b. Diverting colostomy
- c. Low-fat, low-fiber diet
- d. Antidiarrheal medications

28–37. A 62-year-old completed chemoradiation therapy for metastatic endometrial cancer approximately 8 months ago. She initially felt well after treatment but now presents with progressively worsening lower extremity edema. Her evaluation is also significant for new hypertension, proteinuria, and anemia. Which of the following is the most likely source of her condition?

- a. Heart
- b. Kidney
- c. Bone marrow
- d. Central nervous system

28–38. Which of the following is **NOT** a criterion for diagnosing a radiation-induced cancer?

- a. It occurs with radiation doses exceeding 60 Gy.
- b. It is located within the previously irradiated region.
- c. Its pathology is different from the original malignancy.
- d. It is diagnosed at least a few years after completion of therapy.

Chapter 28 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
28-1	c	p. 611	Table 28-1	28-19	a	p. 615	External Beam Radiation Therapy
28-2	a	p. 610	Electromagnetic Radiation	28-20	d	p. 615	External Beam Radiation Therapy
28-3	a	p. 610	Particle Radiation	28-21	d	p. 616	Brachytherapy
28-4	a	p. 610	Particle Radiation	28-22	c	p. 616	Brachytherapy
28-5	d	p. 612	Table 28-2	28-23	b	p. 617	Table 28-3
28-6	a	p. 610	Linear Accelerator	28-24	b	p. 617	Treatment Time
28-7	c	p. 610	Linear Accelerator	28-25	c	p. 618	Tumor Hypoxia
28-8	b	p. 611	Electromagnetic Radiation Energy Deposition	28-26	c	p. 618	Tumor Hypoxia
28-9	b	p. 612	Depth-Dose Curve	28-27	d	p. 618	Combination of Ionizing Radiation and Chemotherapy
28-10	b	p. 612	Radiation Unit	28-28	d	p. 618	Combination of Ionizing Radiation and Chemotherapy
28-11	a	p. 612	DNA Molecule as the Target of Radiation Therapy's Biologic Effect	28-29	b	p. 618	Combination of Ionizing Radiation Therapy and Surgery
28-12	c	p. 613	Direct versus Indirect Actions of Ionizing Radiation	28-30	d	p. 618	Combination of Ionizing Radiation Therapy and Surgery
28-13	c	p. 613	Four R's of Radiation Biology: Repair, Reassortment, Repopulation, Reoxygenation	28-31	d	p. 619	Normal Tissue Response to Radiation Therapy
28-14	b	p. 613	Cell Death	28-32	a	p. 619	Skin
28-15	b	p. 613	Four R's of Radiation Biology: Repair, Reassortment, Repopulation, Reoxygenation	28-33	d	p. 619	Vagina
28-16	d	p. 613	Four R's of Radiation Biology: Repair, Reassortment, Repopulation, Reoxygenation	28-34	b	p. 620	Ovary and Pregnancy Outcomes
28-17	a	p. 614	Linear-Quadratic Theory and the α/β Ratio	28-35	a	p. 620	Small Bowel
28-18	a	p. 615	Altered Fractionation	28-36	b	p. 620	Rectosigmoid
				28-37	b	p. 621	Kidney
				28-38	a	p. 621	Radiation-Induced Carcinogenesis

CHAPTER 29

Preinvasive Lesions of the Lower Genital Tract

29–1. Since widespread introduction of the Papanicolaou (Pap) test in the 1950s, cervical cancer screening has reduced the incidence of and mortality rate from invasive cervical cancer by more than what percentage?

- a. 50 percent
- b. 60 percent
- c. 70 percent
- d. 90 percent

29–2. Approximately what percentage of U.S. women who undergo Pap testing will have an abnormal result prompting further patient evaluation?

- a. 0.19 percent
- b. 0.7 percent
- c. 7 percent
- d. 19 percent

29–3. In the lower genital tract, the term *intraepithelial neoplasia* refers to squamous epithelial lesions that are potential precursors of invasive cancer. In the case of cervical intraepithelial neoplasia (CIN), what term applies when abnormal cells involve the full thickness of the squamous epithelium?

- a. CIN 1
- b. CIN 2
- c. CIN 3
- d. Carcinoma in situ (CIS)

29–4. The location of the cervical squamocolumnar junction (SCJ) varies with age and hormonal status. As shown in the image below, the SCJ tends to evert outward onto the ectocervix during which of the following conditions?



- a. Menopause
- b. Pregnancy
- c. Prolonged lactation
- d. Long-term progestin-only contraceptive use

29–5. All of the following are true statements regarding the cervix transformation zone (TZ) **EXCEPT**:

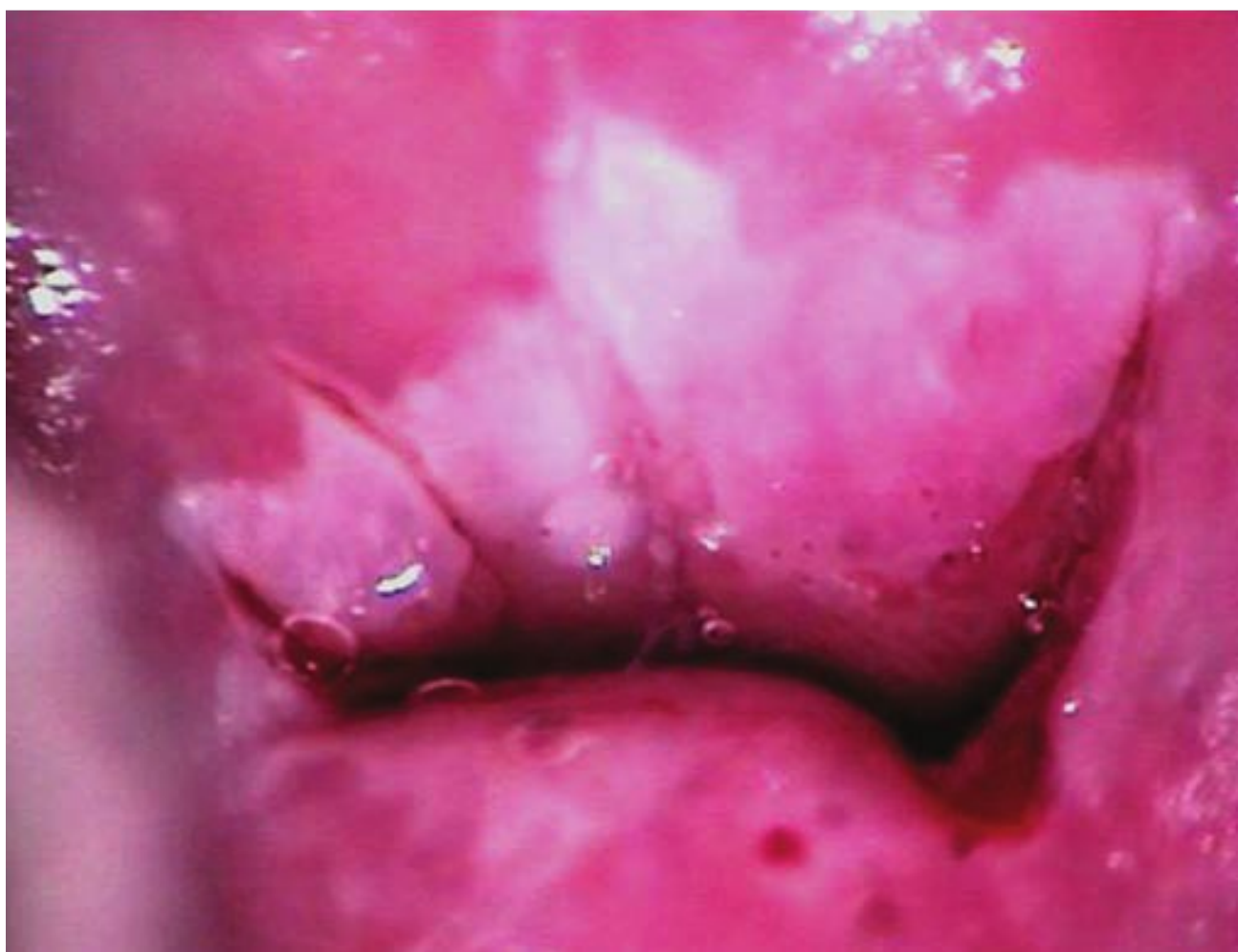
- a. Nearly all cervical neoplasia develops within the TZ.
- b. Squamous metaplasia occurring within the TZ is abnormal.
- c. The TZ lies between the original squamous epithelium and columnar epithelium.
- d. The location and size of the TZ change through the process of squamous metaplasia.

29–6. *L1* and *L2* are two “late” genes of the human papillomavirus (HPV) genome. These genes encode proteins responsible for which of the following?

- a. Capsid construction
- b. Regulatory functions
- c. DNA synthesis and replication
- d. Conformational changes aiding entry into the host cell

- 29–7.** Clinically, human papillomavirus (HPV) types are classified as high risk (HR) or low risk (LR) based upon their oncogenic potential. Which two HR HPV types together account for approximately 70 percent of cervical cancers worldwide?
- 6 and 11
 - 11 and 45
 - 16 and 18
 - 18 and 31
- 29–8.** A 20-year-old nulligravida complains of occasional pelvic pain and intermittent vaginal discharge. She is also concerned about possible exposure to sexually transmitted infections. Which of the following is the most common sexually transmitted disease in the United States?
- Chlamydial infection
 - Gonorrhea
 - Trichomoniasis
 - Genital human papillomavirus infection
- 29–9.** Which of the following is the **LEAST** common outcome of cervical human papillomavirus infection?
- Latent infection
 - Subclinical infection
 - High-grade dysplasia or cancer
 - Cervical intraepithelial neoplasia (CIN) 1
- 29–10.** A 40-year-old woman has been in a mutually monogamous relationship for 20 years. She is concerned that her recent Pap test result was reported as atypical squamous cells of undetermined significance (ASC-US). Concurrent human papillomavirus (HPV) infection is reliably diagnosed by which of the following?
- Cytology
 - Histology
 - Colposcopy
 - HPV nucleic acid testing
- 29–11.** Appropriate clinical uses for high-risk human papillomavirus (HPV) testing include which of the following?
- Surveillance after treatment of cervical neoplasia
 - Cotesting (cytology plus HPV testing) as screening for women 30 years or older
 - Triage or surveillance of certain abnormal cervical cytology results or untreated cervical intraepithelial neoplasia (CIN)
 - All of the above
- 29–12.** Indications to treat human papillomavirus (HPV)-related lower genital tract disease include all of the following **EXCEPT**:
- Invasive cancer
 - Latent HPV infection
 - Symptomatic genital warts
 - High-grade intraepithelial neoplasia
- 29–13.** Which of the following is true of the prophylactic human papillomavirus (HPV) vaccines currently available?
- All three use HPV type-specific virus-like particles to induce immunity.
 - They require one initial dose followed by a booster dose 2 years later.
 - They are theoretically protective against the HPV types that account for 40 percent of cervical cancers.
 - All three are Food and Drug Administration (FDA)-approved for the prevention of anogenital and oropharyngeal neoplasia.
- 29–14.** Gardasil, a quadrivalent vaccine against human papillomavirus (HPV) types 6, 11, 16, and 18, has the *potential* to prevent malignancies of which of the following body sites?
- Cervix
 - Anal canal
 - Oropharynx
 - All of the above
- 29–15.** Despite suboptimal vaccination rates in the United States, human papillomavirus (HPV) 6, 11, 16, and 18 vaccine-type infections among U.S. adolescents have decreased by what percentage since vaccine introduction in 2006?
- 0.6 percent
 - 26 percent
 - 56 percent
 - 86 percent
- 29–16.** Risk of cervical intraepithelial neoplasia (CIN) is most strongly related to persistent genital high-risk human papillomavirus infection plus which of the following?
- Tobacco use
 - Increasing age
 - Increasing parity
 - Increasing number of sexual partners

- 29–17.** Of women diagnosed with cervical cancer in the United States, approximately what percentage have *never* been screened?
- 10 percent
 - 30 percent
 - 50 percent
 - 70 percent
- 29–18.** The risk of untreated cervical intraepithelial neoplasia (CIN) 3 lesions progressing over 30 years to invasive cancer approximates what percentage?
- 10 percent
 - 20 percent
 - 30 percent
 - 50 percent
- 29–19.** A 22-year-old woman with a low-grade squamous intraepithelial lesion (LSIL) Pap result is subsequently diagnosed with cervical intraepithelial neoplasia (CIN) 2 by colposcopy-directed biopsy. Colposcopy (as shown) is satisfactory and the endocervical curettage is negative for dysplasia or cancer. She is given the option of undergoing treatment or observation and is counseled that CIN 2 may spontaneously regress without treatment. Approximately what percentage of CIN 2 shows spontaneous regression within 2 years in young, healthy women?



- 10 percent
- 30 percent
- 60 percent
- 90 percent

- 29–20.** Which of the following statements is true regarding conventional glass slide versus liquid-based cytology for cervical cancer screening according to current guidelines?
- Both are equally acceptable for screening.
 - They are now replaced by primary human papillomavirus (HPV) screening.
 - Liquid-based cytology is more sensitive for screening.
 - Conventional glass slide cytology is obsolete and should not be used.
- 29–21.** Which of the following is true regarding the clinical performance of the Pap test?
- Higher sensitivity than specificity
 - Higher specificity than sensitivity
 - Equally low sensitivity and specificity
 - Equally high sensitivity and specificity
- 29–22.** For which of the following patients should initiation of cervical cancer screening be considered according to 2015 Centers for Disease Control and Prevention guidelines?
- A 19-year-old woman who has never been sexually active
 - A 17-year-old woman with multiple sexual partners since age 14 years
 - An 18-year-old woman who has recently been diagnosed with human immunodeficiency virus (HIV) infection
 - A 20-year-old primigravida who presents for her first prenatal examination and who has been sexually active with her first partner for 1 year
- 29–23.** Based on current guidelines, how often should a 52-year-old woman undergo cervical cancer cytology screening if she is at average risk for this cancer and her three previous Pap test results were negative?
- Annually
 - Every 2 years
 - Every 3 years
 - Every 5 years
- 29–24.** If all Pap tests to date have been negative and performed at recommended intervals, cervical cancer screening *discontinuation* would be acceptable for which of the following women?
- A 42-year-old woman with prior hysterectomy for leiomyomas
 - A 72-year-old woman in good health with one prior sexual partner and one new sexual partner for 6 months
 - A 55-year-old woman with metastatic breast cancer refusing further therapeutic cancer interventions
 - All of the above are reasonable candidates for discontinuation of cervical cancer screening.

29–25. Your patient is a healthy 38-year-old woman who underwent a total hysterectomy 1 year ago for benign pathology. She has no prior history of abnormal Pap tests or lower genital tract neoplasia. She smokes cigarettes and has a new sexual partner. Her physical examination is without abnormalities. Which of the following strategies for prevention of lower genital tract neoplasia is indicated?

- Obtain vaginal cytology every 3 years.
- Vaccinate against high-risk human papillomavirus (HPV) infection.
- Obtain vaginal cytology and HPV DNA testing every 3 years.
- Discontinue screening for neoplasia with Pap tests or HPV DNA testing but recommend smoking cessation.

29–26. A 42-year-old patient with normal, cyclic menses is referred for colposcopy following an atypical glandular cells Pap test result. Your initial evaluation of this patient should include which of the following?

- Colposcopy
- Endometrial biopsy
- Endocervical sampling
- All of the above

29–27. Short-term deferral of colposcopy may be considered for which of the following conditions?

- Severe mucopurulent cervicitis
- Mechanical heart valve anticoagulation
- Unscheduled vaginal bleeding on the day of examination
- Last menstrual period began 20 days ago, negative urine pregnancy test, condoms used for contraception

29–28. A 32-year-old woman presents for evaluation of an abnormal Pap test result. The image of her cervix before (A) and after (B) application of 5-percent acetic acid does **NOT** demonstrate which of the following?



- Acetowhite change
- Columnar epithelium
- Squamous epithelium
- Unsatisfactory colposcopy

- 29–29.** During colposcopy and lesion grading, terms used to describe abnormal vascular patterns may include which of the following?
- Mosaicism
 - Punctation
 - Atypical vessel(s)
 - All of the above
- 29–30.** Major clinical guidelines currently recommend endocervical sampling at the time of colposcopy in which of the following situations?
- Adequate colposcopy, no ectocervical lesion identified
 - Initial evaluation of high-grade squamous or atypical glandular cytology results
 - Surveillance after conization for adenocarcinoma in situ in women seeking fertility preservation
 - All of the above
- 29–31.** A 45-year-old woman presents for evaluation of a high-grade squamous intraepithelial lesion (HSIL) Pap test result. Colposcopy is inadequate due to incomplete visualization of the squamocolumnar junction (SCJ). Cervical biopsy shows cervical intraepithelial neoplasia (CIN) 3, and CIN 2 is found in the endocervical curettage specimen. Which of the following is the most appropriate procedure for further management?
- Cryosurgery
 - Hysterectomy
 - Loop excision
 - Laser ablation
- 29–32.** A 55-year-old patient undergoes a conization procedure for cervical intraepithelial neoplasia (CIN 3)/ carcinoma in situ (CIS). Appropriate postexcision surveillance over the subsequent 2 to 3 years reveals no recurrence. Which of the following screening schedules is most appropriate for her beyond this posttreatment surveillance?
- Discontinue screening
 - Annual screening until age 75 then may discontinue
 - Routine screening until age 65 then may discontinue
 - Routine screening for at least 20 years even if screening extends beyond age 65

- 29–33.** An asymptomatic 27-year-old nulligravida is referred to you for evaluation of a low-grade squamous intraepithelial lesion (LSIL). Pap test result. Colposcopy is negative for cervical lesions. After application of 5-percent acetic acid, vaginal lesions (shown here) appear scattered in numerous locations along the vaginal walls. A biopsy of a representative lesion shows features characteristic of human papillomavirus (HPV) infection and low-grade vaginal intraepithelial neoplasia (VaIN 1). Which of the following is the best option for management of these vaginal lesions?



Reproduced with permission from Werner CL, Griffith WF: Preinvasive lesions of the lower reproductive tract. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 29-17.

- Observation
- Laser ablation
- HPV vaccination
- Intravaginal fluorouracil (5-FU) cream

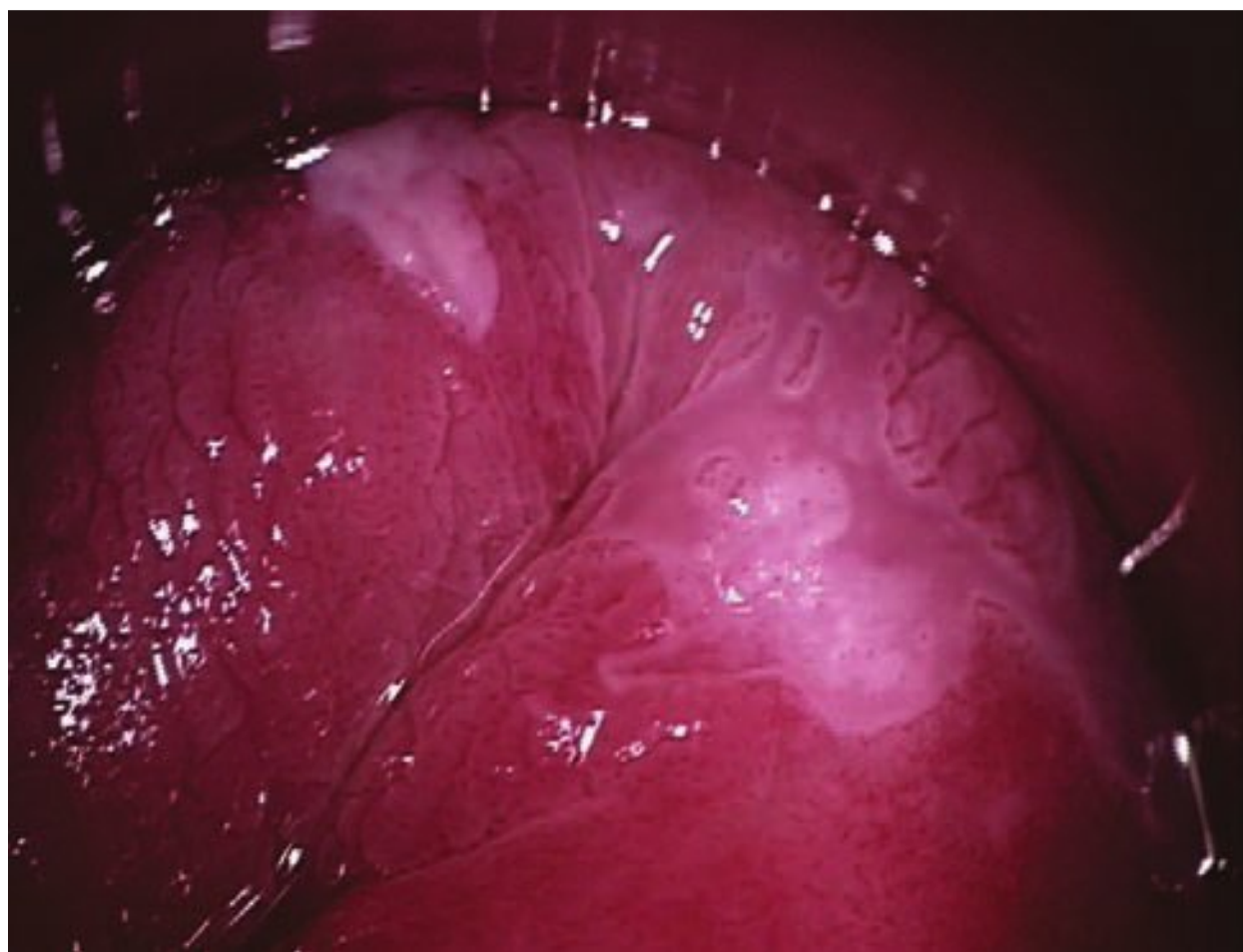
29–34. A 48-year-old multipara presents with a vulvar lesion that causes itching and burning. She believes the lesion has been present and increasing in size for the past 2 years. She has no medical problems but is a long-time cigarette smoker. She was treated for cervical intraepithelial neoplasia (CIN) 3 in the past. Her lesion (shown here) is histologically most likely to show which of the following?



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- a. Paget disease
- b. Condyloma accuminata
- c. Squamous cell hyperplasia
- d. Vulvar intraepithelial neoplasia (VIN) 3

29–35. Which of the following are risk factors for anal intraepithelial neoplasia (AIN) shown here during high-resolution anoscopy?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Naomi Jay RN NP PhD.

- a. Human immunodeficiency virus (HIV) infection
- b. Tobacco smoking
- c. Anal receptive intercourse
- d. All of the above

29–36. Human immunodeficiency virus (HIV)-infected women have a high burden of human papillomavirus (HPV)-associated anogenital disease. In this population, up to what percentage of Pap test results are abnormal?

- a. 3 percent
- b. 30 percent
- c. 60 percent
- d. 90 percent

29–37. The Centers for Disease Control and Prevention (2015) recommend cervical cytologic screening every 6 months for the first year after initial diagnosis of a human immunodeficiency virus (HIV) infection. Thereafter, the American College of Obstetricians and Gynecologists (2012) recommends which of the following Pap testing strategies for human immunodeficiency virus (HIV)-infected women?

- a. Indefinite annual screening
- b. Screening every 2 to 3 years until age 75
- c. Cotesting every 3 years but discontinue beyond age 65 if two consecutive negative results are documented
- d. Annual screening but discontinue after age 65 years if there are three prior negative screening test results

References

Centers for Disease Control and Prevention: Sexually transmitted diseases treatment guidelines. *MMWR Recomm Rep*; 64(3): 1, 2015.

American College of Obstetricians and Gynecologists: Gynecologic care for women with human immunodeficiency virus. *Practice Bulletin No. 117*, December 2010, Reaffirmed 2012.

Chapter 29 ANSWER KEY

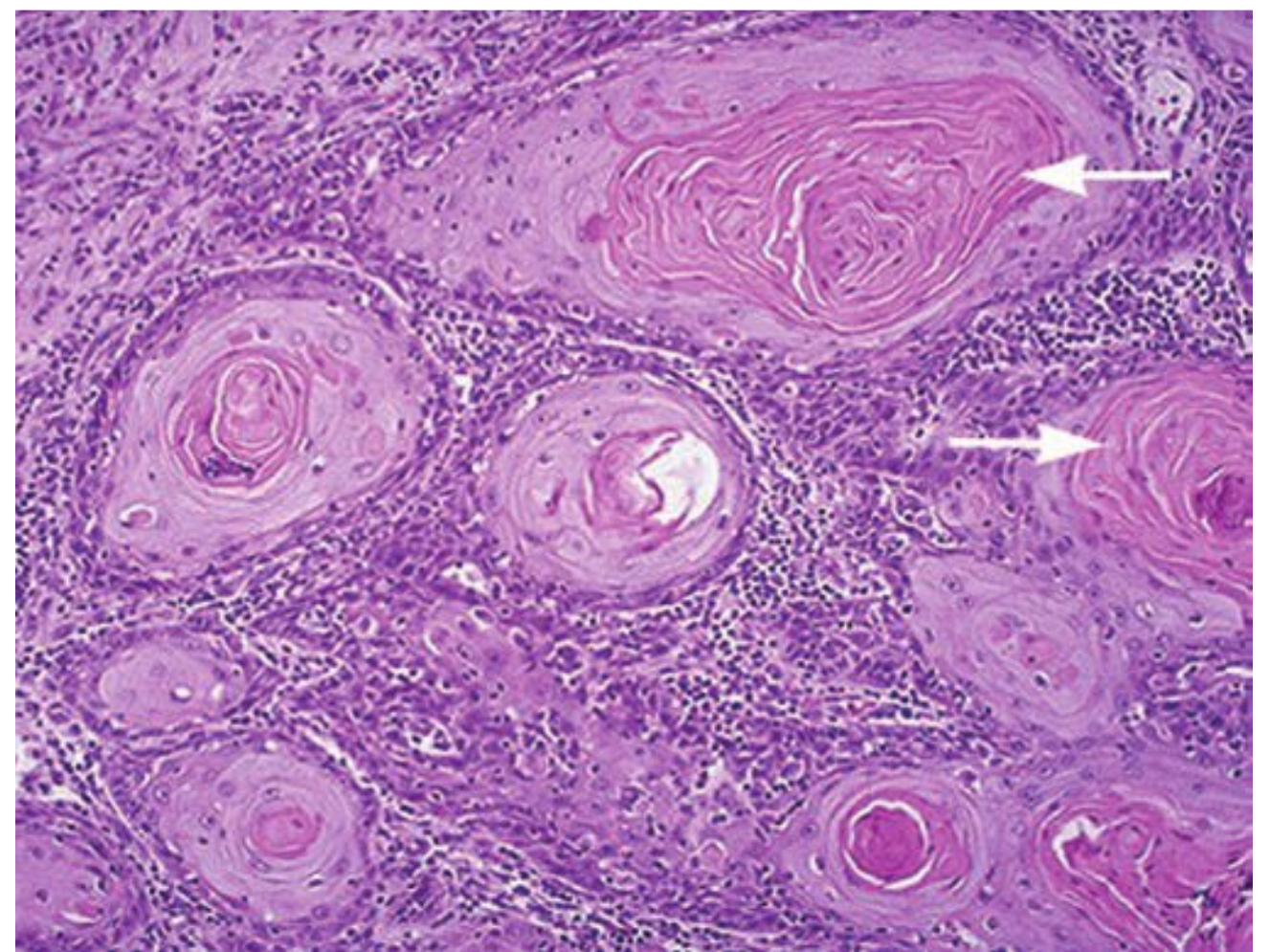
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
29-1	c	624	Preinvasive Lesions of the Lower Genital Tract	29-19	c	631	Natural History
29-2	c	624	Preinvasive Lesions of the Lower Genital Tract	29-20	a	632	Cervical Cytology
29-3	d	624	Lower Genital Tract Neoplasia	29-21	b	632	Cervical Cytology
29-4	b	625	Squamocolumnar Junction	29-22	c	634	Screening Initiation
29-5	b	625	Squamous Metaplasia	29-23	c	634	Screening Interval and Strategy
29-6	a	627	Basic Virology	29-24	d	635	Screening Discontinuation
29-7	c	627	Basic Virology	29-25	d	635	Posthysterectomy
29-8	d	627	Basic Virology	29-26	d	636	Glandular Cell Abnormalities
29-9	c	628	Infection Outcomes	29-27	a	640	Table 29-6
29-10	d	629	Infection Diagnosis	29-28	d	638	Examination
29-11	d	629	Infection Diagnosis	29-29	d	639	Lesion Grading
29-12	b	629	Infection Treatment	29-30	d	641	Endocervical Sampling
29-13	a	630	Vaccines	29-31	c	643	Excision
29-14	d	630	Vaccines	29-32	d	644	Surveillance after Treatment
29-15	c	630	Vaccines	29-33	a	645	Low-Grade VaIN
29-16	b	631	Risk Factors	29-34	d	648	Clinical Findings
29-17	c	631	Risk Factors	29-35	d	650	Pathophysiology
29-18	c	631	Natural History	29-36	c	651	HIV-Infected Patients
				29-37	a	651	HIV-Infected Patients

CHAPTER 30

Cervical Cancer

- 30–1.** Which of the following statements regarding cervical cancer is **NOT** true?
- It is the most common gynecologic cancer in women worldwide.
 - It is the second most common cancer diagnosed in women worldwide.
 - In the United States, Hispanic women have the highest incidence rate.
 - In the United States, African–American women have the highest mortality rate.
- 30–2.** Which human papillomavirus (HPV) subtype is most strongly associated with adenocarcinoma of the cervix?
- HPV 6
 - HPV 16
 - HPV 18
 - HPV 31
- 30–3.** Which of the following is true regarding smoking and cervical cancer risk?
- Smoking may alter viral oncoprotein expression.
 - Passive smoking increases the risk of cervical cancer.
 - Women who smoke are less likely to clear high-risk human papillomavirus (HPV) infection.
 - All of the above
- 30–4.** Which of the following statements regarding cervical cancer risk factors is **FALSE**?
- Cervical cancer is an acquired immune deficiency syndrome (AIDS)-defining illness.
 - Transplant recipients have an increased risk of cervical cancer.
 - In general, women who have an autoimmune disease and take immunosuppressant therapy do not have an increased risk of cervical cancer.
 - Combination oral contraceptives are associated with an increased risk of cervical cancer due to the higher number of sexual partners in users.

- 30–5.** What does the human papillomavirus (HPV) oncoprotein E6 bind and inactivate, leading to immortalization of the cell?
- Rb
 - p16
 - p53
 - Cyclin D1
- 30–6.** Which histologic subtype of cervical carcinoma is represented in this micrograph? Arrows point to keratin pearls.



- Melanoma
 - Adenocarcinoma
 - Squamous cell carcinoma
 - Neuroendocrine carcinoma
- 30–7.** Which histologic subtype of cervical cancer is associated with Peutz–Jeghers syndrome?
- Adenoma malignum
 - Clear cell adenocarcinoma
 - Glassy cell adenocarcinoma
 - Villoglandular adenocarcinoma
- 30–8.** Which of the following should **NOT** be used for hemostasis in cases of life-threatening hemorrhage from cervical cancer?
- Lugol solution
 - Emergent radiation
 - Uterine artery embolization
 - Monsel (ferric subsulfate) solution

- 30–9.** In patients with stage I cervical cancer, what percentage of Pap tests are read as consistent with cancer?
- 5 to 10 percent
 - 10 to 20 percent
 - 30 to 50 percent
 - 60 to 80 percent
- 30–10.** A woman presents for a routine health maintenance visit. The following is visualized during speculum examination. What is the most appropriate next step?



- Perform a Pap test
 - Perform a cervical biopsy
 - Refer to a gynecologic oncologist
 - Obtain abdominopelvic computed tomography
- 30–11.** Which of the following tests is **NOT** used for staging cervical cancer per the International Federation of Gynecology and Obstetrics (FIGO)?
- Cystoscopy
 - Chest radiograph
 - Intravenous pyelogram
 - Computed tomography scan
- 30–12.** A woman undergoes a radical hysterectomy, bilateral pelvic and paraaortic lymph node dissection for a 4-cm squamous cell carcinoma of the cervix. On final pathology report, the parametria are noted to contain tumor. What stage is her cervical cancer?
- IB1
 - IB2
 - IIA1
 - IIB2

- 30–13.** A 45-year-old woman has a 6-cm adenocarcinoma of the cervix. She has positive paraaortic nodes found during positron emission tomography (PET) scanning and the following finding during intravenous pyelography. What stage is assigned to her cervical cancer?



- IB2
 - IIB2
 - IIIB
 - IVB
- 30–14.** A 38-year-old woman with stage IIB cervical cancer has positron emission tomography (PET) scanning that shows positive pelvic lymph nodes. In response, she undergoes a laparoscopic extraperitoneal paraaortic lymph node dissection. Histologic review shows that the paraaortic nodes are positive for tumor. What is the most appropriate treatment?
- Chemoradiation with extended field radiation
 - Chemotherapy alone, since this represents metastatic disease
 - Chemoradiation to pelvis alone, since involved nodes were removed
 - None of the above
- 30–15.** Among the following, which is the most significant prognostic factor for early-stage cervical cancer?
- Grade
 - Histology
 - Depth of invasion
 - Lymph node metastasis
- 30–16.** What is the most appropriate surgical approach for a woman who has a stage IA1 squamous cell carcinoma of the cervix and has completed childbearing?
- Cold-knife conization
 - Extracapsular hysterectomy
 - Type III radical hysterectomy
 - Modified (Type II) radical hysterectomy

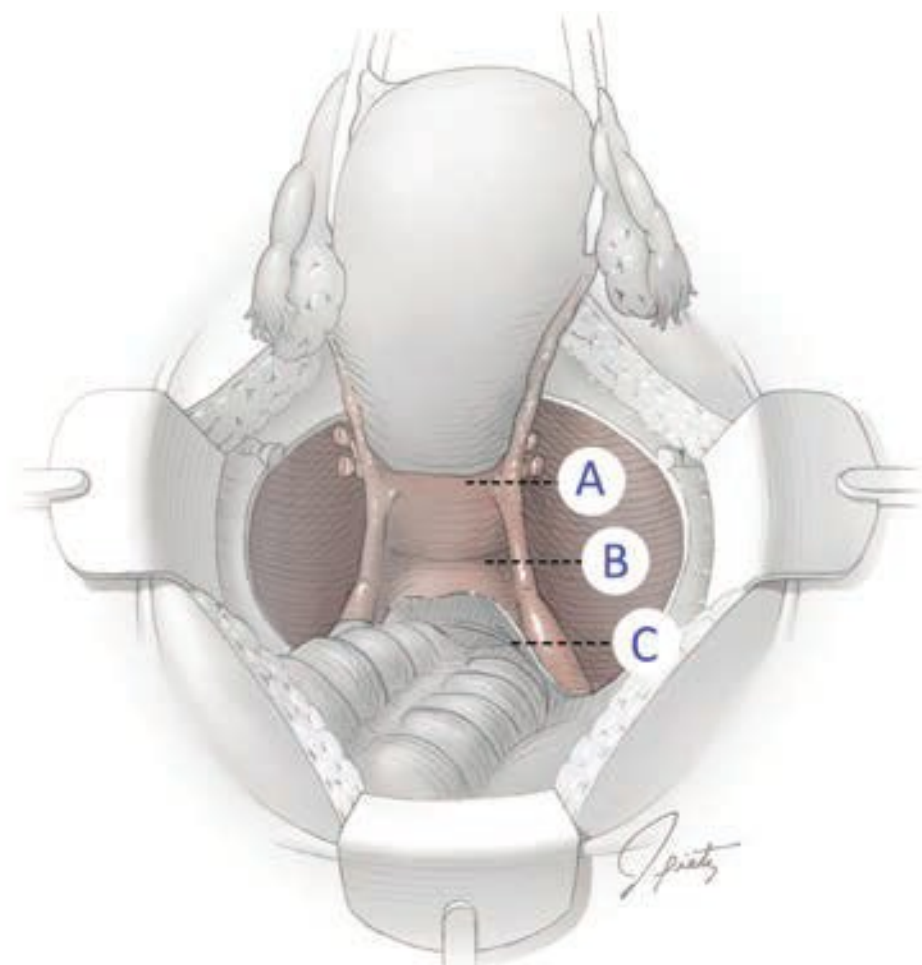
30–17. What is the most appropriate treatment for a 30-year-old woman who has stage IA1 adenocarcinoma of the cervix, negative lymphovascular space invasion (LVSI), and strongly desires future fertility?

- Trachelectomy
- Cold-knife conization
- Extrafascial hysterectomy
- Modified (Type II) radical hysterectomy

30–18. Where is the uterine artery ligated during a Type III radical hysterectomy?

- At the uterine isthmus
- At the level of the ureter
- At the origin of the uterine artery
- At the level of the uterosacral ligament

30–19. Which of the labels in this diagram indicates where the uterosacral ligament is ligated during Type II radical hysterectomy?



- A
- B
- C
- None of the above

30–20. Which of the following statements about radical trachelectomy is **FALSE**?

- Cesarean delivery is required if pregnancy achieved.
- Preterm birth rates are increased after radical trachelectomy.
- At least 1 cm of endocervix must remain attached to the uterus.
- If the shave margin is positive, hysterectomy is completed.

30–21. Cold-knife conization is performed for a 37-year-old woman with cervical intraepithelial neoplasia (CIN) 3 found in both cervical biopsy and endocervical curettage. She has completed childbearing. The cone biopsy specimen is shown in the photograph, and a stitch is placed at 12:00. The final pathology report notes a grade 2 invasive squamous cell carcinoma that has a depth of invasion of 2 mm and a width of invasion of 8 mm. CIN 3 is present at the excision margins. What is the most appropriate next step?



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- Extrafascial hysterectomy
- Radiation with concomitant chemotherapy
- A second cold-knife conization and endocervical curettage
- Type III radical hysterectomy with pelvic lymph node dissection

30–22. Which of the following patients should be treated with chemoradiation rather than radical hysterectomy for a stage IB1 squamous cell carcinoma of the cervix?

- A 35-year-old woman with a body mass index (BMI) of 37
- A 55-year-old woman with diabetes, hypertension, and a BMI of 30
- A 40-year-old woman with moderate to severe pulmonary hypertension and a BMI of 22
- A 65-year-old woman with systemic lupus erythematosus, chronic renal insufficiency, and a BMI of 24

30–23. What percentage of women who have adenocarcinoma of the cervix have ovarian metastasis?

- 0.4 percent
- 2 percent
- 20 percent
- 40 percent

- 30–24.** Approximately what percentage of patients undergoing radical hysterectomy for early-stage cervical cancer will be found to have grossly positive nodes?
- 0.3 percent
 - 7 percent
 - 30 percent
 - 70 percent
- 30–25.** Which of the following factors is **NOT** used to determine if a patient has an intermediate risk for recurrence after radical hysterectomy for early-stage cervical cancer?
- Lymph node involvement
 - Clinical tumor diameter
 - Depth of stromal invasion
 - Lymphovascular space involvement
- 30–26.** During brachytherapy, which of the following defines point A?
- 2 cm lateral and 2 cm superior to the external os
 - 5 cm lateral and 2 cm superior to the external os
 - 2 cm lateral and 5 cm superior to the external os
 - 5 cm lateral and 2 cm superior to the internal os
- 30–27.** Which of the following is the most commonly used radiation sensitizer for the treatment of cervical cancer?
- Cisplatin
 - Paclitaxel
 - Carboplatin
 - 5-Fluorouracil
- 30–28.** A 39-year-old woman was treated with chemoradiation for stage IIB adenocarcinoma of the cervix. She has bothersome hot flashes and vaginal dryness. How should you treat her menopausal symptoms?
- Citalopram
 - Venlafaxine
 - Vaginal estrogen
 - Combination estrogen and progesterone
- 30–29.** Which of the following signs or symptoms is **NOT** part of the classic triad that suggests pelvic sidewall disease?
- Lymphedema
 - Hydronephrosis
 - Pelvic lymphadenopathy
 - Back pain which radiates down the leg
- 30–30.** If a patient with stage IB1 squamous cell carcinoma recurs at the vagina after a radical hysterectomy and pelvic lymph node dissection, what is the most appropriate treatment?
- Chemoradiation
 - Radiation alone
 - Systemic chemotherapy
 - Total pelvic exenteration
- 30–31.** Which of the following is the most appropriate chemotherapy regimen for newly diagnosed stage IVB adenocarcinoma of the cervix?
- Cisplatin and topotecan
 - Cisplatin and paclitaxel
 - Cisplatin, topotecan, and bevacizumab
 - Cisplatin, paclitaxel, and bevacizumab
- 30–32.** A 29-year-old primigravida at 10 weeks' gestation has a Pap test result of adenocarcinoma in situ (AIS). Colposcopy and biopsies performed are concerning for invasive adenocarcinoma. What is the best next step?
- Pregnancy termination
 - Conization at 6 weeks' postpartum
 - Cesarean radical hysterectomy at term
 - Conization early in the second trimester
- 30–33.** A 32-year-old multigravida presents with vaginal spotting at 33 weeks' gestation. Physical examination reveals a fungating cervical mass, and biopsy confirms invasive squamous cell carcinoma. She undergoes cesarean delivery followed immediately by radical hysterectomy. The specimen is shown here. Which of the following statements is **FALSE**?



- Pelvic lymphadenectomy should be performed.
- Classical cesarean delivery is performed to reduce blood loss.
- Classical cesarean delivery is performed to reduce the risk of tumor spread.
- The patient should be promptly delivered by cesarean delivery after giving corticosteroids for fetal lung maturity.

Chapter 30 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
30-1	b	p. 657	Incidence	30-19	b	p. 669	Table 30-7
30-2	c	p. 657	Risks	30-20	c	p. 670	Radical Trachelectomy
30-3	d	p. 657	Risks	30-21	d	p. 670	Stage IB to IIA Treatment
30-4	d	p. 657	Risks	30-22	c	p. 670	Stage IB to IIA Treatment
30-5	c	p. 658	Tumorigenesis	30-23	b	p. 670	Stage IB to IIA Treatment
30-6	c	p. 660	Squamous Cell Carcinoma	30-24	b	p. 671	Positive Pelvic Lymph Nodes
30-7	a	p. 661	Adenocarcinoma	30-25	a	p. 671	Recurrence Risk
30-8	a	p. 662	Symptoms	30-26	a	p. 672	Radiation Therapy
30-9	c	p. 663	Papanicolaou Test and Cervical Biopsy	30-27	a	p. 672	Chemoradiation
30-10	b	p. 663	Papanicolaou Test and Cervical Biopsy	30-28	d	p. 673	Hormone Therapy
30-11	d	p. 663	Staging	30-29	c	p. 673	Pelvic Exenteration for Secondary Disease
30-12	a	p. 663	Staging, Table 30-4	30-30	a	p. 674	Radiotherapy or Chemotherapy for Secondary Disease
30-13	c	p. 663	Staging, Table 30-4	30-31	d	p. 674	Radiotherapy or Chemotherapy for Secondary Disease
30-14	a	p. 666	Lymph Node Dissection	30-32	d	p. 675	Diagnosis
30-15	d	p. 666	Prognosis	30-33	d	p. 675	Stages I and II Cancer in Pregnancy
30-16	b	p. 667	Stage IA1				
30-17	b	p. 667	Stage IA1				
30-18	c	p. 669	Table 30-7				

CHAPTER 31

Vulvar Cancer

- 31-1.** Which of the following is **NOT** part of the superficial urogenital triangle?
- Gracilis muscle
 - Bulbocavernosus muscle
 - Ischiocavernosus muscle
 - Superficial transverse perineal muscle

- 31-2.** Which of the following is **NOT** part of the femoral triangle?
- Gracilis muscle
 - Sartorius muscle
 - Inguinal ligament
 - Adductor longus muscle

- 31-3.** What is the structure indicated by the arrow?



- Gracilis muscle
 - Sartorius muscle
 - Adductor brevis muscle
 - Adductor longus muscle
- 31-4.** Approximately how many women are diagnosed with vulvar cancer annually in the United States?
- 1500
 - 4800
 - 7600
 - 14,500

- 31-5.** Squamous cell carcinoma is the most common histologic subtype of vulvar cancer. What is the second most common histologic type?
- Sarcoma
 - Melanoma
 - Basal cell
 - Adenocarcinoma

- 31-6.** Which of the following is **NOT** a risk factor for vulvar cancer?
- Lichen planus
 - Tobacco abuse
 - Lichen sclerosus
 - Human papillomavirus infection

- 31-7.** Of vulvar cancers, approximately what percentage is positive for human papillomavirus (HPV)?
- 5 percent
 - 30 percent
 - 60 percent
 - 90 percent

- 31-8.** A 39-year-old woman is referred for a painful 3-cm vulvar mass. Biopsy of the mass reveals invasive squamous cell carcinoma. Which of the following tests should be performed prior to definitive surgery?
- Vulvoscopy
 - Cervical cytology
 - Human immunodeficiency virus (HIV) assay
 - All of the above

- 31-9.** A 68-year-old woman presents for her annual well woman examination and complains vulvar pruritus. A thickened, white plaque is noted on her vulvar skin. What is the most appropriate next step?
- Biopsy the lesion in the office
 - Prescribe clobetasol cream and reevaluate in 3 months
 - Prescribe estrogen cream and reevaluate in 3 months
 - Perform a wide local excision in the operating room

- 31–10.** A radical vulvectomy with bilateral inguinofemoral lymph node dissection is performed for a 5-cm invasive squamous cell carcinoma of the vulva involving the lower third of the vagina. The pathology report notes that excision margins and lymph nodes are negative for tumor involvement. What is her clinical stage?
- I
 - II
 - III
 - IVA
- 31–11.** A 71-year-old woman undergoes pelvic computed tomography (CT) after presenting with a large vulvar mass and grossly enlarged groin nodes. Biopsy of the vulvar mass revealed poorly differentiated squamous cell carcinoma. The CT scan reveals right pelvic lymphadenopathy. What cancer stage is assigned if her pelvic lymph nodes contain cancer?
- IIIB
 - IIIC
 - IVA
 - IVB
- 31–12.** With squamous cell carcinoma of the vulva, what is the risk of lymph node metastasis with 2-mm depth of invasion?
- 0.03 percent
 - 0.9 percent
 - 9 percent
 - 33 percent
- 31–13.** What is the most important prognostic factor in vulvar cancer?
- Grade
 - Tumor size
 - Depth of invasion
 - Lymph node metastasis
- 31–14.** Which of the following is **NOT** associated with an increased risk of lymph node metastasis?
- Clitoral lesion
 - Depth of invasion
 - Increasing tumor diameter
 - Lymphovascular space invasion
- 31–15.** Which of the following correctly defines how depth of invasion is measured for vulvar cancer?
- From the epidermal surface to the greatest depth of tumor invasion
 - From the deepest dermal papilla to the greatest depth of tumor invasion
 - From the greatest depth of tumor invasion to the dermal-subcutaneous junction
 - From the epithelial-stromal junction of the adjacent, most superficial dermal papilla to the greatest depth of tumor invasion
- 31–16.** What is the approximate risk of recurrence if the margin of resection of a vulvar cancer is < 8 mm?
- 1 to 10 percent
 - 11 to 20 percent
 - 21 to 50 percent
 - 71 to 90 percent
- 31–17.** What is the most common complication of an inguinofemoral lymph node dissection?
- Lymphocele
 - Lymphedema
 - Groin infection
 - Wound dehiscence
- 31–18.** The rate of which of the following complications is reduced by leaving the cribriform fascia intact?
- Infection
 - Lymphedema
 - Wound breakdown
 - All of the above
- 31–19.** Which of the following lesions is **NOT** an appropriate candidate for a sentinel lymph node biopsy?
- 2.5-cm lesion with 1-mm depth of invasion
 - 3-cm lesion located 1 cm from the midline
 - 1.5-cm lesion with 0.8-mm depth of invasion
 - 3-cm midline lesion with 4-mm depth of invasion
- 31–20.** Sentinel lymph node mapping for vulvar cancer involves the injection of what substance(s) at the leading edge of the tumor?
- Indigo carmine
 - Methylene blue
 - Isosulfan blue and radionuclide
 - Methylene blue and radionuclide

- 31–21.** What depth-of-invasion threshold defines microinvasive vulvar cancer? This cancer stage is notable for its little or no associated risk for inguinal lymph node metastasis.
- ≤ 1 mm
 - ≤ 3 mm
 - ≤ 5 mm
 - ≤ 7 mm
- 31–22.** A 60-year-old woman presents to your office with complaints of vulvar bleeding and pain. During examination, you note a 4.5-cm anterior vulvar tumor (shown below). Inguinal adenopathy is absent. Vulvar biopsy reveals invasive squamous cell carcinoma. What is the most appropriate management?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr. William Griffith.

- Radical anterior vulvectomy with bilateral sentinel node biopsy
 - Radical complete vulvectomy with bilateral sentinel node biopsy
 - Radical anterior vulvectomy with unilateral sentinel node biopsy
 - Radical anterior vulvectomy with bilateral inguofemoral lymph node dissection
- 31–23.** A 60-year-old woman presents with a 3-cm lesion located on her left labium minus with enlarged, non-fixed left groin lymph nodes. Which of the following is the most appropriate treatment?
- Radical partial vulvectomy with sentinel node biopsy
 - Radical partial vulvectomy with left groin node debulking
 - Neoadjuvant chemoradiation followed by radical vulvectomy
 - Radical partial vulvectomy with radiation to left groin nodes
- 31–24.** You perform a radical vulvectomy with bilateral inguofemoral lymphadenectomy for a woman with a 4-cm squamous cell carcinoma of the vulva. Margins are negative for tumor, but there are two cancer-positive inguinal lymph nodes. What is the most appropriate treatment?
- Close observation
 - Pelvic lymph node dissection
 - Chemoradiation to the vulva and groins
 - Chemoradiation to the groins and pelvis
- 31–25.** A 63-year-old woman has a history of stage IIIA squamous cell carcinoma of the vulva that was treated by radical partial vulvectomy with bilateral inguofemoral lymphadenectomy. She develops a 1-cm recurrence on her right vulva. What is the most appropriate treatment?
- Radiation
 - Chemoradiation
 - Systemic chemotherapy
 - Radical partial vulvectomy
- 31–26.** A 57-year-old woman presents with a 4-cm, cauliflower-like mass on her vulva, located within 1 cm of midline. Biopsy reveals verrucous carcinoma. What is the most appropriate treatment?
- Wide local excision with 1-cm margin
 - Radical partial vulvectomy with sentinel node biopsy
 - Wide local excision with 1-cm margin and sentinel node biopsy
 - Radical partial vulvectomy with bilateral inguofemoral lymphadenectomy

31–27. Which of the following is **NOT** true regarding the tumor seen in the picture below?



- a. It tends to occur in elderly patients.
 - b. It most commonly arises from the labia minora, labia majora, or clitoris.
 - c. The differential diagnosis includes seborrheic keratosis and dysplastic nevus.
 - d. It is more common in African Americans and other racial groups than in white women.
- 31–28.** Which of the following does **NOT** increase the risk of lymph node metastasis in vulvar melanoma?
- a. Lesion diameter
 - b. Tumor thickness
 - c. High mitotic rate
 - d. Lesion ulceration
- 31–29.** For the treatment of metastatic melanoma, which of the following mutations has a targeted agent?
- a. p53
 - b. BRAF
 - c. IFN- α
 - d. CTLA-4
- 31–30.** What is the most appropriate treatment for a 3-cm right vulvar basal cell carcinoma that lies 2 cm from the midline and that lacks associated inguinal lymphadenopathy?
- a. Imiquimod
 - b. Primary radiation
 - c. Radical partial vulvectomy
 - d. Radical vulvectomy with bilateral inguofemoral lymph node dissection

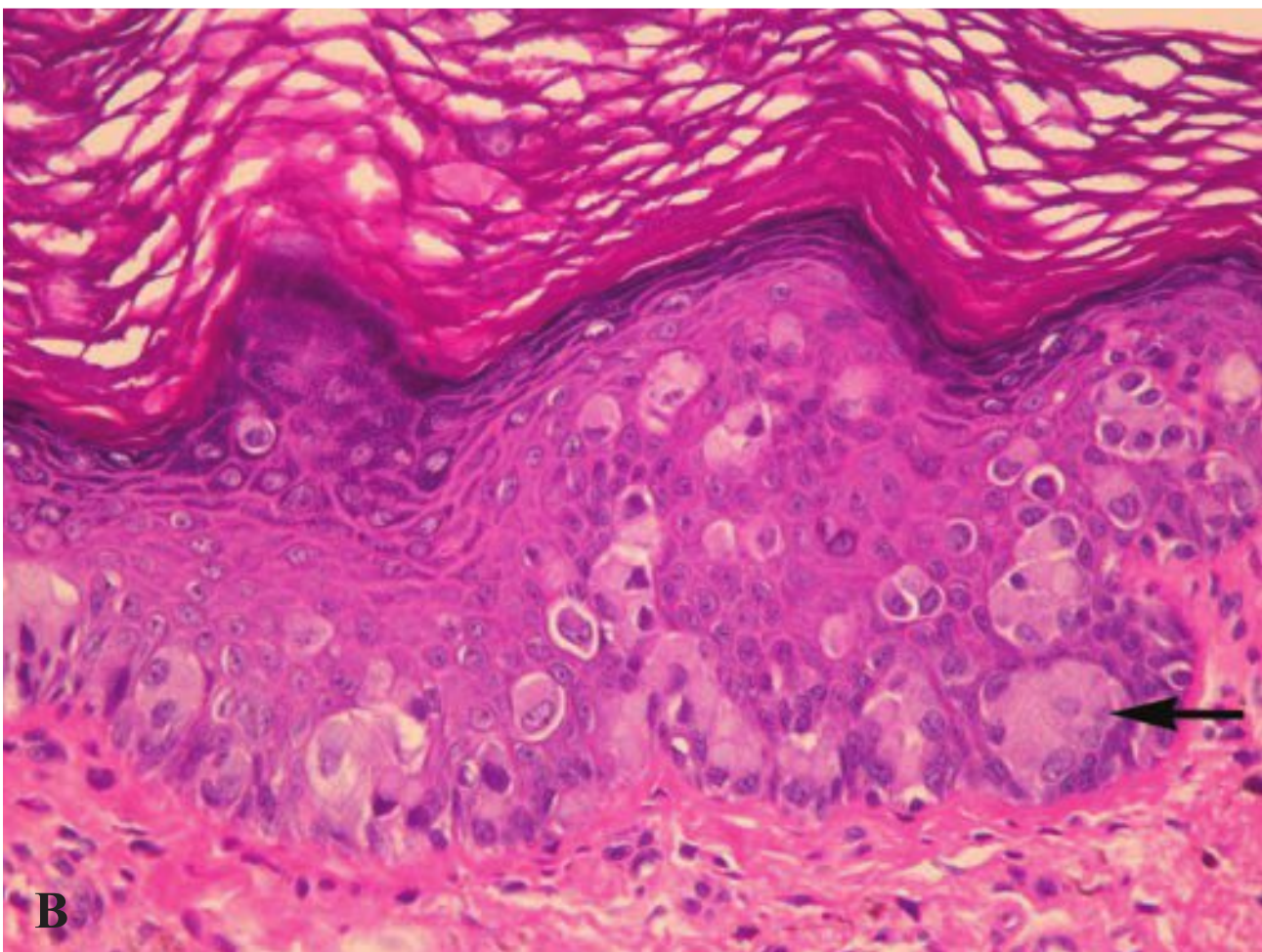
31–31. A 55-year-old woman presents with dyspareunia and the vulvar mass seen in the below picture. She denies prior Bartholin gland duct problems. What is the most appropriate initial management step?



Used with permission from Dr. William N. Denson.

- a. Antibiotics
 - b. Radical vulvectomy
 - c. Incision and drainage, biopsy of cyst wall
 - d. Radical vulvectomy with inguofemoral lymphadenectomy
- 31–32.** Which vulvar lesion can be associated with a primary cancer at a distant site?
- a. Lichen planus
 - b. Paget disease
 - c. Lichen sclerosus
 - d. Basal cell carcinoma

31–33. What condition is illustrated in the photographs below? The first picture demonstrates physical examination findings. Cells pathognomonic to this condition are illustrated in the second picture.



B. Reproduced with permission from Lea J: Vulvar cancer. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 31-13B.

- a. Vulvar melanoma
- b. Lichen sclerosus
- c. Vulvar Paget disease
- d. Vulvar squamous cell carcinoma

Chapter 31 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
31-1	a	p. 679	Relevant Anatomy	31-19	c	p. 685	Inguinofemoral Lymphadenectomy; Sentinel Lymph Node Biopsy
31-2	a	p. 679	Relevant Anatomy	31-20	c	p. 686	Sentinel Lymph Node Biopsy
31-3	d	p. 679	Relevant Anatomy	31-21	a	p. 687	Microinvasive Tumors (Stage IA)
31-4	b	p. 679	Epidemiology	31-22	d	p. 687	Stage IB-II
31-5	b	p. 679	Epidemiology	31-23	b	p. 687	Stage III
31-6	a	p. 680	Risk Factors	31-24	d	p. 687	Stage III
31-7	c	p. 680	Risk Factors	31-25	d	p. 688	Vulvar Recurrences
31-8	d	p. 680	Risk Factors	31-26	a	p. 688	Verrucous Carcinoma
31-9	a	p. 681	Lesion Evaluation	31-27	d	p. 688	Melanoma
31-10	b	p. 682	Table 31-2, Figure 31-5	31-28	a	p. 689	Surgery
31-11	d	p. 682	Table 31-2, Figure 31-5	31-29	b	p. 689	Metastatic Disease
31-12	c	p. 684	Table 31-3	31-30	c	p. 690	Basal Cell Carcinoma
31-13	d	p. 682	Prognosis	31-31	c	p. 691	Bartholin Gland Carcinoma
31-14	a	p. 682	Prognosis	31-32	b	p. 691	Vulvar Paget Disease
31-15	d	p. 682	Prognosis	31-33	c	p. 691	Vulvar Paget Disease
31-16	c	p. 682	Prognosis				
31-17	b	p. 686	Table 31-4				
31-18	d	p. 685	Inguinofemoral Lymphadenectomy				

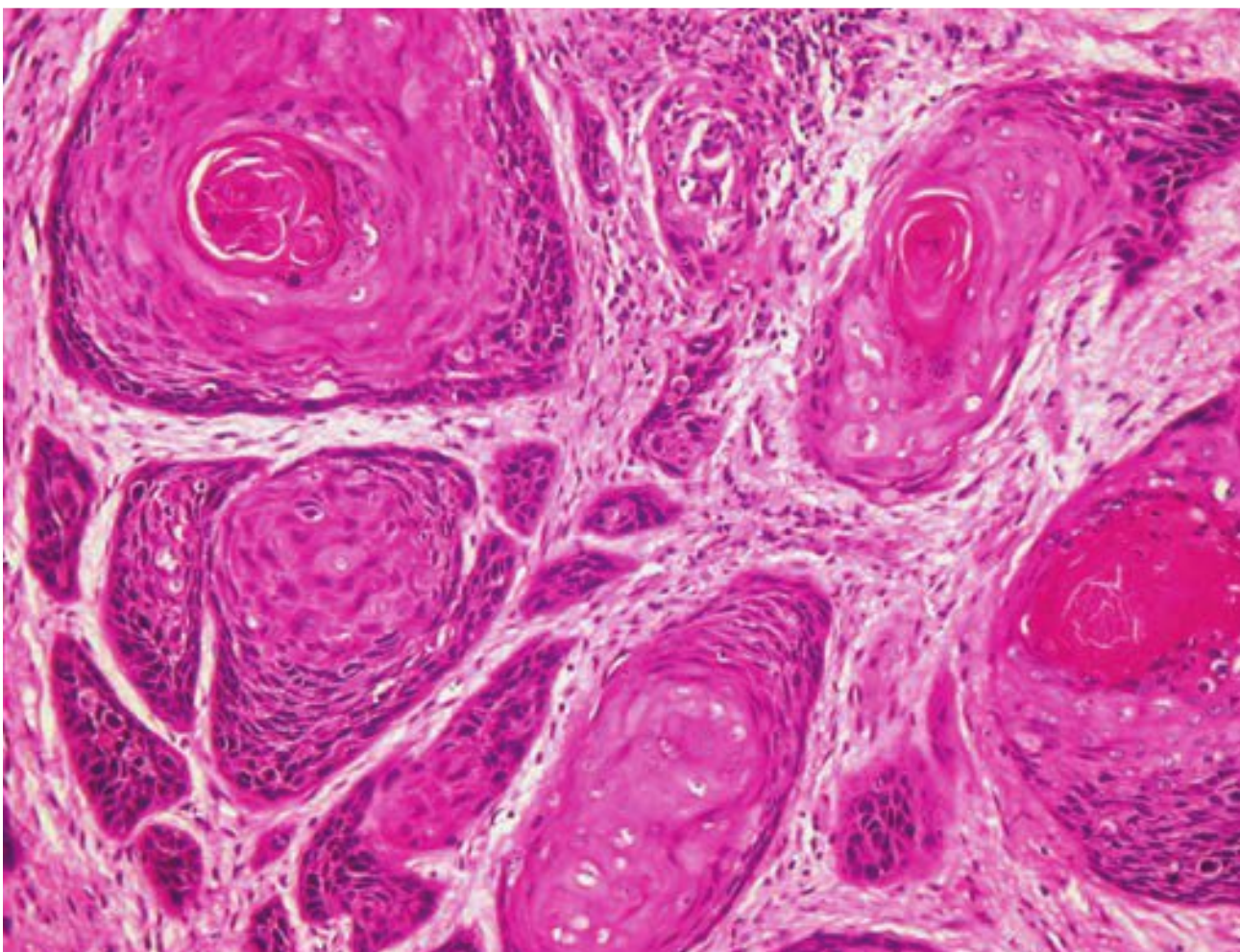
CHAPTER 32

Vaginal Cancer

32-1. Primary vaginal cancer comprises what percentage of gynecologic malignancies?

- a. 3 percent
- b. 7 percent
- c. 13 percent
- d. 17 percent

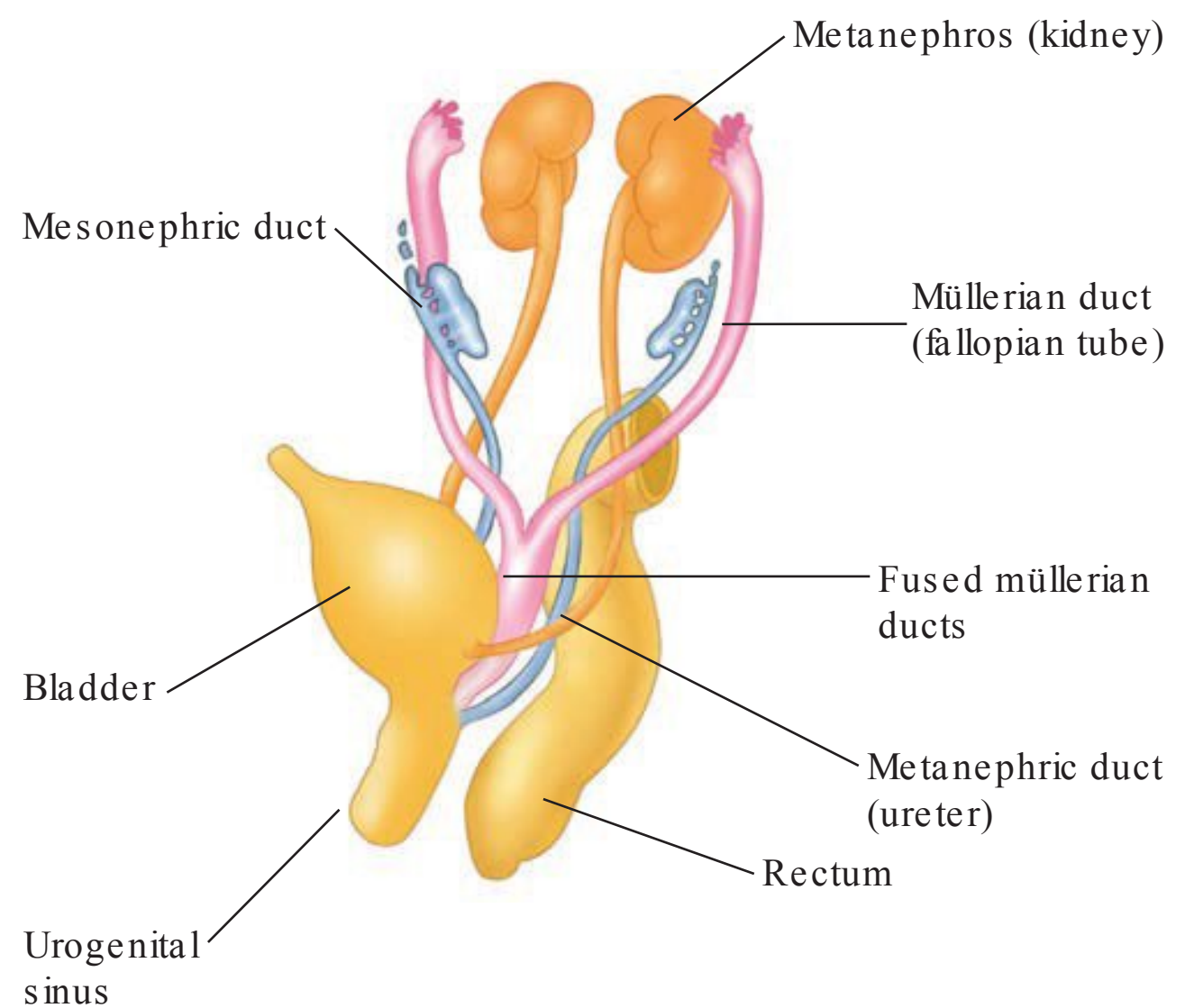
32-2. Shown here, most primary vaginal cancers are what histologic type?



Used with permission from Dr. Kelley Carrick.

- a. Leiomyosarcoma
- b. Squamous cell carcinoma
- c. Clear cell adenocarcinoma
- d. Endometrioid adenocarcinoma

32-3. The caudal ends of the fused müllerian ducts (shown here) form the proximal vagina and are originally lined by which of the following epithelia?



Reproduced with permission from Shatzkes DR, Haller JO, Velcek FT: Imaging of utero-vaginal anomalies in the pediatric patient. *Urol Radiol* 1991;13(1):58-66.

- a. Columnar
- b. Simple cuboidal
- c. Transitional cell
- d. Stratified squamous

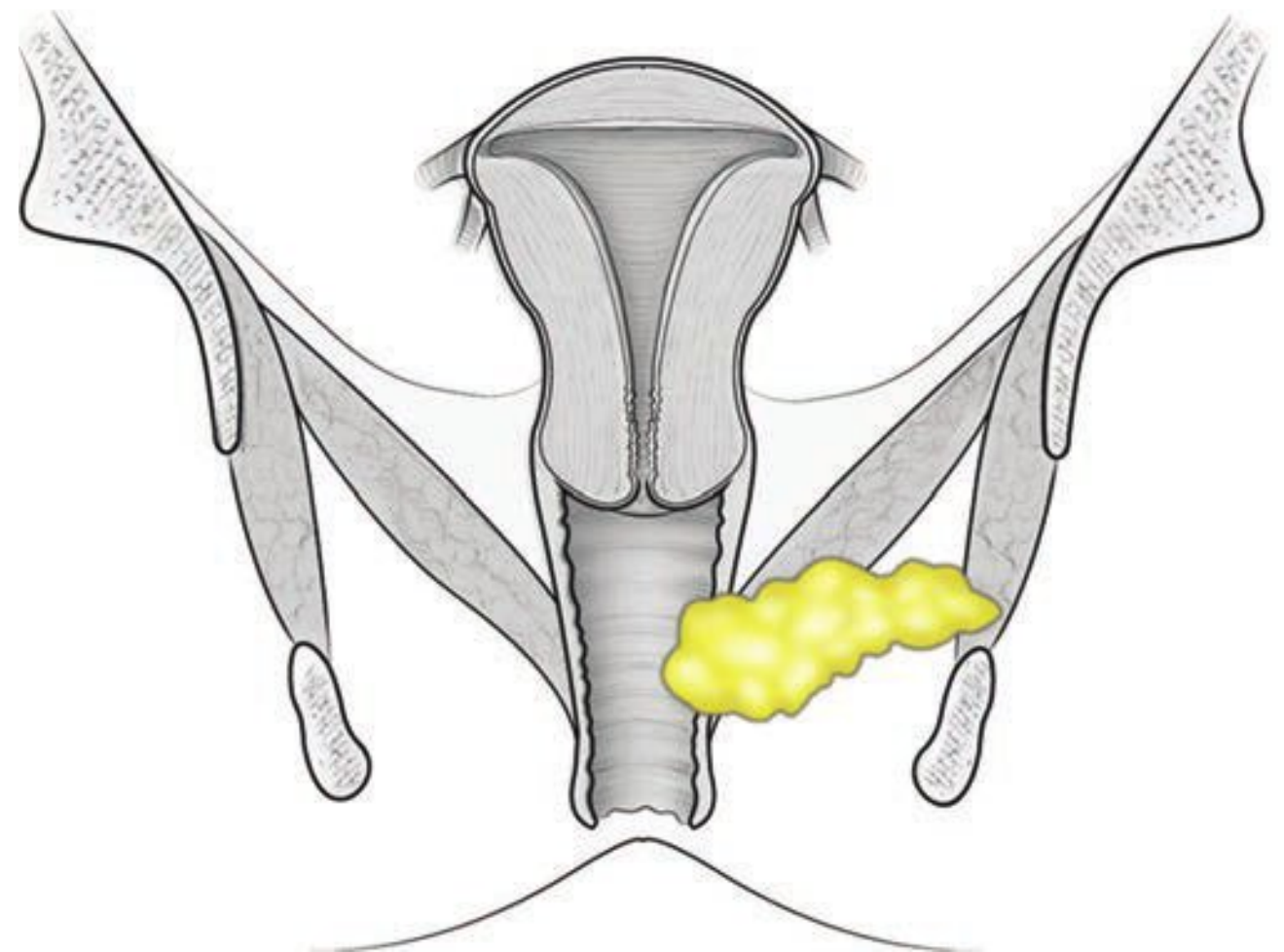
32-4. Which of the following is a common mechanism of primary vaginal cancer spread?

- a. Lymphatic
- b. Exfoliative
- c. Hematogenous
- d. Transperitoneal invasion

32-5. Lymphatic drainage of the proximal vagina is described best by which of the following?

- a. Only to the internal iliac veins
- b. Most often to the external iliac veins
- c. Predominantly to the uterine and presacral nodes
- d. Highly variable with unpredictable drainage to the pelvic, inguinal, and perirectal lymphatics

- 32–6.** The incidence of vaginal cancer peaks within which of the following age groups?
- 30 to 50 years
 - 40 to 60 years
 - 50 to 70 years
 - 80 years and older
- 32–7.** Of the following, which has been most closely linked with primary squamous cell cancer of the vagina?
- BRCA1* mutation
 - Human papillomavirus
 - Diethylstilbestrol exposure
 - Hereditary nonpolyposis colon cancer (HNPCC)
- 32–8.** Which vaccine-preventable human papillomavirus (HPV) type is most commonly identified in vaginal cancers?
- HPV 6
 - HPV 11
 - HPV 16
 - HPV 18
- 32–9.** Which of the following is **NOT** a known risk factor for primary vaginal cancer?
- Cigarette smoking
 - Early age of first intercourse
 - History of vulvar or cervical cancer
 - Hormonal therapy use for menopausal symptoms for longer than 5 years
- 32–10.** A 68-year-old woman presents with an abnormal vaginal cytology result. She had a hysterectomy for uncertain indications in the past. Further evaluation shows a localized vaginal intraepithelial neoplasia (VaIN) 2 or 3 lesion. She is in poor health with multiple comorbidities. In planning management of her VaIN, the risk of progression to invasive cancer is taken into consideration. What approximate percentage of high-grade VaIN lesions progress to invasive cancer over time?
- 2 to 3 percent
 - 5 to 10 percent
 - 20 to 30 percent
 - 60 to 80 percent
- 32–11.** Which of the following is the most common presenting complaint in women with primary vaginal cancer?
- Bleeding
 - Constipation
 - Vaginal mass
 - Urinary retention
- 32–12.** Most vaginal cancers develop in which part of the vagina?
- Upper third
 - Middle third
 - Lower third
 - At the hymeneal ring
- 32–13.** Which procedures are used to determine the International Federation of Gynecology and Obstetrics (FIGO) stage of vaginal cancer?
- Vaginectomy alone
 - Physical examination
 - Computed tomography alone
 - Vaginectomy with pelvic lymphadenectomy
- 32–14.** The tumor shown here corresponds to which International Federation of Gynecology and Obstetrics (FIGO) stage?

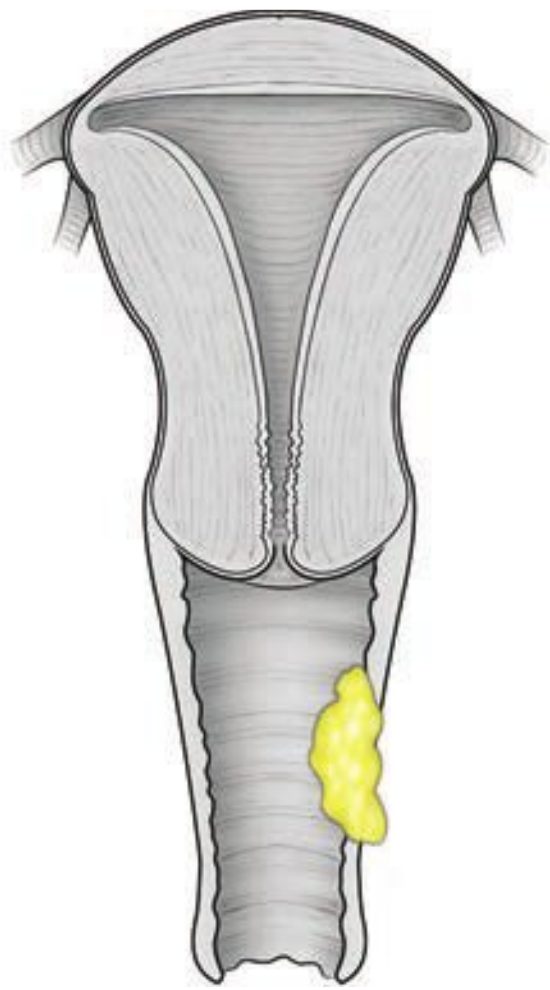


Reproduced with permission from Richardson DL: Vaginal cancer. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 32-3.

- Stage I
- Stage II
- Stage III
- Stage IV

- 32–15.** In addition to an advanced International Federation of Gynecology and Obstetrics (FIGO) stage, which of the following is associated with a poorer prognosis for survival with primary vaginal cancer?
- Nulliparity
 - Younger age
 - Adenocarcinoma cell type
 - All of the above

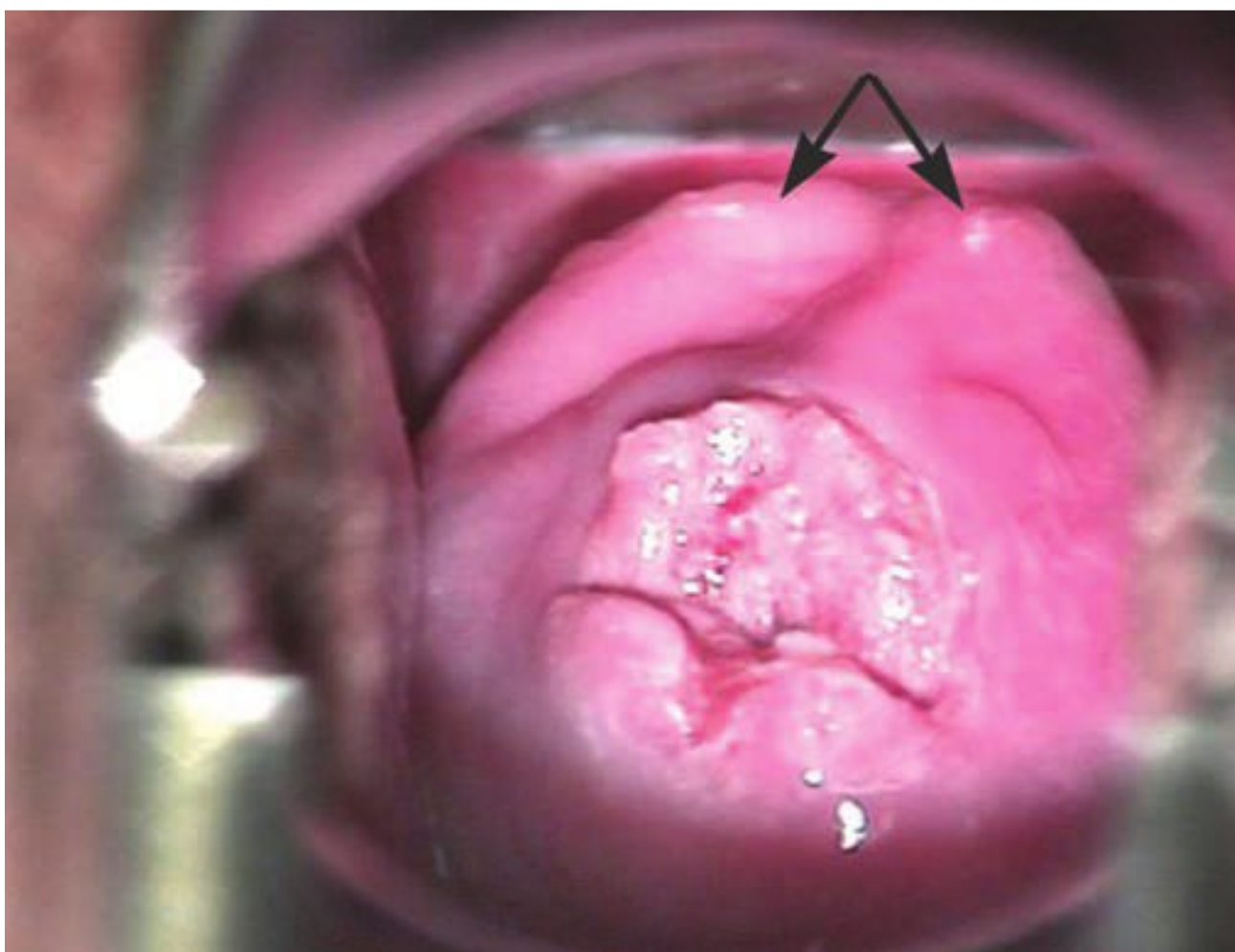
- 32–16.** A 75-year-old patient presents with vaginal bleeding and is subsequently found to have a vaginal cancer. She is otherwise healthy and relates a history of prior hysterectomy for cervical intraepithelial neoplasia. Clinical staging shows the extent of the cancer consistent with the diagram below. Which of the following is **NOT** an appropriate initial therapy for this stage of squamous cell vaginal cancer?



Reproduced with permission from Richardson DL: Vaginal cancer. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 32-3.

- a.** Cisplatin chemotherapy
b. External beam radiation alone
c. External beam radiation with brachytherapy
d. Radial vaginectomy plus pelvic lymphadenectomy
- 32–17.** Which chemotherapeutic agent is used as an adjunct to radiotherapy for the treatment of locally advanced vaginal cancer?
a. Cisplatin
b. Doxorubicin
c. Vincristine
d. Methotrexate
- 32–18.** Which of the following statements regarding metastatic (stage IVB) vaginal cancer is **FALSE**?
a. Aggressive treatment results in a significant cure rate.
b. Common sites of metastasis include lung, bone, and liver.
c. Radiation therapy can lead to vaginal stenosis and fistula formation.
d. The selection of chemotherapeutic agents is commonly extrapolated from studies of cervical cancer.
- 32–19.** Radiation therapy directed at groin nodes is **LEAST** beneficial for which of the following clinical scenarios?
a. Palpable groin nodes consistent with metastasis
b. No palpable groin nodes, lower third of vagina involved
c. Cancer confined to the upper two-thirds of the vagina, no palpable groin nodes
d. Entire length of the vagina involved with tumor regardless of groin node status
- 32–20.** A woman undergoes treatment for early-stage vaginal cancer with apparent complete response. She is in good health otherwise and is estimated to live at least an additional 20 years. Which of the following should be used during surveillance to detect disease recurrence?
a. Pap testing periodically
b. Imaging at the discretion of the clinician
c. Pelvic examinations every 3 months for the first 2 years
d. All of the above
- 32–21.** During surveillance for recurrent disease, which of the following findings suggests pelvic sidewall disease?
a. Sciatica
b. Lymphedema
c. Hydronephrosis
d. All of the above
- 32–22.** A 64-year-old woman with prior hysterectomy for recurrent squamous cell carcinoma in situ is treated with external beam radiation and brachytherapy for stage II squamous cell vaginal cancer. Fourteen months later, biopsy of a vaginal nodule found during surveillance examination is positive for recurrent disease. For women with a central tumor recurrence following radiotherapy, which of the following are treatment options?
a. Brachytherapy
b. Wide local excision
c. Pelvic exenteration
d. External beam radiation plus cisplatin
- 32–23.** What is the approximate 5-year survival rate for a patient such as the one in Question 32–22, who has experienced a local recurrence with no evidence of metastatic disease?
a. 1 percent
b. 20 percent
c. 40 percent
d. 80 percent

- 32–24.** A woman presents with postmenopausal spotting and pelvic pain and is diagnosed with adenocarcinoma of the vagina. Which of the following most commonly gives rise to this histologic type of vaginal cancer?
- Vaginal adenosis
 - Endometriosis implant
 - Wolf an duct remnant
 - Metastases from the upper genital tract
- 32–25.** In general, how does the behavior of primary vaginal adenocarcinoma compare with primary vaginal squamous cell carcinoma?
- Less aggressive
 - More aggressive
 - Similar prognoses
 - Insuf cient data to compare the two types
- 32–26.** Clear cell adenocarcinoma of the vagina in a young woman is one reason to suspect in utero exposure to which of the following? Exposure to the same agent could also lead to reproductive tract anomalies such as this cervical hood.



- T alidomide
 - Alkylating agents
 - Diethylstilbestrol
 - Ionizing radiation
- 32–27.** Which of the following is the most common malignancy of the vagina in infants and children?
- Melanoma
 - Chondrosarcoma
 - Leiomyosarcoma
 - Embryonal rhabdomyosarcoma

- 32–28.** Which of the following symptoms is most typical of sarcoma botryoides?
- Pain
 - Hemoptysis
 - Vaginal bleeding
 - Ureteral obstruction
- 32–29.** A 3-year-old girl with vaginal bleeding and a polypoid mass at the vaginal opening is diagnosed with sarcoma botryoides. Which of the following is currently considered the most appropriate treatment of her malignancy?
- Chemotherapy
 - Vaginal brachytherapy
 - External beam radiotherapy
 - Radical pelvic exenteration
- 32–30.** Given that there is little clinical information to guide management, what is the current preferred primary therapy for vaginal leiomyosarcoma?
- Radiotherapy alone
 - Chemotherapy alone
 - Radical pelvic exenteration
 - Surgical resection with negative margins
- 32–31.** T is pigmented upper right vaginal wall lesion was noted during routine periodic pelvic examination in an asymptomatic 44-year-old woman. It was biopsied to exclude the diagnosis of melanoma and was found to be benign. Which of the following is true of vaginal melanoma?



- It is most commonly diagnosed in young women.
- It is most frequently found in the distal vagina.
- It is the most common site for reproductive tract melanoma.
- It is often diagnosed early and carries a generally good prognosis.

32–32. Which melanoma staging system is **NOT** applicable for vaginal melanoma?

- a. Clark
- b. Chung
- c. Breslow
- d. All of the above

32–33. Treatment of vaginal melanoma varies with tumor location and characteristics. Current therapeutic approaches may include which of the following?

- a. Radiation therapy
- b. Wide local excision
- c. Targeted biologic agents
- d. All of the above

Chapter 32 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
32-1	a	p. 694	Introduction	32-18	a	p. 697	Chemoradiation
32-2	b	p. 694	Introduction	32-19	c	p. 697	Radiation Therapy
32-3	a	p. 694	Relevant Anatomy	32-20	d	p. 698	Surveillance
32-4	a	p. 694	Relevant Anatomy	32-21	d	p. 698	Recurrent Disease
32-5	d	p. 694	Relevant Anatomy	32-22	c	p. 698	Recurrent Disease
32-6	d	p. 694	Incidence	32-23	b	p. 698	Recurrent Disease
32-7	b	p. 694	Risks	32-24	d	p. 698	Adenocarcinoma
32-8	c	p. 694	Risks	32-25	b	p. 698	Adenocarcinoma
32-9	d	p. 694	Risks	32-26	c	p. 698	Clear Cell Adenocarcinoma
32-10	a	p. 694	Risks	32-27	d	p. 698	Embryonal Rhabdomyosarcoma
32-11	a	p. 695	Diagnosis	32-28	c	p. 698	Embryonal Rhabdomyosarcoma
32-12	a	p. 695	Diagnosis	32-29	a	p. 698	Embryonal Rhabdomyosarcoma
32-13	b	p. 695	Staging and Classification	32-30	d	p. 699	Leiomyosarcoma
32-14	c	p. 697	Figure 32-4	32-31	b	p. 699	Melanoma
32-15	c	p. 696	Prognosis	32-32	a	p. 699	Melanoma
32-16	a	p. 696	Stage I	32-33	d	p. 699	Melanoma
32-17	a	p. 697	Chemoradiation				

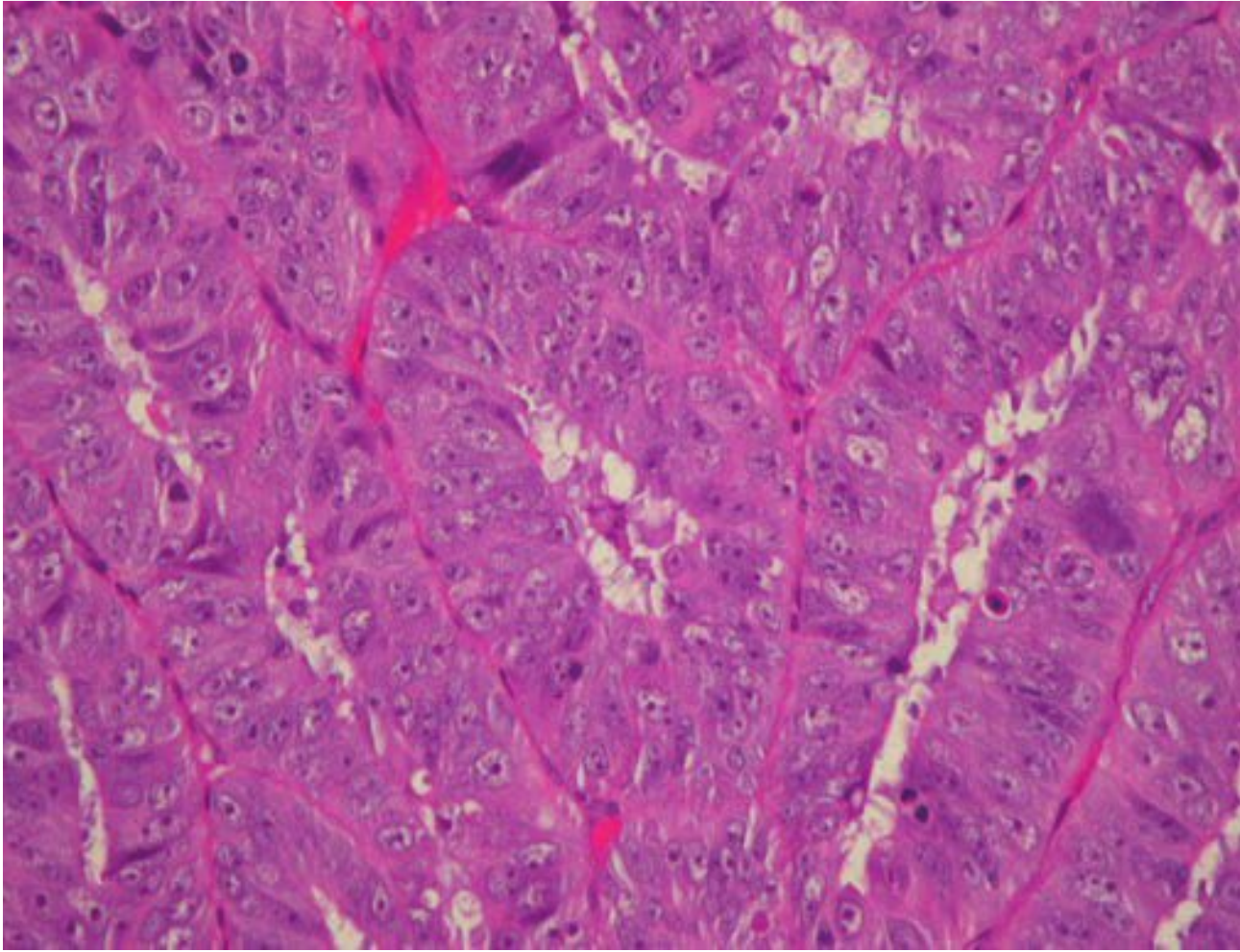
CHAPTER 33

Endometrial Cancer

- 33–1.** Of leading causes of cancer in women in the United States, endometrial cancer is ranked in which place?
- Second
 - Fourth
 - Eighth
 - Sixteenth
- 33–2.** Which of the following does **NOT** increase a woman's risk of developing endometrial cancer?
- Obesity
 - Tamoxifen
 - Cigarette smoking
 - Unopposed estrogen
- 33–3.** What is the primary mechanism by which obesity increases the risk of endometrial cancer?
- Androstenedione is aromatized by adipose tissue to estrone.
 - Androstenedione is aromatized by adipose tissue to estradiol.
 - Higher levels of insulin growth factor lead to anovulation, which results in unopposed estrogen.
 - None of the above
- 33–4.** What percentage of endometrial cancer is diagnosed in women younger than 45 years?
- 1 percent
 - 8 percent
 - 15 percent
 - 25 percent
- 33–5.** What is the most common genetic syndrome associated with endometrial cancer?
- Cowden syndrome
 - Li–Fraumeni syndrome
 - Hereditary breast ovarian cancer syndrome
 - Hereditary nonpolyposis colorectal cancer syndrome
- 33–6.** Which of the following birth control methods does **NOT** reduce the risk of endometrial cancer?
- Bilateral tubal ligation
 - Copper intrauterine device
 - Combination oral contraceptives
 - Levonorgestrel-releasing intrauterine system
- 33–7.** Which of the following patients does **NOT** require an endometrial biopsy?
- A 27-year-old obese woman with polycystic ovarian syndrome and a long history of irregular bleeding
 - A 37-year-old obese woman with atypical glandular cells (AGCs) reported from cervical cytology testing
 - A 55-year-old postmenopausal woman with postmenopausal bleeding and an endometrial stripe measuring 8 mm by transvaginal sonography
 - A 52-year-old postmenopausal woman using combination hormone replacement therapy, who has postmenopausal bleeding and an endometrial stripe measuring 2 mm by transvaginal sonography
- 33–8.** A 60-year-old woman has abnormal uterine bleeding. Transvaginal sonography reveals a 15-mm endometrial stripe and an 8-cm, solid right adnexal mass. Office endometrial biopsy reveals grade 1 endometrioid adenocarcinoma of the uterus arising in a background of complex atypical hyperplasia. What is the most likely diagnosis?
- Endometrial cancer metastatic to the ovary
 - Synchronous ovarian and endometrial cancer
 - Pedunculated leiomyoma and endometrial cancer
 - Ovarian granulosa cell tumor and endometrial cancer
- 33–9.** Which of the following is an appropriate treatment of a 35-year-old woman with the diagnosis of complex endometrial hyperplasia without atypia?
- Medroxyprogesterone acetate
 - Combination oral contraceptive pills
 - Levonorgestrel-releasing intrauterine system
 - All of the above

- 33–10.** For simple and complex endometrial hyperplasia without atypia, what is the clinical success rate for resolution using progestin therapy?
- 30 to 40 percent
 - 50 to 60 percent
 - 70 to 80 percent
 - 90 to 100 percent
- 33–11.** A 30-year-old nulligravida has a body mass index of 35 kg/m^2 and desires fertility. An endometrial biopsy performed for abnormal bleeding reveals complex atypical hyperplasia. Which of the following is **NOT** an acceptable treatment option?
- Megestrol acetate 80 mg orally twice daily
 - Levonorgestrel-releasing intrauterine system
 - Medroxyprogesterone acetate 10 mg orally daily
 - Total laparoscopic hysterectomy with bilateral salpingectomy
- 33–12.** What is the approximate underlying risk of endometrial cancer in a woman diagnosed with complex atypical hyperplasia by endometrial biopsy?
- 10 percent
 - 40 percent
 - 60 percent
 - 80 percent
- 33–13.** Which of the following is the most appropriate surgical approach to a 51-year-old woman with a body mass index of 35 kg/m^2 and a preoperative diagnosis of complex atypical hyperplasia?
- Transvaginal hysterectomy, bilateral salpingo-oophorectomy
 - Total abdominal hysterectomy, bilateral salpingo-oophorectomy, pelvic washings
 - Total laparoscopic hysterectomy, bilateral salpingo-oophorectomy, pelvic washings
 - None of the above
- 33–14.** Which of the following women should undergo annual endometrial biopsy?
- A 36-year-old woman with hereditary nonpolyposis colorectal cancer (HNPCC/Lynch syndrome)
 - A 45-year-old woman on tamoxifen for a personal history of breast cancer
 - An obese 40-year-old woman with normal menses, with a father with colon cancer diagnosed at age 60 and a paternal aunt with endometrial cancer found at age 55
 - All of the above
- 33–15.** Which of the following patients should be referred to a geneticist for possible hereditary nonpolyposis colon cancer (HNPCC/Lynch syndrome) screening?
- A 35-year-old patient with endometrial cancer whose sister was diagnosed with breast cancer at age 50 and maternal grandmother diagnosed with colon cancer at age 61
 - A 39-year-old patient with endometrial cancer whose mother was diagnosed with endometrial cancer at age 50 and maternal grandmother diagnosed with colon cancer at age 55
 - A 39-year-old patient with endometrial cancer whose maternal grandfather was diagnosed with colon cancer at age 65 and paternal grandmother diagnosed with endometrial cancer at age 58
 - A 35-year-old patient with complex atypical hyperplasia whose maternal grandmother was diagnosed with colon cancer at age 58 and maternal grandfather diagnosed with small bowel cancer at age 70
- 33–16.** Which of the following patients does **NOT** need preoperative abdominopelvic computed tomography (CT) prior to surgical management?
- A 62-year-old patient with clear cell carcinoma found by office endometrial biopsy
 - A 75-year-old patient with uterine papillary serous carcinoma found during hysteroscopy plus dilation and curettage
 - A 58-year-old patient with grade 1 endometrioid adenocarcinoma arising in a background of complex atypical hyperplasia that was found by office endometrial biopsy
 - All of the above require CT scanning prior to surgical management.
- 33–17.** Which of the following is true when a woman with endometrial cancer is managed by a gynecologic oncologist compared with a general gynecologist?
- Less surgical morbidity
 - More likely to undergo surgical staging
 - Improved overall survival rate for high-risk types
 - All of the above

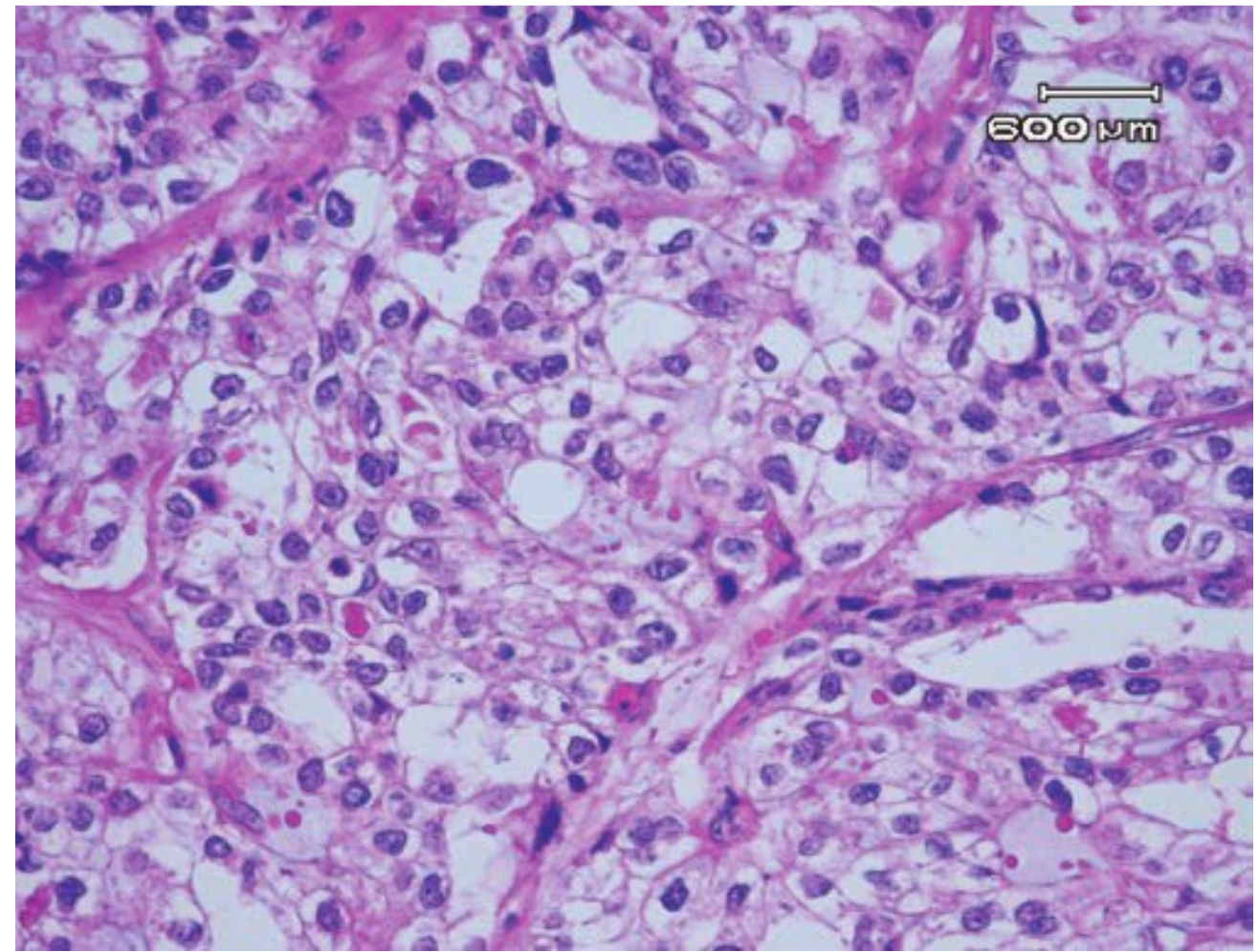
- 33–18.** The histologic specimen shown below demonstrates < 5 percent solid growth but severe nuclear atypia. What grade is assigned to this endometrioid adenocarcinoma of the uterus?



Used with permission from Dr. Kelley Carrick.

- a. Grade 1
 - b. Grade 2
 - c. Grade 3
 - d. This is not endometrioid adenocarcinoma, but rather papillary serous carcinoma of the uterus.
- 33–19.** Which of the following subtypes is **NOT** a type II endometrial cancer?
- a. Clear cell carcinoma
 - b. Papillary serous carcinoma
 - c. Endometrioid adenocarcinoma with squamous differentiation
 - d. None of the above

- 33–20.** Which of the following is true regarding the type of uterine cancer shown in the photomicrograph below?



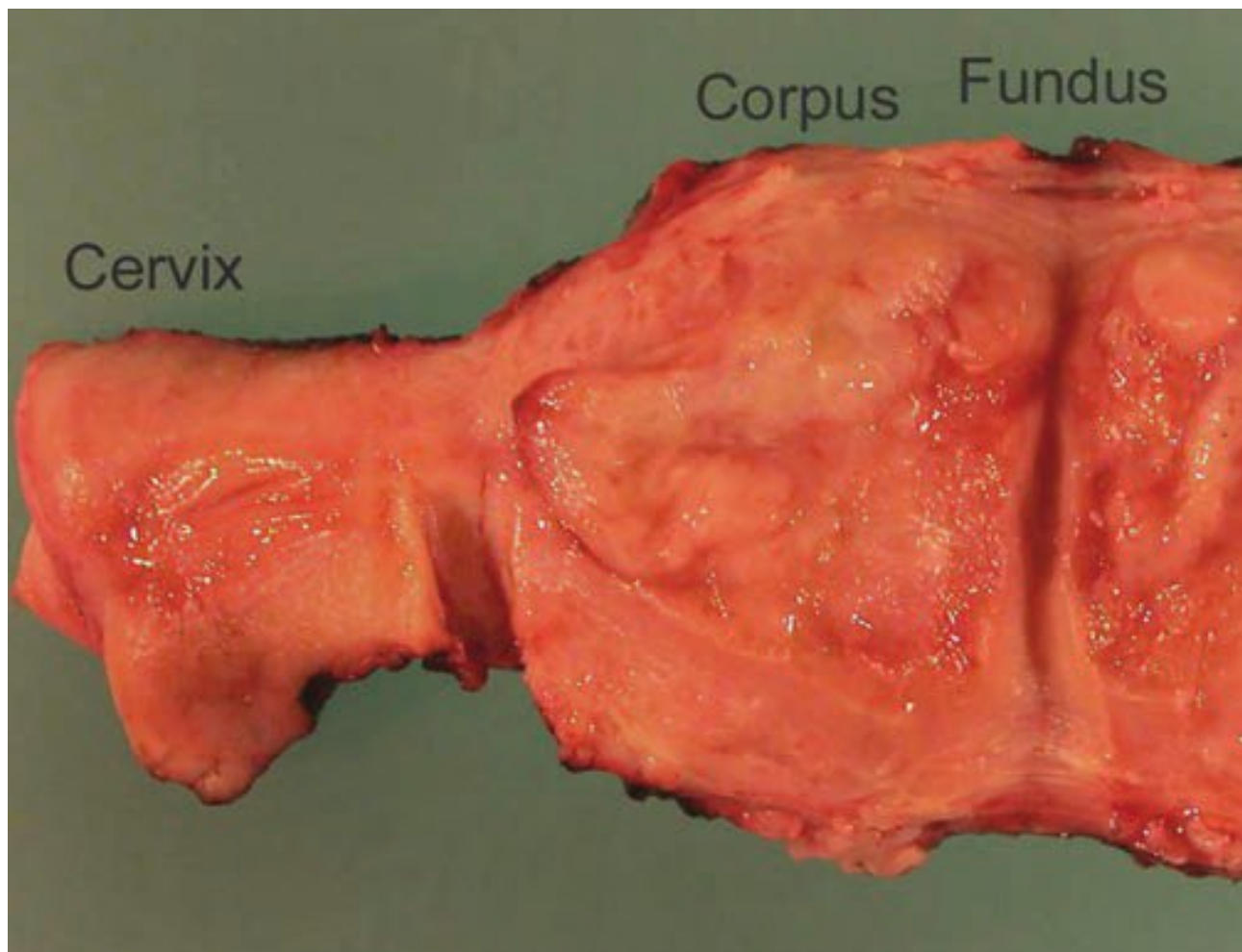
Reproduced, with permission, by Schorge JO, Schaffer JI, Halvorson LM, et al (eds): Williams Gynecology, 1st ed. New York, McGraw-Hill, 2008. Photo contributor: Dr. Raheela Ashfaq.

- a. It is the most common cell type of endometrial cancer.
 - b. It is the least common cell type of endometrial cancer.
 - c. Most patients with this cell type are cured with surgery alone.
 - d. This is an aggressive type II endometrial cancer, managed by a combination of surgery and chemotherapy, with or without radiation therapy.
- 33–21.** What is the most common way endometrioid adenocarcinoma of the uterus spreads?
- a. Lymphatic
 - b. Hematogenous
 - c. Direct extension
 - d. Intraperitoneal exfoliation
- 33–22.** A 60-year-old woman undergoes a robotic-assisted hysterectomy, bilateral salpingo-oophorectomy, and bilateral pelvic and paraaortic lymph node dissection for endometrial cancer. Histologic evaluation reveals a grade 2 endometrioid adenocarcinoma with > 50 percent myometrial invasion, lymphovascular space invasion (LVSI), and positive washings. All other surgical specimens are benign. What stage is she assigned according to 2009 International Federation of Gynecology and Obstetrics (FIGO) criteria?
- a. Stage IB
 - b. Stage IC
 - c. Stage IIIA
 - d. Stage IIIC

33–23. A 47-year-old woman undergoes total laparoscopic hysterectomy, bilateral salpingo-oophorectomy, and bilateral pelvic and paraaortic lymphadenectomy for endometrial cancer. Histologic evaluation reveals a grade 2 endometrioid adenocarcinoma arising in the uterus, with 30 percent myometrial invasion and with endocervical gland extension. What is her International Federation of Gynecology and Obstetrics (FIGO) stage?

- a. Stage IA
- b. Stage IB
- c. Stage II
- d. Stage IIIB

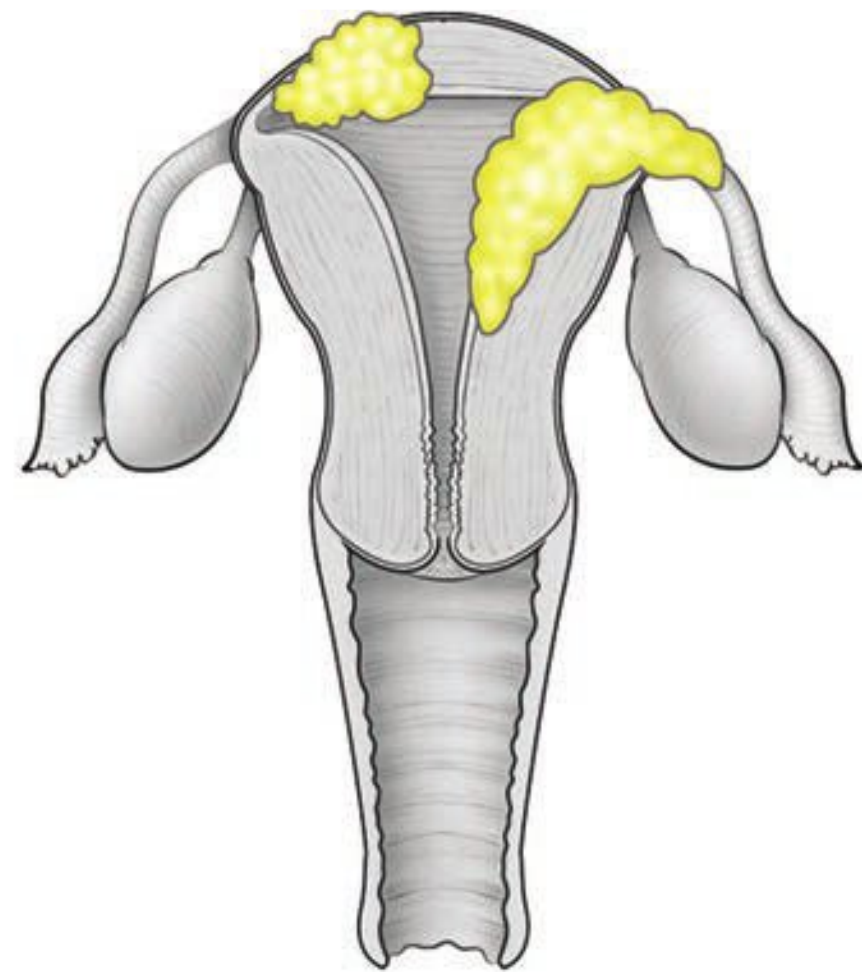
33–24. A 52-year-old woman undergoes a robotic hysterectomy and bilateral salpingo-oophorectomy for grade 1 endometrioid adenocarcinoma of the uterus. The uterus is bisected, and one half is shown to display the endocervical canal and endometrial cavity. With frozen section analysis, no myometrial invasion and no lymphovascular space invasion (LVSI) are found. Which of the following is **FALSE**?



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- a. The frozen section result may be inaccurate.
- b. If final histologic analysis concurs with the frozen section, the risk of lymph node metastasis in this case is 1 percent.
- c. If final histologic analysis concurs with the frozen section, she will need postoperative radiation if a lymph node dissection is not done.
- d. All of the above

33–25. What International Federation of Gynecology and Obstetrics (FIGO) 2009 stage is represented below?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016. Figure 32-3 II.

- a. Stage IIIA
- b. Stage IIIB
- c. Stage IIIC1
- d. Stage IIIC2

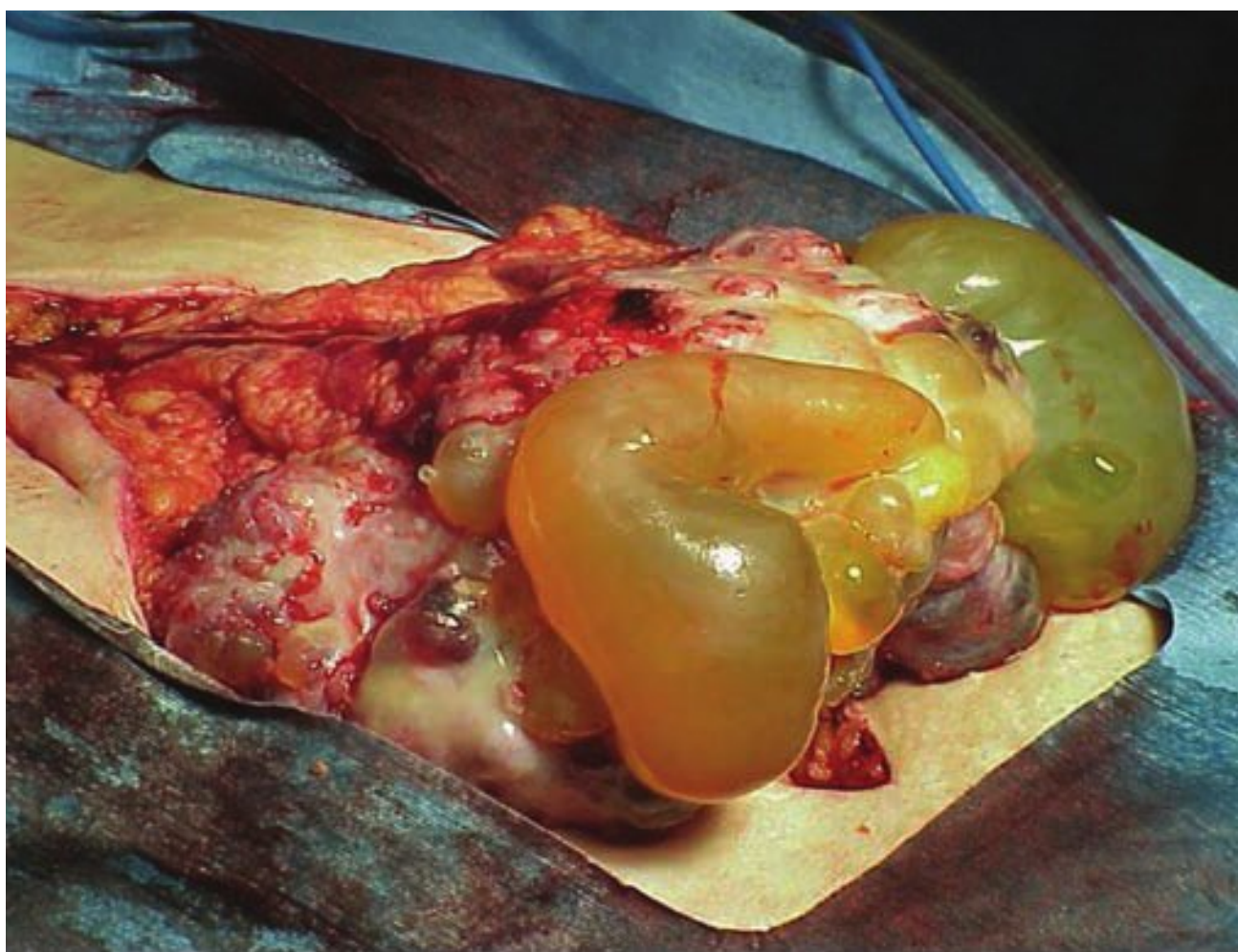
33–26. Which of the following is **NOT** an advantage of laparoscopy compared with laparotomy for the surgical management of endometrial cancer?

- a. Shorter hospital stay
- b. Improved quality of life
- c. Lower rate of intraoperative injuries
- d. Fewer moderate to severe complications

33–27. Which of the following women needs continued Pap tests of the vaginal cuff after a hysterectomy, bilateral salpingo-oophorectomy, and bilateral pelvic and paraaortic lymph node dissection for a stage IB grade 1 endometrioid adenocarcinoma of the uterus?

- a. A 50-year-old woman with no history of abnormal Pap test results
- b. A 50-year-old woman with foci of cervical intraepithelial neoplasia (CIN) 2 in the hysterectomy specimen
- c. A 50-year-old woman with a remote history of CIN 2 treated with a loop electrosurgical excision procedure (LEEP) and no abnormal Pap tests in the last 10 years
- d. All of the above

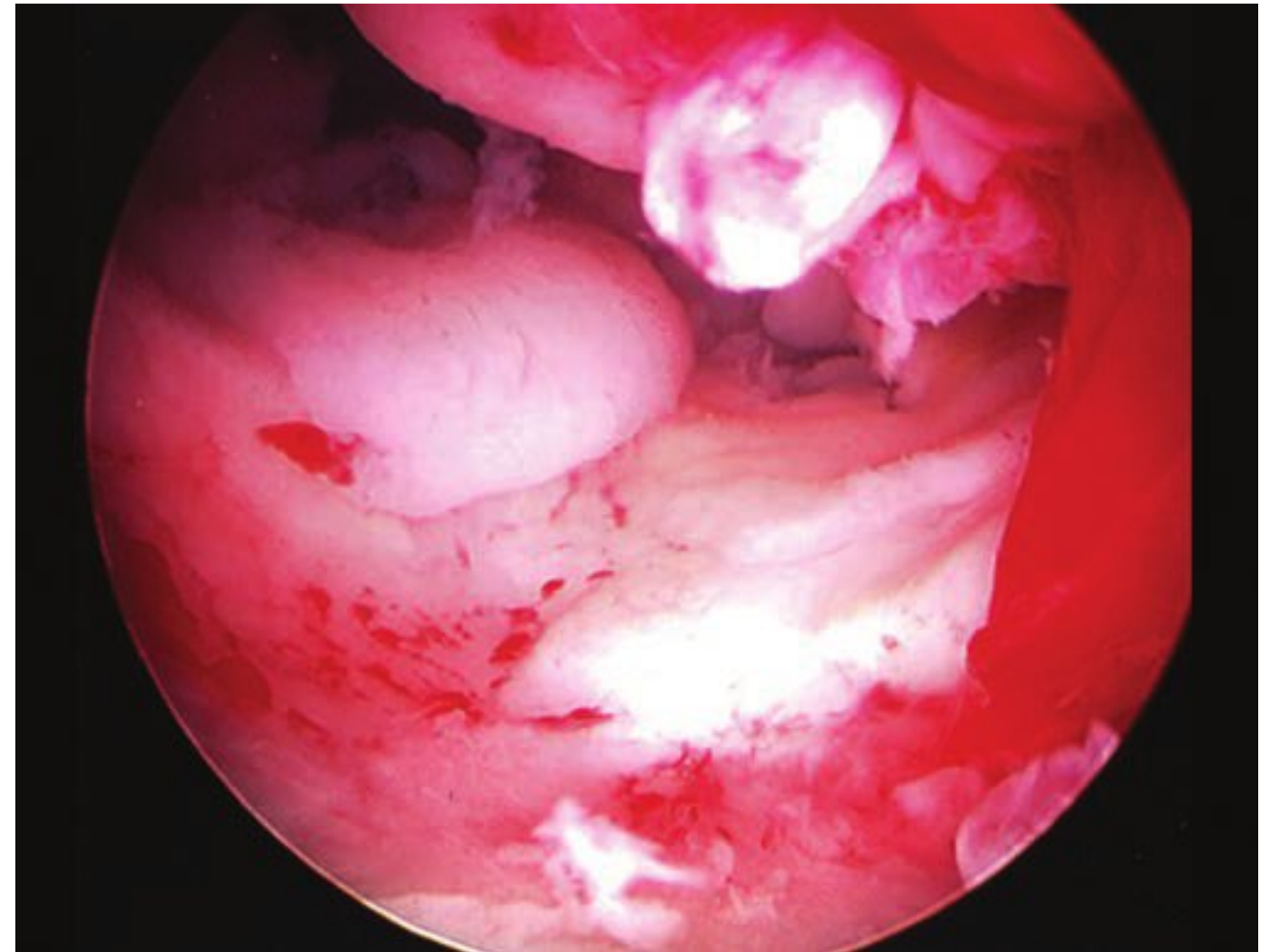
- 33–28.** Which of the following chemotherapeutic agents does not have definitive activity against endometrial cancer?
- Cisplatin
 - Topotecan
 - Paclitaxel
 - Doxorubicin
- 33–29.** An 80-year-old woman is diagnosed with a grade 1 endometrioid adenocarcinoma of the uterus by office endometrial biopsy. She has a body mass index of 45 kg/m^2 , has uncontrolled type 2 diabetes mellitus, has had a prior right below-the-knee amputation, and is wheelchair bound. What is the most appropriate management?
- Radiation
 - Tamoxifen
 - Vaginal hysterectomy
 - Robotic hysterectomy, bilateral salpingo-oophorectomy
- 33–30.** A 65-year-old otherwise healthy woman has an episode of postmenopausal bleeding. An endometrial biopsy reveals papillary serous carcinoma. At exploration, she has carcinomatosis and an omental cake (shown here). In addition to total abdominal hysterectomy with bilateral salpingo-oophorectomy, what other management is most appropriate?



Used with permission from Dr. David Miller.

- Omentectomy, adjuvant chemotherapy
- Omental biopsy, adjuvant chemotherapy
- Omentectomy, maximal effort at tumor debulking, adjuvant chemotherapy
- Omentectomy, maximal effort at tumor debulking, adjuvant chemotherapy, and tumor-directed radiation

- 33–31.** Desiring future fertility, a 34-year-old nulligravida with polycystic ovarian syndrome has undergone a hysteroscopy, dilatation and curettage (D&C), and placement of a levonorgestrel-releasing intrauterine system (LNG-IUS) for grade 1 endometrioid adenocarcinoma of the uterus. Findings at the time of surgery are depicted below. How should she be followed?



Used with permission from Dr. Mayra Thompson.

- Remove IUD in 3 months and perform endometrial biopsy.
 - Remove IUD in 3 months and perform a hysteroscopy, D&C.
 - Repeat endometrial biopsy in 3 months with the IUD in place.
 - None of the above
- 33–32.** What is the most important prognostic factor for a woman with endometrioid adenocarcinoma of the uterus?
- Age
 - Grade
 - Stage
 - Positive peritoneal washings
- 33–33.** A 68-year-old woman has a history of a stage IA grade 1 endometrioid adenocarcinoma of the uterus, treated with surgery. She develops vaginal bleeding, and biopsy of a 1-cm mass at her vaginal apex reveals recurrent uterine cancer. What is the most appropriate treatment, if no metastatic disease is found during further evaluation?
- Radiation
 - Chemotherapy
 - Pelvic exenteration
 - Oral continuous progesterone therapy

Chapter 33 ANSWER KEY

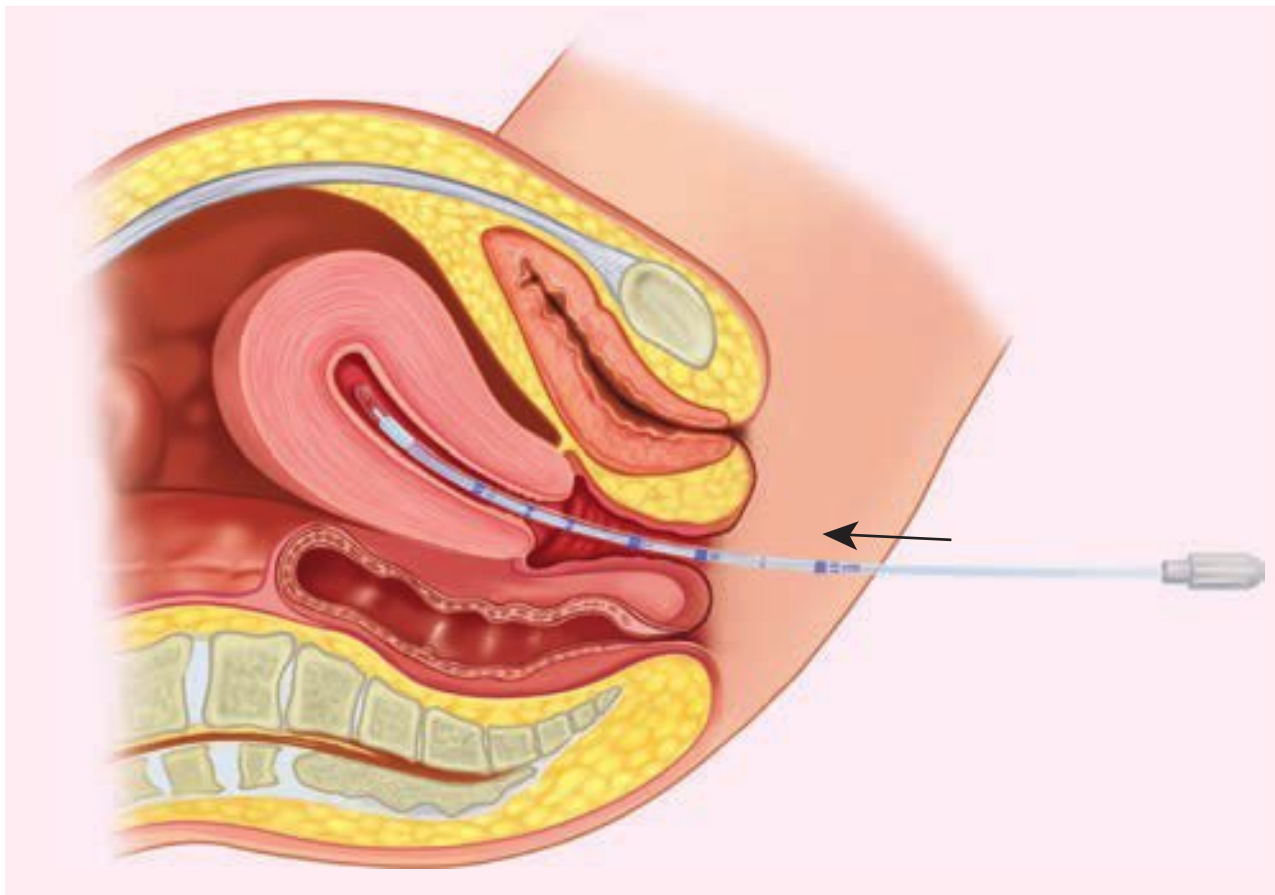
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
33-1	b	p. 702	Epidemiology and Risk Factors	33-18	b	p. 709	Histologic Grade, Table 33-6
33-2	c	p. 702	Epidemiology and Risk Factors	33-19	c	p. 710	Histologic Type
33-3	a	p. 702	Epidemiology and Risk Factors	33-20	d	p. 710	Clear Cell Carcinoma, Figure 33-9
33-4	b	p. 702	Epidemiology and Risk Factors	33-21	c	p. 712	Patterns of Spread
33-5	d	p. 702	Epidemiology and Risk Factors	33-22	a	p. 713	Table 33-9
33-6	a	p. 702	Epidemiology and Risk Factors	33-23	a	p. 713	Surgical Management, Table 33-9
33-7	d	p. 705	Clinical Features and Diagnosis	33-24	c	p. 716	Adjuvant Radiation Therapy, Table 33-8
33-8	d	p. 705	Clinical Features and Diagnosis	33-25	a	p. 714	Figure 33-11
33-9	d	p. 706	Nonatypical Endometrial Hyperplasia	33-26	c	p. 713	Treatment
33-10	c	p. 706	Response to Progestins	33-27	b	p. 715	Surveillance
33-11	c	p. 706	Atypical Endometrial Hyperplasia	33-28	b	p. 715	Chemotherapy
33-12	b	p. 706	Atypical Endometrial Hyperplasia	33-29	a	p. 715	Radiation
33-13	c	p. 706	Atypical Endometrial Hyperplasia	33-30	c	p. 716	Uterine Papillary Serous Carcinoma Management
33-14	a	p. 707	Prevention	33-31	c	p. 717	Fertility-Sparing Management
33-15	b	p. 707	Prevention, Table 33-4	33-32	c	p. 717	Prognostic Factors
33-16	c	p. 708	Imaging Studies	33-33	a	p. 717	Recurrent Disease
33-17	d	p. 709	Role of the Generalist				

CHAPTER 34

Uterine Sarcoma

- 34-1.** Which of the following sarcomas are mixed tumors demonstrating both malignant epithelial and malignant stromal components?
- Adenosarcomas
 - Carcinosarcomas
 - Leiomyosarcomas
 - Endometrial stromal sarcomas
- 34-2.** Which of the following was previously termed malignant mixed müllerian tumor (MMMT)?
- Adenosarcoma
 - Carcinosarcoma
 - Leiomyosarcoma
 - Endometrial stromal tumors
- 34-3.** Which of the following is generally true of uterine sarcomas and carcinosarcomas compared with other types of gynecologic malignancy?
- They are slow growing.
 - Overall prognosis is favorable.
 - Lymphatic or hematogenous spread occurs early.
 - All of the above
- 34-4.** Sarcomas account for approximately what percentage of uterine cancer?
- 0.5 to 1 percent
 - 3 to 8 percent
 - 15 to 20 percent
 - 28 to 32 percent
- 34-5.** Which of the following tumor types has been reclassified as a metaplastic form of endometrial carcinoma?
- Adenosarcoma
 - Carcinosarcoma
 - Leiomyosarcoma
 - Endometrial stromal tumors
- 34-6.** Due to the rarity of uterine sarcomas and carcinosarcomas, it is difficult to ascertain risk factors for them. Which of the following is **NOT** a suspected risk factor for these tumors?
- African-American race
 - Oral contraceptive use
 - Prior pelvic radiation
 - Excess estrogen exposure or tamoxifen use
- 34-7.** Which of the following is true regarding the pathogenesis of leiomyosarcomas?
- They have a monoclonal origin.
 - They arise from preexisting benign leiomyomas.
 - They share molecular pathways with normal myometrium.
 - They are rarely found in close proximity to benign leiomyomas.
- 34-8.** Which of the following is the more common presenting symptom of women with uterine sarcoma?
- Pain
 - Shortness of breath
 - Abnormal uterine bleeding
 - Abnormal screening Pap test result
- 34-9.** A 40-year-old woman presents with abnormal uterine bleeding and lower abdominal discomfort. She has noticed her abdomen enlarging for the past 4 to 5 months and first felt a firm lump in her lower abdomen while lying in bed a few weeks ago. During abdominal and pelvic examinations, an enlarged uterus is palpable with upper border half-way between her pubic symphysis and umbilicus. She reports a normal pelvic examination elsewhere 1 year ago. This raises concern for a rapidly growing uterus. With this clinical scenario, what is the approximate incidence of uterine malignancy?
- < 0.5 percent
 - 10 percent
 - 25 percent
 - 50 percent

34–10. Which of the following clinical tests may help in diagnosing uterine sarcomas preoperatively?



- a. Serum cancer antigen 125 (CA125)
- b. The office procedure illustrated above
- c. Abdominopelvic computed tomography (CT)
- d. All of the above

34–11. This is the preoperative computed tomography scan of a woman with suspected leiomyosarcoma. Which of the following is an advantage to this type of imaging preoperatively?



- a. Unresectable extension of the tumor may be discovered.
- b. Imaging reliably distinguishes benign leiomyomas from sarcomas.
- c. Tumor characteristics on imaging closely correlate with prognosis.
- d. Imaging identifies candidates for minimally invasive surgery and power morcellation.

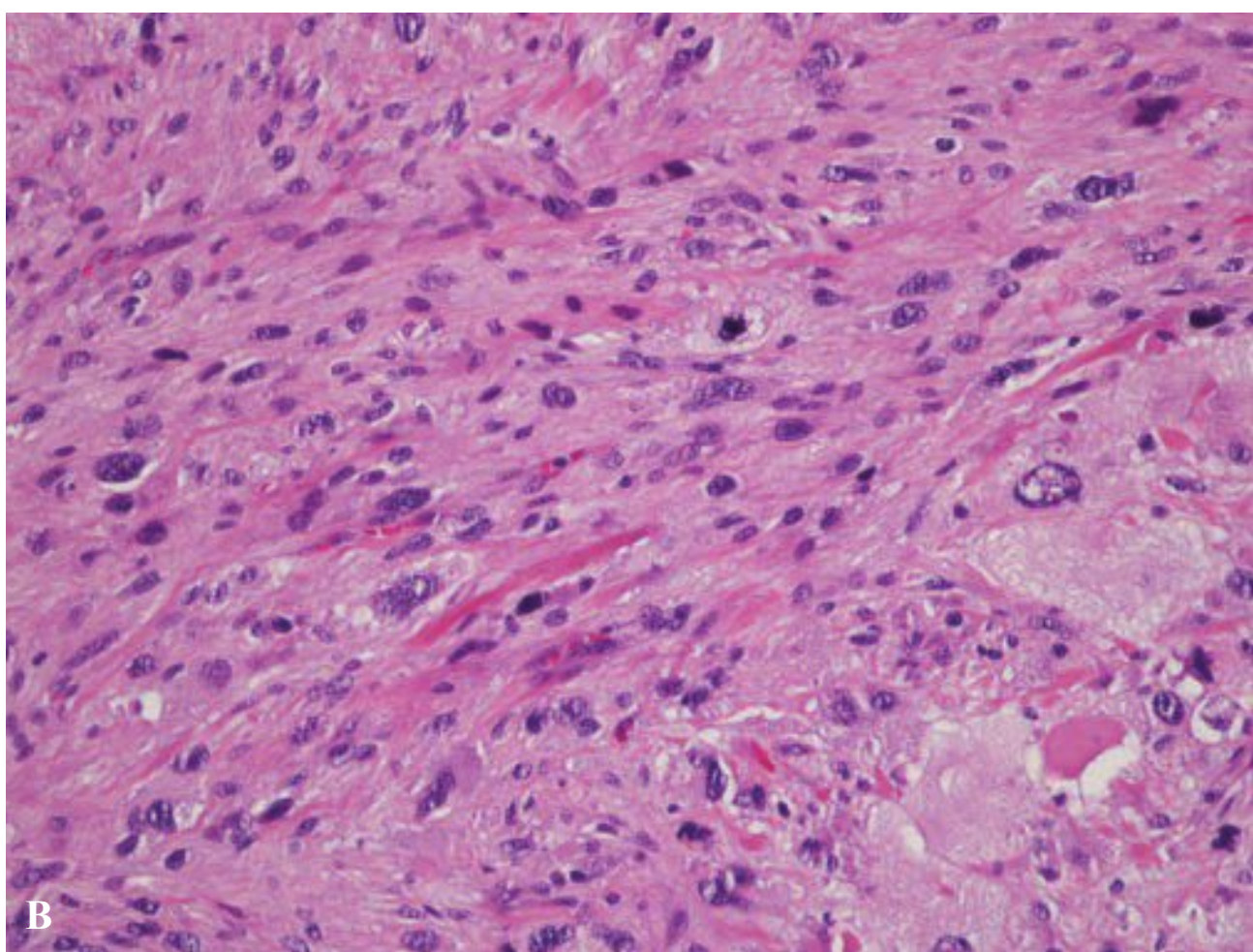
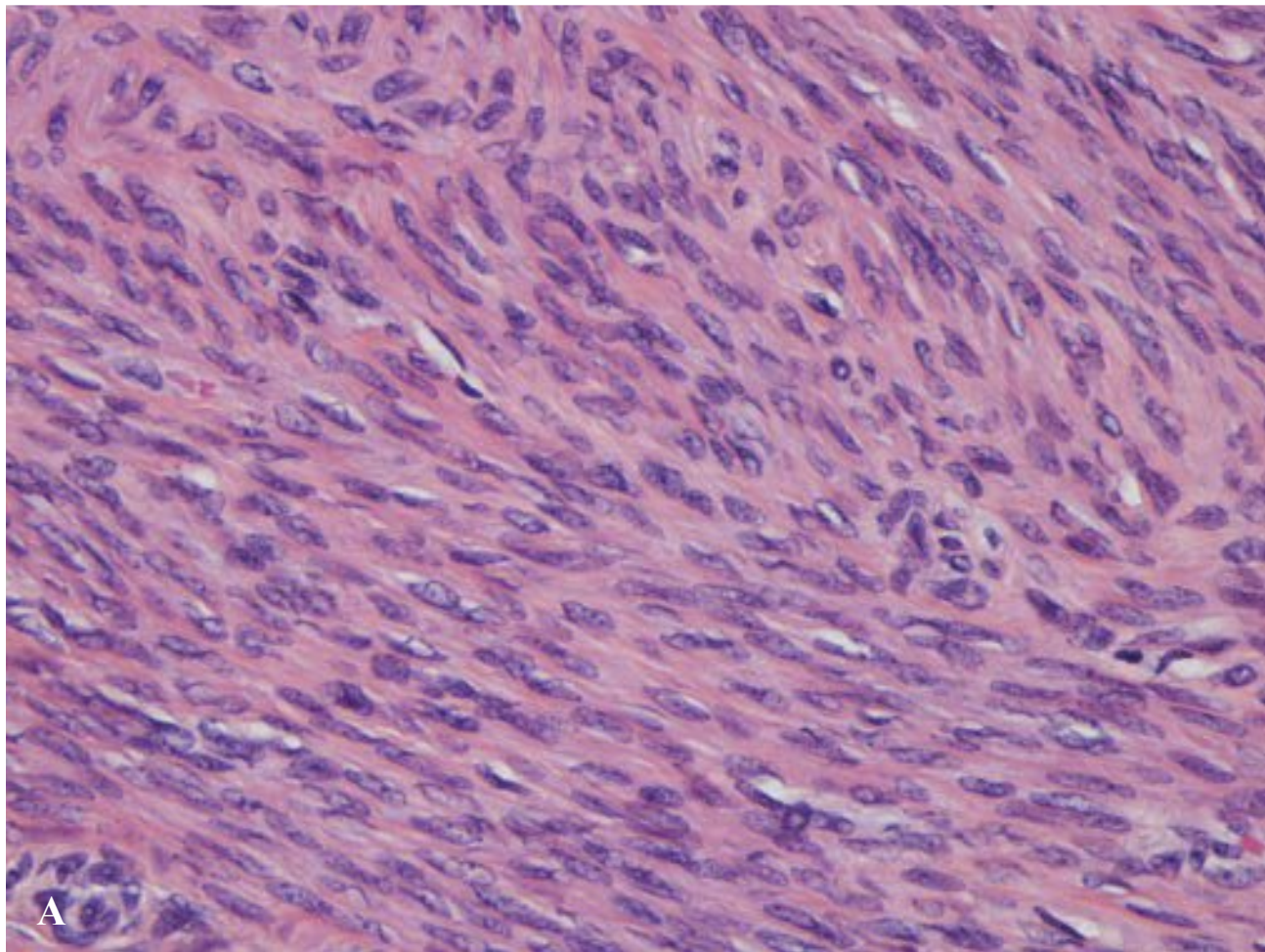
34–12. A 50-year-old woman undergoes total abdominal hysterectomy (TAH) for presumed benign disease. Pathologic examination of the uterus unexpectedly reveals leiomyosarcoma and is reported 1 week postoperatively. After referral to a gynecologic oncologist, subsequent management may include which of the following?

- a. Radiotherapy
- b. Reoperation
- c. Surveillance
- d. Any of the above

34–13. Most leiomyosarcomas are diagnosed at what International Federation of Gynecology and Obstetrics (FIGO) stage?

- a. Stage I
- b. Stage II
- c. Stage III
- d. Stage IV

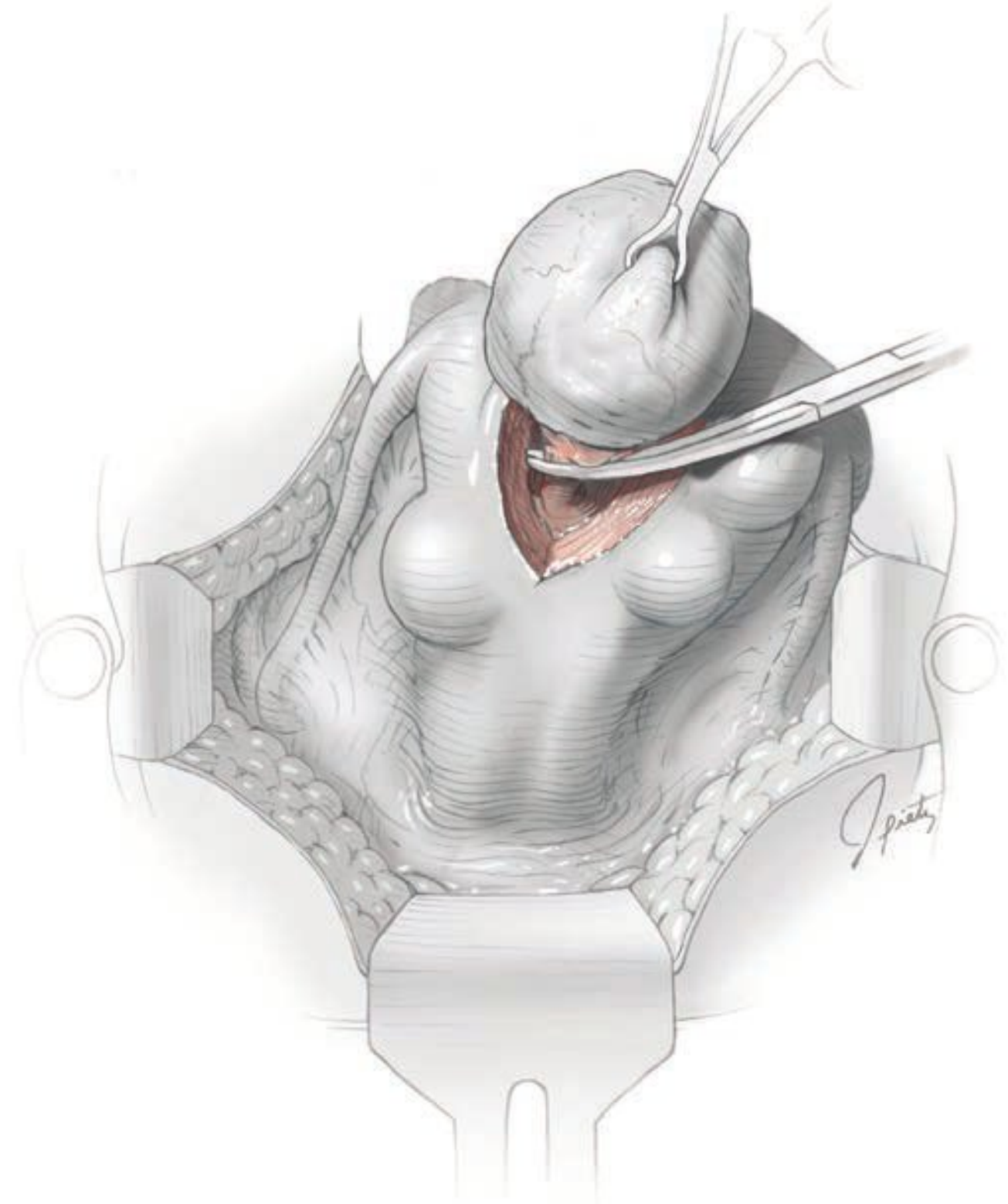
34–14. As shown in the figure below, leiomyosarcomas (A) are generally distinguished from benign leiomyomas (B) based upon all of the following histologic criteria **EXCEPT**:



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- a. Degree of nuclear atypia
- b. Frequency of mitotic figures
- c. Smooth muscle cell nuclear density index
- d. Presence of coagulative tumor cell necrosis

34–15. Which mesenchymal tumor can be treated by the procedure illustrated (myomectomy) alone in selected cases, particularly if of small size?



Reproduced with permission from Hoffman BL, Corton MM: Surgeries for benign gynecologic conditions. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 43-10.3.

- a. Leiomyosarcoma
- b. Rhabdomyosarcoma
- c. Endometrial stromal nodule
- d. Smooth muscle tumor of uncertain malignant potential (STUMP)

34–16. Which of the following statements regarding endometrial stromal sarcoma is **FALSE**?

- a. Most cases initially present as distant metastases.
- b. Lymphatic and vascular extension of tumor is characteristic.
- c. Extrauterine extension may be seen in up to one-third of cases.
- d. Microscopically, the stromal cells resemble proliferative-phase endometrium.

34–17. Carcinosarcomas are now thought to be endometrial carcinomas that have undergone clonal evolution and taken on characteristics of sarcomas. They generally are diagnosed in older women, and most (40 percent) present at what disease stage?

- a. Stage I
- b. Stage II
- c. Stage III
- d. Stage IV

34–18. An adenosarcoma is typified by which of the following?

- a. Benign epithelial and malignant mesenchymal components
- b. Malignant epithelial and benign mesenchymal components
- c. Borderline epithelial and benign mesenchymal components
- d. Malignant epithelial and malignant mesenchymal components

34–19. Which of the following pairs is typified by an indolent growth pattern with long disease-free intervals?

- a. Leiomyosarcoma, adenosarcoma
- b. Leiomyosarcoma, carcinosarcoma
- c. Adenosarcoma, endometrial stromal sarcoma
- d. Leiomyosarcoma, endometrial stromal sarcoma

34–20. Which of the following tumor types has a propensity for hematogenous spread?

- a. Adenosarcoma
- b. Carcinosarcoma
- c. Leiomyosarcoma
- d. Endometrial stromal tumors

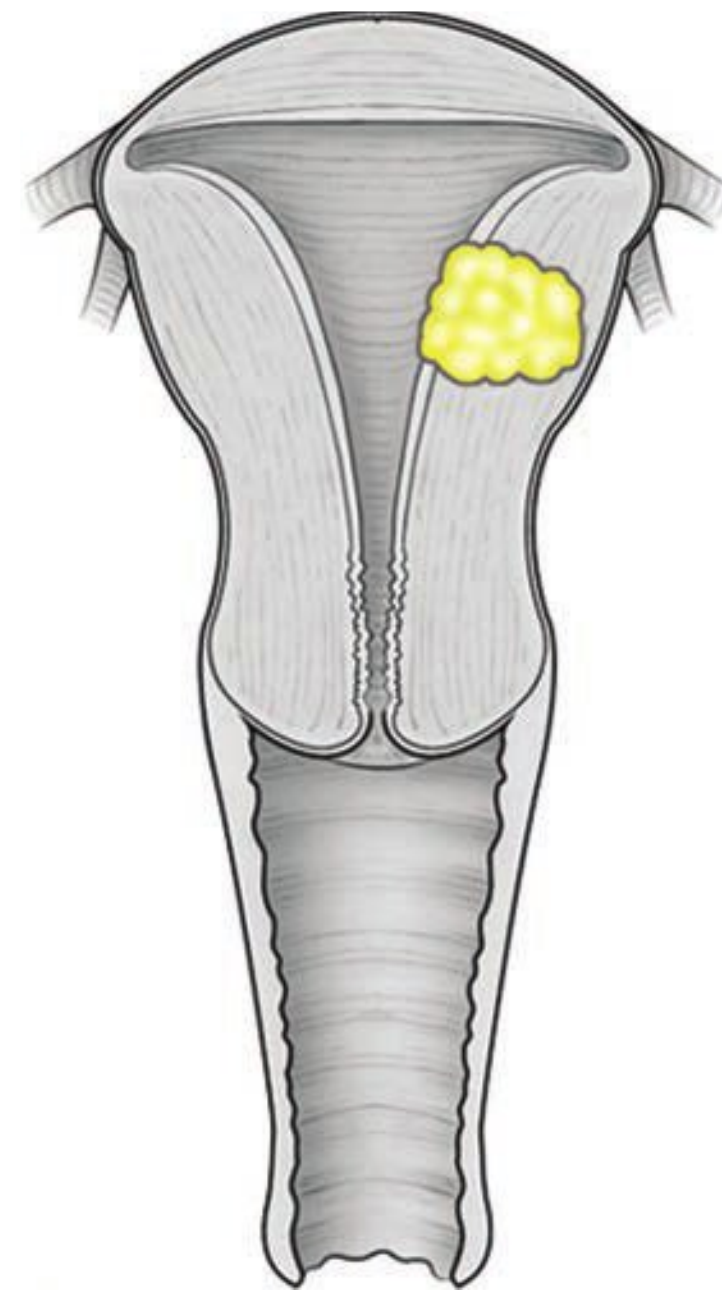
34–21. Which of the following tumor types has a propensity for nodal metastasis?

- a. Adenosarcoma
- b. Carcinosarcoma
- c. Leiomyosarcoma
- d. Endometrial stromal tumors

34–22. Which of the sarcomas is staged using the same criteria for endometrial carcinoma?

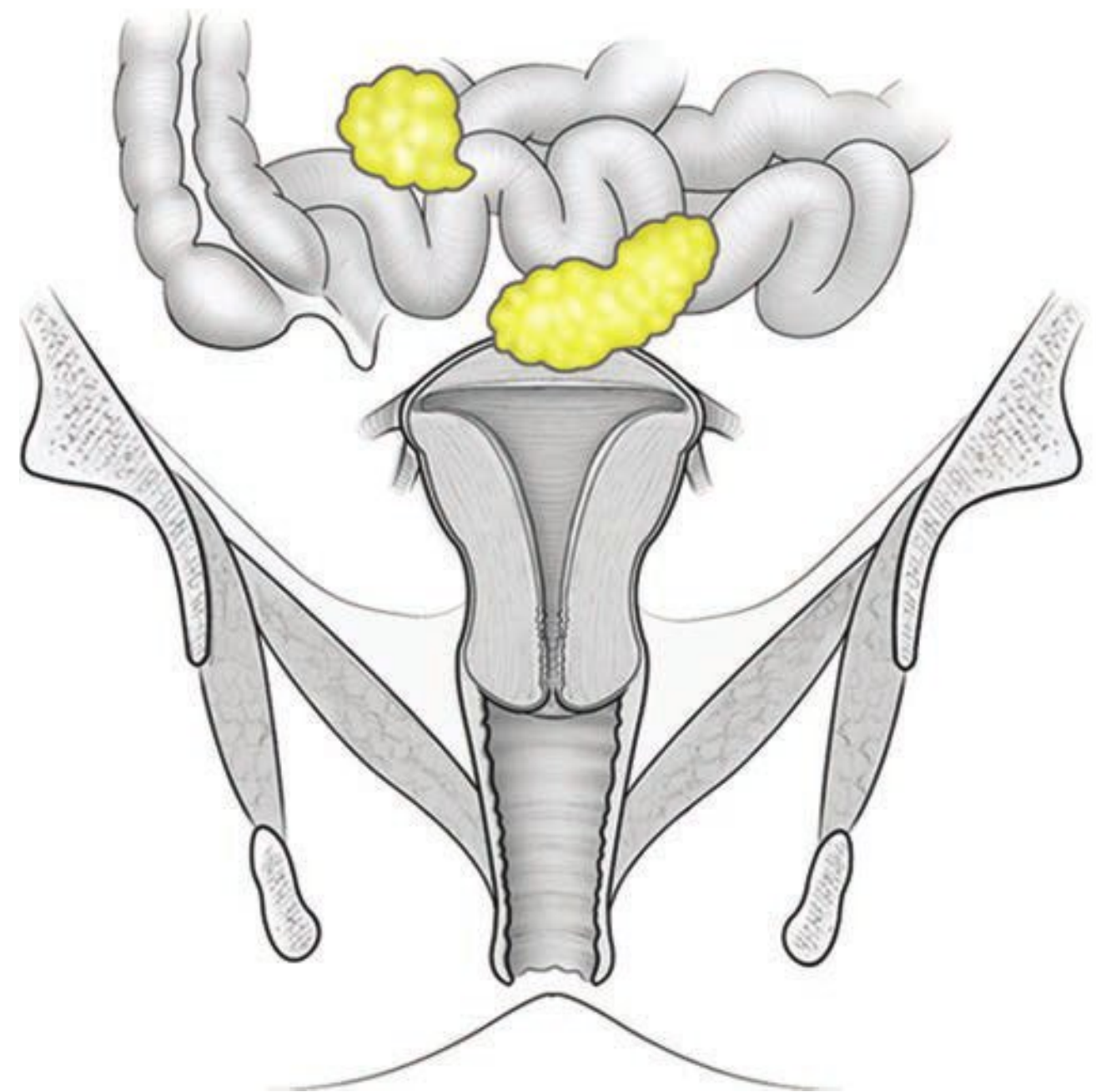
- a. Adenosarcoma
- b. Leiomyosarcoma
- c. Endometrial stromal sarcoma
- d. None of the above

34–23. This figure of an adenosarcoma depicts which International Federation of Gynecology and Obstetrics (FIGO) stage?



- a. Stage IC
- b. Stage IIB
- c. Stage IIIA
- d. Stage IVA

34–24. This figure of a leiomyosarcoma depicts which International Federation of Gynecology and Obstetrics (FIGO) stage?



- a. Stage IB
- b. Stage IIB
- c. Stage IIIB
- d. Stage IVB

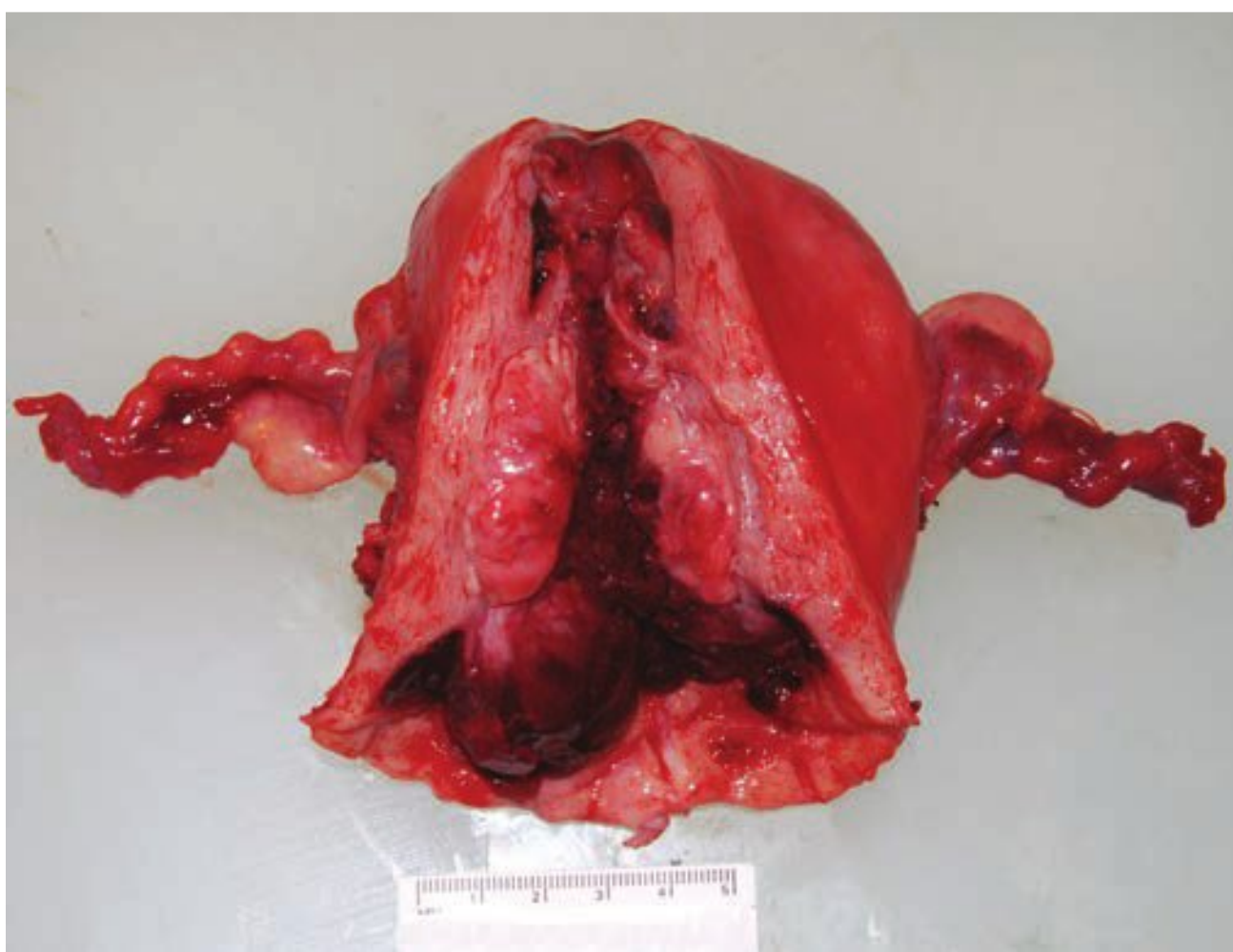
34–25. The highest chance of cure for a sarcoma confined to the uterus is provided by which initial therapeutic approach?

- a. Chemotherapy
- b. Complete surgical resection
- c. Whole-pelvis radiation therapy
- d. Intracavitary radiation therapy

34–26. Following total abdominal hysterectomy for a presumed benign diagnosis, the final pathological evaluation reveals a “smooth muscle tumor of uncertain malignant potential.” Subsequent management typically includes which of the following?

- a. Surveillance
- b. Chemotherapy
- c. Radiation therapy
- d. Radiotherapy with adjuvant chemotherapy

34–27. A 56-year-old woman undergoes total abdominal hysterectomy with bilateral salpingo-oophorectomy and surgical staging for early-stage endometrial stromal sarcoma. The specimen here is divided in the midline, and tumor is seen filling the uterine cavity. She subsequently experiences significant vasomotor symptoms and difficulty sleeping. Estrogen replacement therapy is contraindicated for her but may be considered for which of the following sarcoma types?



- a. Adenosarcoma
- b. Leiomyosarcoma
- c. High-grade undifferentiated sarcomas
- d. All of the above

34–28. A 60-year-old woman undergoes total abdominal hysterectomy for uterine leiomyosarcoma, stage IB. Which test may be selected for subsequent surveillance when performed periodically?

- a. Serum cancer antigen 125 (CA125) level
- b. Vaginal cuff cytology
- c. Pelvic and abdominal lymphangiography
- d. Chest radiograph or computed tomography

34–29. Following initial surgery, what approximate percentage of patients with stage I uterine sarcoma treated without adjuvant therapy will relapse?

- a. 10 percent
- b. 20 percent
- c. 50 percent
- d. 80 percent

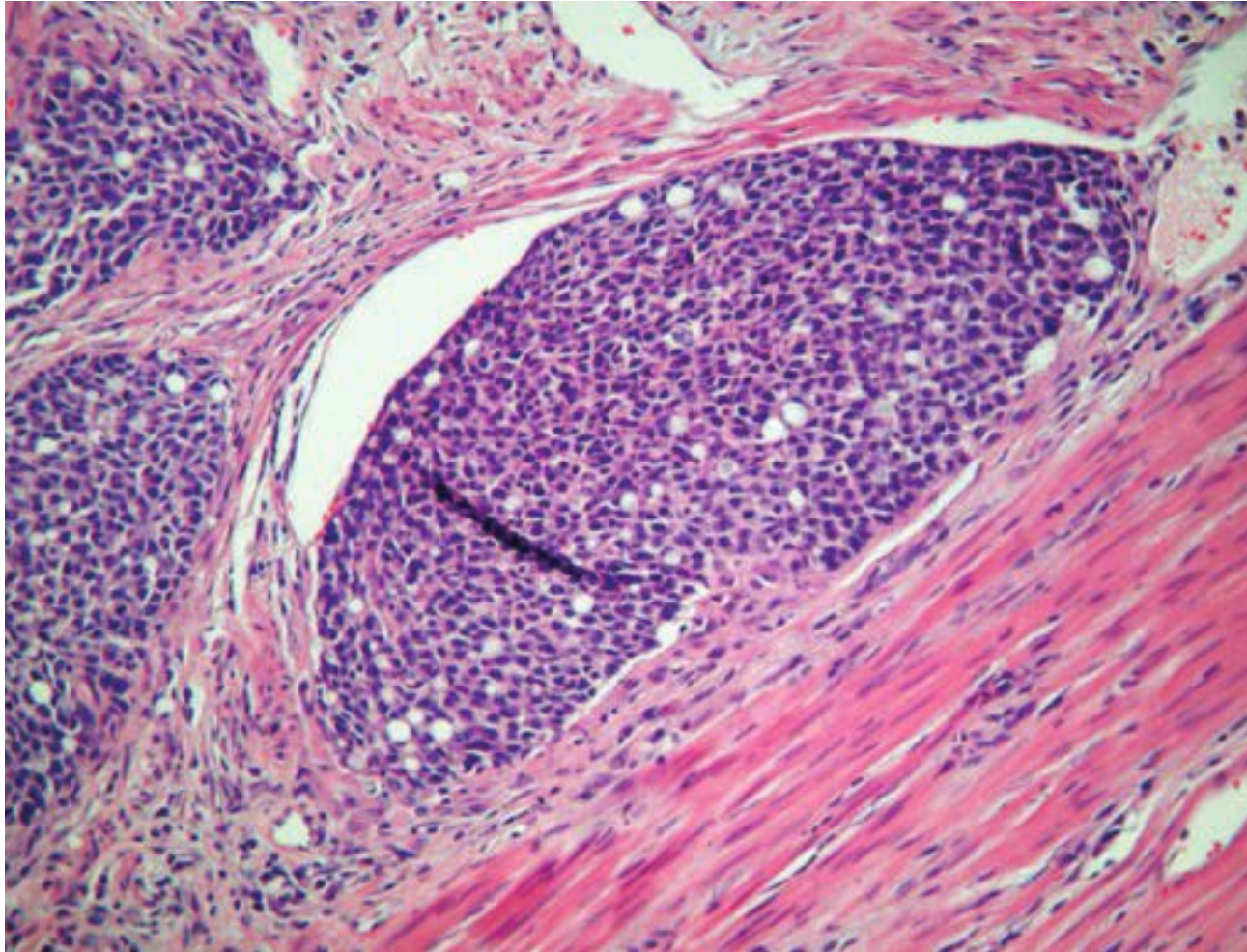
34–30. Improved survival benefit has been established for which of the following postoperative adjuvant modalities for stage I or II uterine sarcoma?

- a. Cisplatin chemotherapy
- b. Pelvic radiation treatment
- c. Whole-abdominal radiotherapy
- d. None of the above

34–31. For advanced-stage leiomyosarcoma, which of the following chemotherapy combinations has the highest proven response rate?

- a. Bleomycin, etoposide
- b. Ifosfamide, paclitaxel
- c. Gemcitabine, docetaxel
- d. Etoposide, actinomycin D

34–32. A 42-year-old woman is diagnosed with endometrial stromal sarcoma at hysterectomy for uterine enlargement and abnormal bleeding (histology shown below). Despite what was thought to be complete surgical resection, she presents with recurrent disease 16 months later. Which of the following therapies have shown some efficacy in the treatment of recurrent endometrial stromal sarcoma?



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- a. Progestins
- b. Aromatase inhibitors
- c. Gonadotropin-releasing hormone
- d. All of the above

34–33. A 68-year-old woman with advanced carcinosarcoma is otherwise healthy. Hysterectomy has been performed, but unresectable disease in the pelvis was encountered. She is willing to consider subsequent therapeutic options. For advanced-stage carcinosarcoma, which of the following chemotherapy combinations has the highest proven response rate?

- a. Bleomycin, etoposide
- b. Ifosfamide, paclitaxel
- c. Gemcitabine, docetaxel
- d. Etoposide, actinomycin D

34–34. Overall, what approximate percentage of women with uterine sarcoma will ultimately die of disease progression when followed for several years?

- a. 35 percent
- b. 55 percent
- c. 75 percent
- d. 95 percent

34–35. What is the most important independent variable associated with survival after diagnosis of uterine sarcoma?

- a. International Federation of Gynecology and Obstetrics (FIGO) stage
- b. Smoking status
- c. Body mass index
- d. Time from initial diagnosis to chemotherapy

34–36. Which of the following tumor types has the poorest prognosis based on tumor histology?

- a. Adenosarcoma
- b. Carcinosarcoma
- c. Leiomyosarcoma
- d. Endometrial stromal sarcoma

Chapter 34 ANSWER KEY

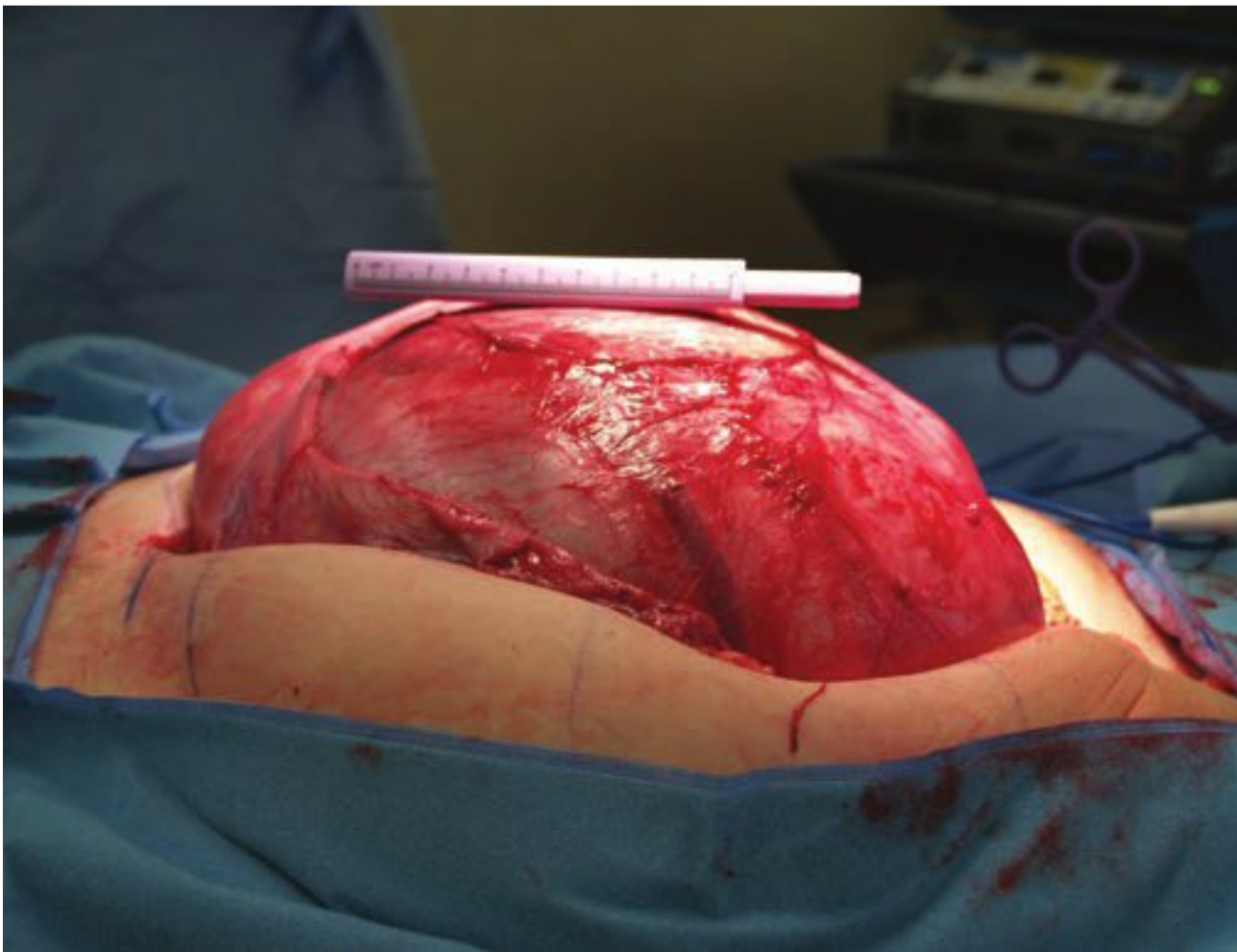
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
34-1	b	p. 722	Uterine Sarcoma	34-21	b	p. 728	Patterns of Spread
34-2	b	p. 722	Uterine Sarcoma	34-22	d	p. 728	Staging
34-3	c	p. 722	Uterine Sarcoma	34-23	a	p. 729	Table 34-3 and Figure 34-10
34-4	b	p. 722	Epidemiology and Risk Factors	34-24	c	p. 729	Table 34-3 and Figure 34-10
34-5	b	p. 722	Epidemiology and Risk Factors	34-25	b	p. 729	Surgery
34-6	b	p. 722	Epidemiology and Risk Factors	34-26	a	p. 729	Surgery
34-7	a	p. 722	Pathogenesis	34-27	d	p. 731	Surveillance
34-8	c	p. 722	Signs and Symptoms	34-28	d	p. 731	Surveillance
34-9	a	p. 722	Signs and Symptoms	34-29	c	p. 731	Adjuvant Radiation
34-10	d	p. 723	Imaging Studies	34-30	d	p. 731	Adjuvant Radiation
34-11	a	p. 723	Imaging Studies	34-31	c	p. 731	Treatment of Advanced (Stages III and IV)/ Recurrent Disease
34-12	d	p. 723	Role of the Generalist	34-32	d	p. 732	Endometrial Stromal Tumors
34-13	a	p. 724	Leiomyosarcoma	34-33	b	p. 732	Carcinosarcoma
34-14	c	p. 724	Leiomyosarcoma	34-34	c	p. 732	Survival and Prognostic Factors
34-15	c	p. 725	Endometrial Stromal Nodule	34-35	a	p. 732	Survival and Prognostic Factors
34-16	a	p. 725	Endometrial Stromal Sarcoma	34-36	c	p. 732	Survival and Prognostic Factors
34-17	a	p. 726	Carcinosarcoma				
34-18	a	p. 728	Adenosarcoma				
34-19	c	p. 728	Patterns of Spread				
34-20	c	p. 728	Patterns of Spread				

CHAPTER 35

Epithelial Ovarian Cancer

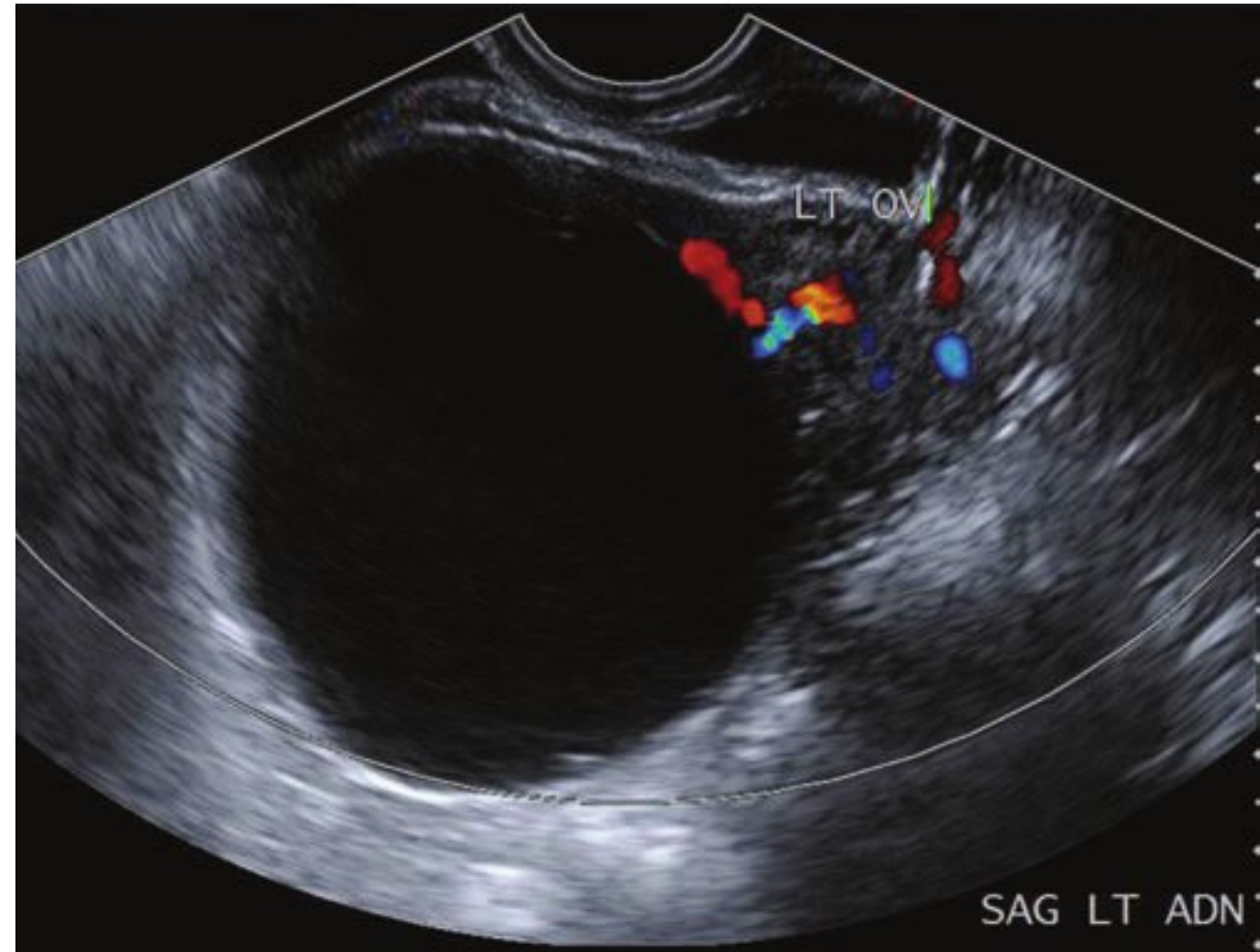
- 35–1.** In what place is ovarian cancer currently ranked among causes of cancer-related death in US women?
- First
 - Fifth
 - Tenth
 - Fifteenth
- 35–2.** What percentage of epithelial ovarian cancers is hereditary?
- 0.01 percent
 - 0.3 percent
 - 10 percent
 - 30 percent
- 35–3.** Which of the following is **NOT** a risk factor for ovarian cancer?
- Nulliparity
 - Late menopause
 - Oral contraceptive pills
 - Hereditary nonpolyposis colorectal cancer
- 35–4.** Which of the following genetic mutations is associated with the highest risk of developing ovarian cancer?
- PTEN*
 - MLH1*
 - BRCA1*
 - BRCA2*
- 35–5.** Which of the following statements regarding *BRCA* variants of uncertain clinical significance is **FALSE**?
- Women with this test result should undergo prophylactic salpingo-oophorectomy.
 - They may be normal variants and may not represent an increased risk of ovarian and breast cancer.
 - One third of *BRCA1* test results may be classified as variant of uncertain clinical significance.
 - One half of *BRCA2* test results may be classified as variant of uncertain clinical significance.
- 35–6.** Which of the following statements regarding ovarian cancer screening is true?
- Women at average risk should undergo OvaSure testing annually.
 - Women at average risk should undergo annual cancer antigen 125 (CA125) and transvaginal sonography screening.
 - Currently, there is no approved screening test for women at average risk in the United States.
 - Women at average risk should undergo Risk of Ovarian Cancer Algorithm (ROCA)-based CA125 screening and study-directed sonography.
- 35–7.** A 40-year-old woman with a *BRCA1* mutation undergoes a laparoscopic bilateral salpingo-oophorectomy for risk reduction. Subsequent to this surgery, her breast cancer risk is reduced by what percentage?
- 25 percent
 - 50 percent
 - 75 percent
 - 90 percent
- 35–8.** What is the main histologic difference between a low-malignant-potential tumor and epithelial ovarian cancer?
- Stromal invasion
 - Mitotic activity
 - Degree of nuclear atypia
 - Nuclear to cytoplasmic ratio

35–9. A 35-year-old G1P1 undergoes surgical exploration for a large pelvic mass, shown here. The frozen section analysis of her right ovary returns a diagnosis of “mucinous tumor of low malignant potential, cannot exclude invasion.” Clinically, there is no other obvious disease. In addition to pelvic washings, multiple peritoneal biopsies, omentectomy, and appendectomy, what other surgical procedures should be performed?



- a. No other procedures
- b. Bilateral pelvic and paraaortic lymph node dissection
- c. Total abdominal hysterectomy, bilateral salpingo-oophorectomy, and bilateral pelvic and paraaortic lymph node dissection
- d. None of the above

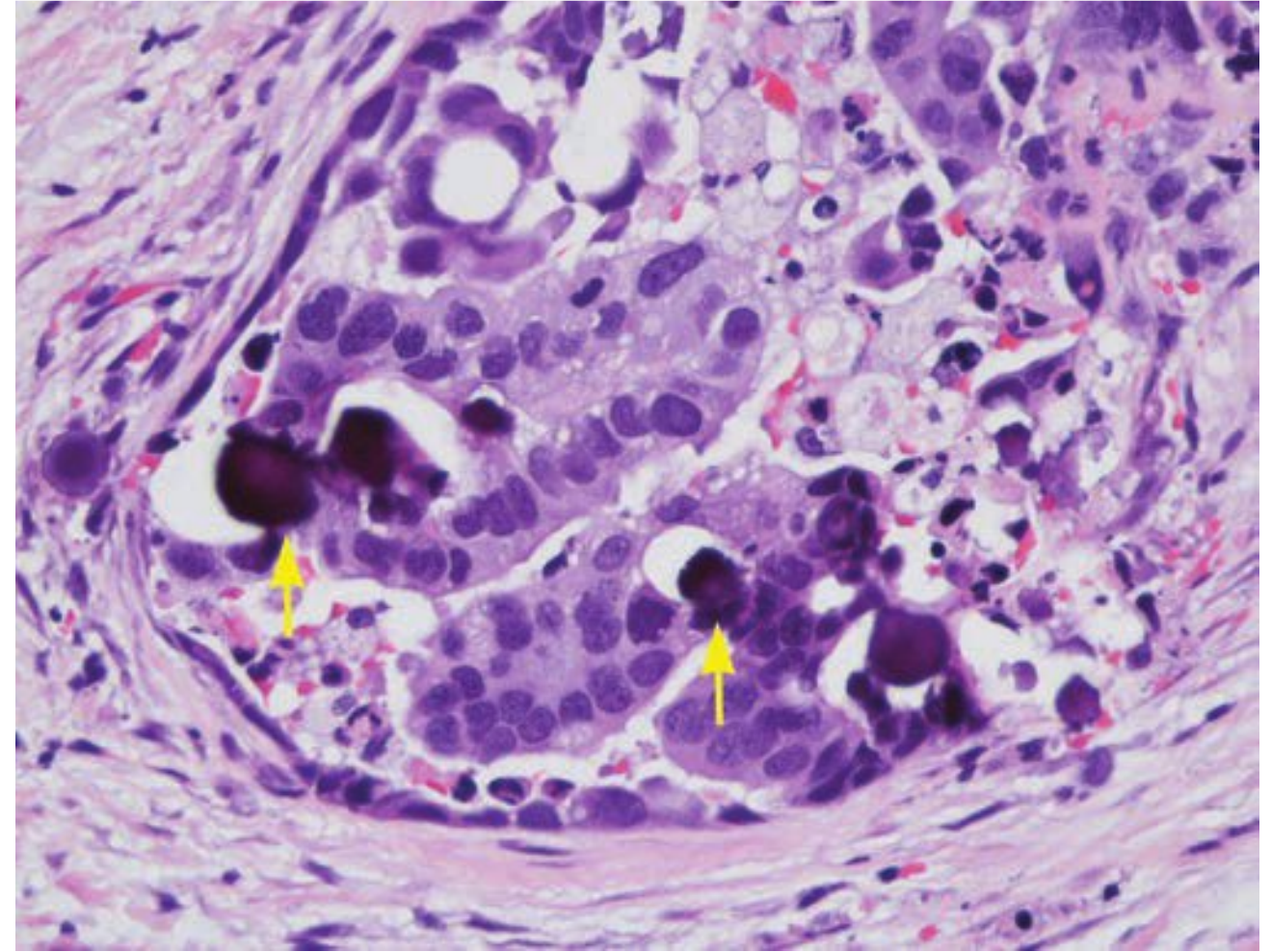
35–10. A 27-year-old nulligravida who desires future fertility underwent a laparoscopic left salpingo-oophorectomy for a persistent 7-cm cyst that was causing pressure and pain. The cyst was removed intact, and peritoneal washings were negative for cancer. The final pathology report revealed a serous low-malignant-potential tumor. What is the most appropriate management?



- a. Close observation
 - b. Right salpingo-oophorectomy (RSO), omentectomy, multiple peritoneal biopsies
 - c. RSO, omentectomy, multiple peritoneal biopsies, bilateral pelvic and paraaortic lymph node dissection
 - d. Hysterectomy, RSO, omentectomy, multiple peritoneal biopsies, bilateral pelvic and paraaortic lymph node dissection
- 35–11.** Which of the following is the worst prognostic feature associated with low-malignant-potential tumors?
- a. Advanced stage
 - b. Invasive implants
 - c. Mucinous histology
 - d. Stromal microinvasion
- 35–12.** What percentage of women with recurrent low-malignant-potential tumors have ovarian cancer?
- a. 10 percent
 - b. 30 percent
 - c. 50 percent
 - d. 70 percent

- 35–13.** Which of the following is **FALSE** regarding ovarian cancer symptoms?
- Most women with ovarian cancer experience persistent symptoms.
 - Women with ovarian cancer do not have symptoms until the disease is very advanced.
 - The most frequent symptoms associated with ovarian cancer include urinary urgency, pelvic pain, and bloating.
 - None of the above
- 35–14.** What percentage of patients with stage I ovarian cancer have a normal cancer antigen 125 (CA125) level?
- 0.5 percent
 - 5 percent
 - 25 percent
 - 50 percent
- 35–15.** Which of the following conditions can cause an elevated cancer antigen 125 (CA125) level?
- Leiomyomata
 - Menstruation
 - Endometriosis
 - All of the above
- 35–16.** Which of the following radiologic tests is most helpful in the treatment planning for a patient with suspected advanced ovarian cancer?
- Transvaginal sonography
 - Positron emission tomography
 - Magnetic resonance imaging of the pelvis
 - Computed tomography of the abdomen and pelvis
- 35–17.** Which of the following women does **NOT** need to be referred to a gynecologic oncologist?
- A 35-year-old woman with a complex 7-cm adnexal mass and a cancer antigen 125 (CA125) level of 75 U/mL
 - A 60-year-old woman with a complex 7-cm adnexal mass and a CA125 level of 75 U/mL
 - A 35-year-old woman with a complex 7-cm adnexal mass, ascites, and a CA125 level of 75 U/mL
 - A 40-year-old with a complex 7-cm adnexal mass, a CA125 level of 275 U/mL, and a liver lesion seen during abdominopelvic computed tomography

- 35–18.** In this photomicrograph, what are the arrows pointing to? (Hint: This finding is pathognomonic for the most common histologic cell type among epithelial ovarian cancers.)

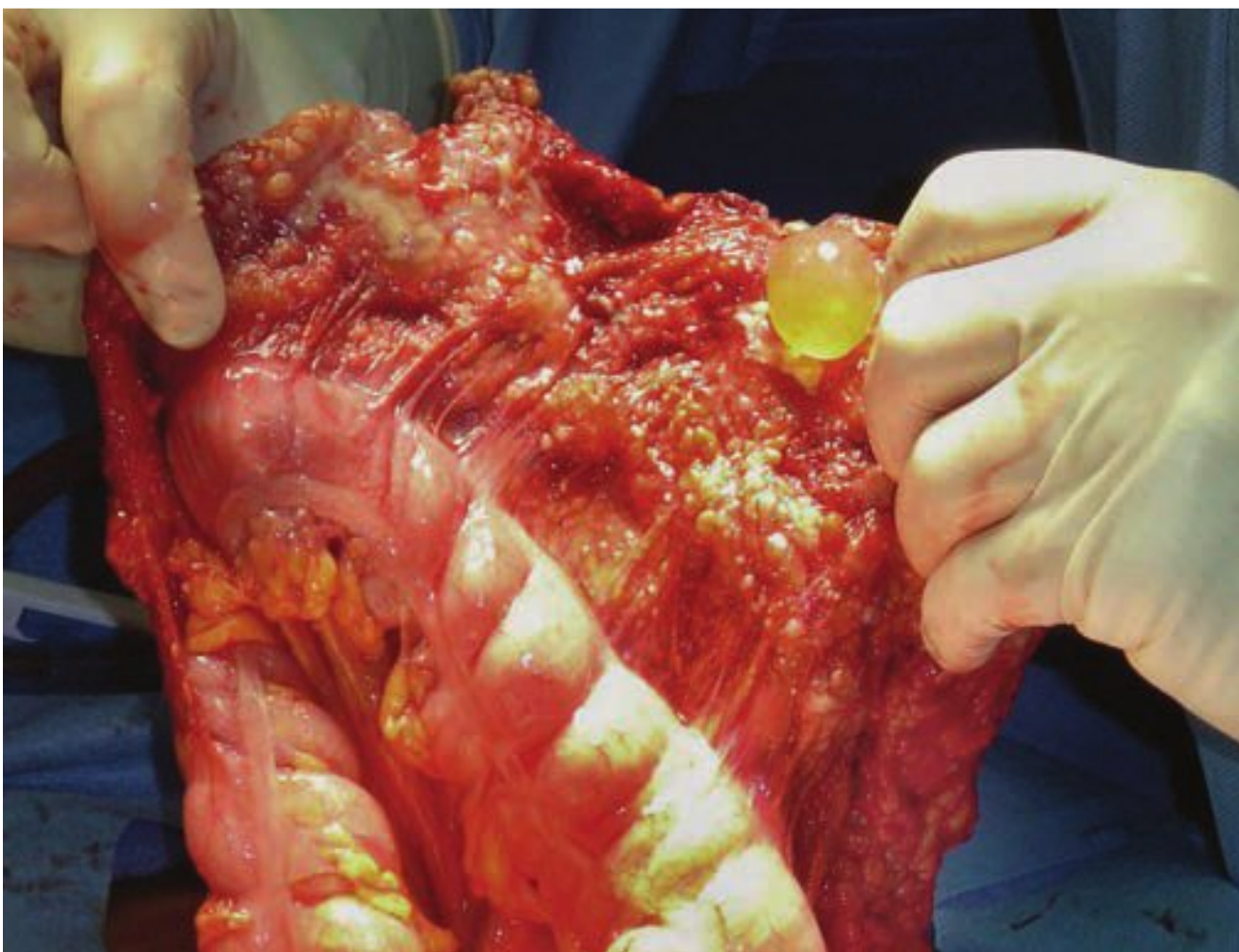


Used with permission from Dr. Kelley Carrick.

- Signet ring
 - Hobnail cell
 - Keratin pearl
 - Psammoma body
- 35–19.** Which of the following cell types of ovarian cancer is **NOT** associated with endometriosis?
- Clear cell
 - Endometrioid
 - Papillary serous
 - All of the above
- 35–20.** A 27-year-old woman presents to the emergency department with a complaint of increasing abdominal distention, constipation, and weight loss. Abdominopelvic computed tomography reveals a 10-cm right adnexal mass and retroperitoneal lymphadenopathy. Her cancer antigen 125 (CA125) level is 45 U/mL, beta-human chorionic gonadotropin level is < 5 IU/mL, alpha-fetoprotein (AFP) and lactate dehydrogenase (LDH) levels are normal, and her serum calcium level is 15 mg/dL. What is the most likely diagnosis?
- Lymphoma
 - Primary hyperparathyroidism
 - Small-cell hypercalcemic-type ovarian cancer
 - Malignant germ cell tumor of the ovary with bone metastasis

- 35–21.** Which of the following is **NOT** a characteristic of Krukenberg tumors?
- They are almost always bilateral.
 - They usually arise from primary gastric tumors.
 - They are usually the only site of metastatic disease.
 - They are composed of mucinous and signet ring adenocarcinoma cells.
- 35–22.** What is the most common method of ovarian cancer spread?
- Lymphatic
 - Hematogenous
 - Direct extension
 - Tumor exfoliation

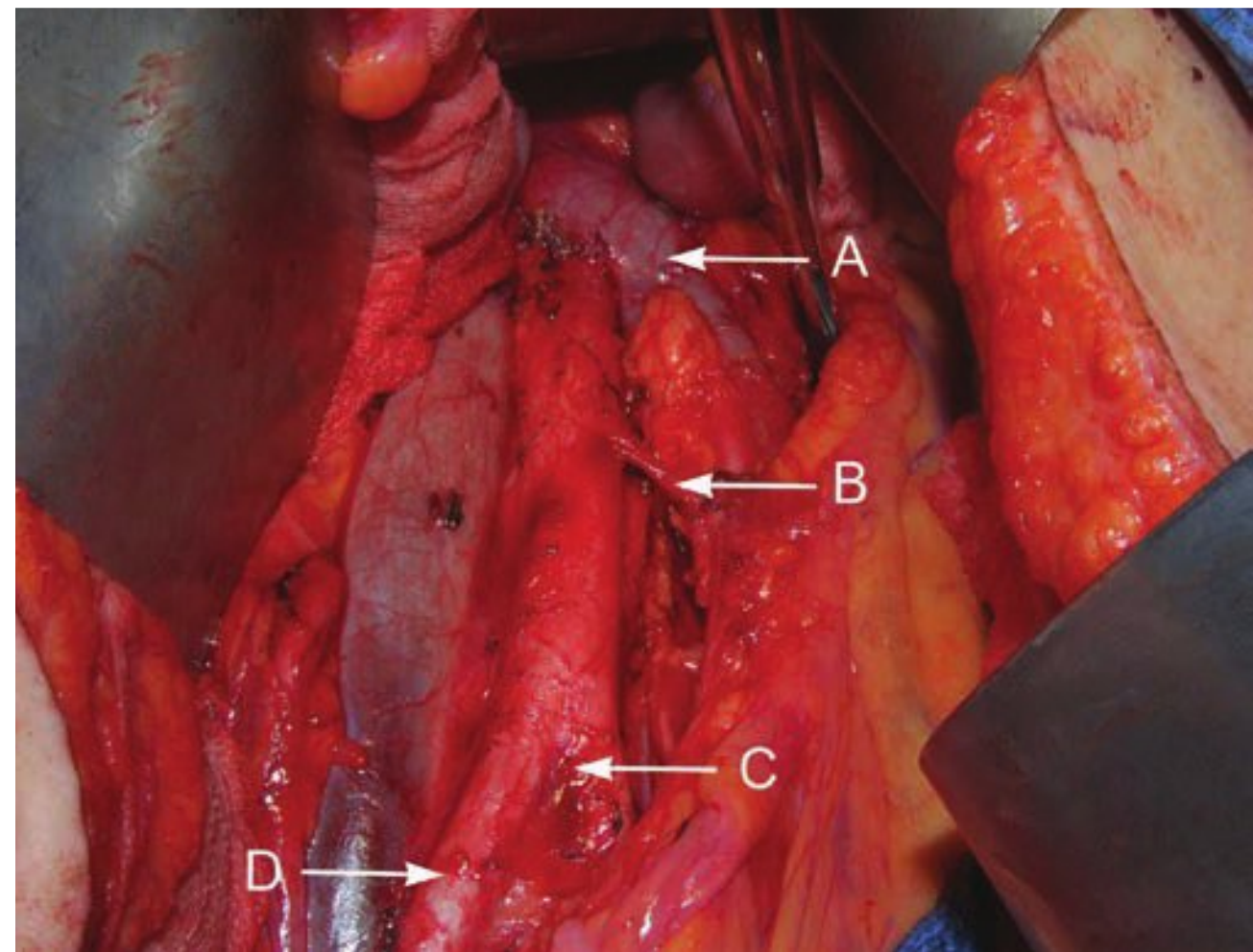
35–23 A 40-year-old woman with a small right-sided pleural effusion undergoes an exploratory laparotomy for a pelvic mass and elevated cancer antigen 125 (CA125) level. During abdominal exploration, the finding below is seen. What International Federation of Gynecology and Obstetrics (FIGO) stage is she?



Used with permission from Dr. John Schorge.

- Stage IIIA
- Stage IIIB
- Stage IIIC
- Stage IV

35–24. In the dissection shown here, which arrow correctly indicates the cephalad border of paraaortic lymph node dissection typically performed for ovarian cancer that is clinically confined to the ovary?



Used with permission from Dr. Jaya Lea.

- A
- B
- C
- D

35–25. Approximately what percentage of women with ovarian cancer clinically confined to the ovaries will be upstaged by surgery?

- 1 percent
- 30 percent
- 60 percent
- 90 percent

35–26. Which of the following patients does **NOT** need adjuvant chemotherapy for epithelial ovarian cancer following total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, and multiple peritoneal biopsies?

- A 65-year-old woman who underwent the above surgeries plus pelvic and paraaortic lymph node dissection for a stage IC clear cell carcinoma of the ovary
- A 45-year-old woman who underwent the above surgeries plus pelvic lymph node dissection for a stage IA, grade 1 endometrioid adenocarcinoma of the ovary
- A 55-year-old woman who underwent the above surgeries plus pelvic and paraaortic lymph node dissection for a stage IB, grade 1 papillary serous carcinoma of the ovary
- A 70-year-old woman who underwent the above surgeries plus pelvic and paraaortic lymph node dissection for a stage IC, grade 1 papillary serous carcinoma of the ovary

- 35–27.** What is the goal of cytoreductive surgery for advanced ovarian cancer?
- Remove all tumors measuring > 1 cm
 - Remove all tumors measuring > 2 cm
 - Remove all tumors measuring > 0.5 cm
 - Remove all gross disease
- 35–28.** Which of the following is a possible mechanism by which primary debulking surgery is felt to improve outcomes?
- Enhance tumor chemosensitivity
 - Decrease risk of chemoresistance
 - Improve drug delivery to cancer cells after removal of necrotic tissue
 - All of the above
- 35–29.** Patients with which of the following cancers do **NOT** require lymphadenectomy?
- Endometrioid adenocarcinoma of the ovary clinically confined to one ovary
 - Serous carcinoma of the ovary, with omental implants measuring > 2 cm and with bulky aortic nodes
 - Serous carcinoma of the ovary, with carcinomatosis that can be debulked to < 5 mm residual disease and with no grossly enlarged nodes
 - None of the above
- 35–30.** Which of the following chemotherapy regimens is associated with the longest overall survival rate for women with optimally debulked (< 1 cm residual disease) stage III epithelial ovarian cancer?
- Carboplatin alone
 - Intraperitoneal (IP) cisplatin and paclitaxel
 - Intravenous (IV) carboplatin and paclitaxel
 - IV carboplatin, paclitaxel, and bevacizumab
- 35–31.** Which of the following statements regarding maintenance chemotherapy for advanced ovarian cancer is **FALSE**?
- Maintenance chemotherapy has not improved overall survival rates.
 - Improvements in progression-free survival rates have been demonstrated.
 - Agents that have been tested include bevacizumab, pazopanib, and paclitaxel.
 - Patients should undergo second-look surgery prior to starting maintenance treatment.
- 35–32.** Which of the following is **NOT** a positive prognostic factor for ovarian cancer?
- Younger age
 - Clear cell type
 - Absence of ascites
 - Debulking to no gross residual
- 35–33.** A woman with a history of stage IIIC ovarian cancer who underwent optimal cytoreductive surgery followed by six cycles of intraperitoneal (IP) cisplatin and paclitaxel has a recurrence 4 months after completion of chemotherapy. She complains of bloating and decreased appetite. Which of the following is the most appropriate treatment?
- Tamoxifen
 - Carboplatin
 - Gemcitabine
 - Pegylated liposomal doxorubicin and bevacizumab
- 35–34.** Which of the following chemotherapy regimens is an appropriate treatment for a patient with platinum-sensitive ovarian cancer?
- Carboplatin with paclitaxel
 - Carboplatin with gemcitabine
 - Carboplatin with pegylated liposomal doxorubicin
 - Any of the above

Chapter 35 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
35-1	b	p. 735	Epidemiology and Risk Factors	35-19	c	p. 746	Clear Cell Adenocarcinoma
35-2	c	p. 735	Epidemiology and Risk Factors	35-20	c	p. 746	Other Histologic Types
35-3	c	p. 735	Epidemiology and Risk Factors	35-21	c	p. 747	Secondary Tumors
35-4	c	p. 736	BRCA1 and BRCA2 Genes	35-22	d	p. 747	Patterns of Spread
35-5	a	p. 737	Genetic Testing	35-23	c	p. 750	Table 35-5
35-6	c	p. 738	New Biomarkers and Proteomics	35-24	b	p. 748	Surgical Staging
35-7	b	p. 738	Prophylactic Surgery	35-25	b	p. 749	Postsurgical Management
35-8	a	p. 739	Pathology	35-26	c	p. 749	Postsurgical Management
35-9	a	p. 739	Treatment	35-27	d	p. 750	Residual Disease
35-10	a	p. 739	Treatment	35-28	d	p. 750	Residual Disease
35-11	b	p. 740	Prognosis	35-29	c	p. 751	Surgical Approach to Cytoreductive Surgery
35-12	b	p. 740	Prognosis	35-30	b	p. 752	Intraperitoneal Chemotherapy
35-13	b	p. 741	Symptoms and Physical Findings	35-31	d	p. 752	Management of Patients in Remission
35-14	d	p. 742	Laboratory Testing	35-32	b	p. 753	Table 35-9
35-15	d	p. 742	Laboratory Testing	35-33	d	p. 753	Management of Recurrent Ovarian Cancer
35-16	d	p. 742	Imaging	35-34	d	p. 753	Management of Recurrent Ovarian Cancer
35-17	a	p. 742	Role of the Generalist				
35-18	d	p. 744	Serous Tumors				

CHAPTER 36

Ovarian Germ Cell and Sex Cord-Stromal Tumors

- 36–1.** What approximate percentage of all ovarian cancers are germ cell and sex cord-stromal tumors?
- 0.1 percent
 - 1 percent
 - 10 percent
 - 30 percent
- 36–2.** Women with germ cell tumors are diagnosed most commonly during which International Federation of Gynecology and Obstetrics (FIGO) disease stage?
- I
 - II
 - III
 - IV
- 36–3.** Which of the following invasive cancers is most commonly diagnosed in women during their 20s (third decade)?
- Germ cell tumors
 - Sex cord-stromal tumors
 - Epithelial ovarian cancer
 - All of these occur with equal frequency.
- 36–4.** What is the most common presenting symptom in a woman with a germ cell tumor?
- Bloating
 - Abdominal pain
 - Abdominal distention
 - Menstrual abnormality
- 36–5.** Which of the following is **NOT** a tumor marker for germ cell tumors?
- Inhibin
 - Alpha-fetoprotein (AFP)
 - Lactate dehydrogenase (LDH)
 - Human chorionic gonadotropin (hCG)
- 36–6.** An 18-year-old woman presents with severe, acute abdominal pain. She is found to have a large pelvic mass, and torsion of an enlarged ovary is suspected. During the ensuing surgery, frozen section reveals a dysgerminoma. There is no gynecologic oncologist at your hospital. What is the most appropriate next step?
- Perform a bilateral salpingo-oophorectomy and close
 - Perform a unilateral salpingo-oophorectomy and close
 - Close her abdomen and refer her to a gynecologic oncologist
 - Perform a unilateral salpingo-oophorectomy, obtain peritoneal washings, carefully palpate the abdomen for metastases, and perform biopsies as indicated
- 36–7.** Which of the following is the most commonly diagnosed ovarian malignancy during pregnancy?
- Dysgerminoma
 - Choriocarcinoma
 - Immature teratoma
 - Granulosa cell tumor



36–8. A 19-year-old female nulligravid college student is found to have a pelvic mass and an elevated lactate dehydrogenase (LDH) level. She reports that she was amenorrheic until she started taking combination oral contraceptive pills at age 17. She undergoes surgical exploration, and frozen section analysis of the surgical specimen reveals ovarian dysgerminoma. Which of the following is **FALSE**?

- a. Her karyotype is most likely 46,XX.
- b. Regardless of stage, she has an excellent prognosis.
- c. Her other ovary may contain a gonadoblastoma and should be removed.
- d. She should undergo complete surgical staging, but her uterus may be preserved.

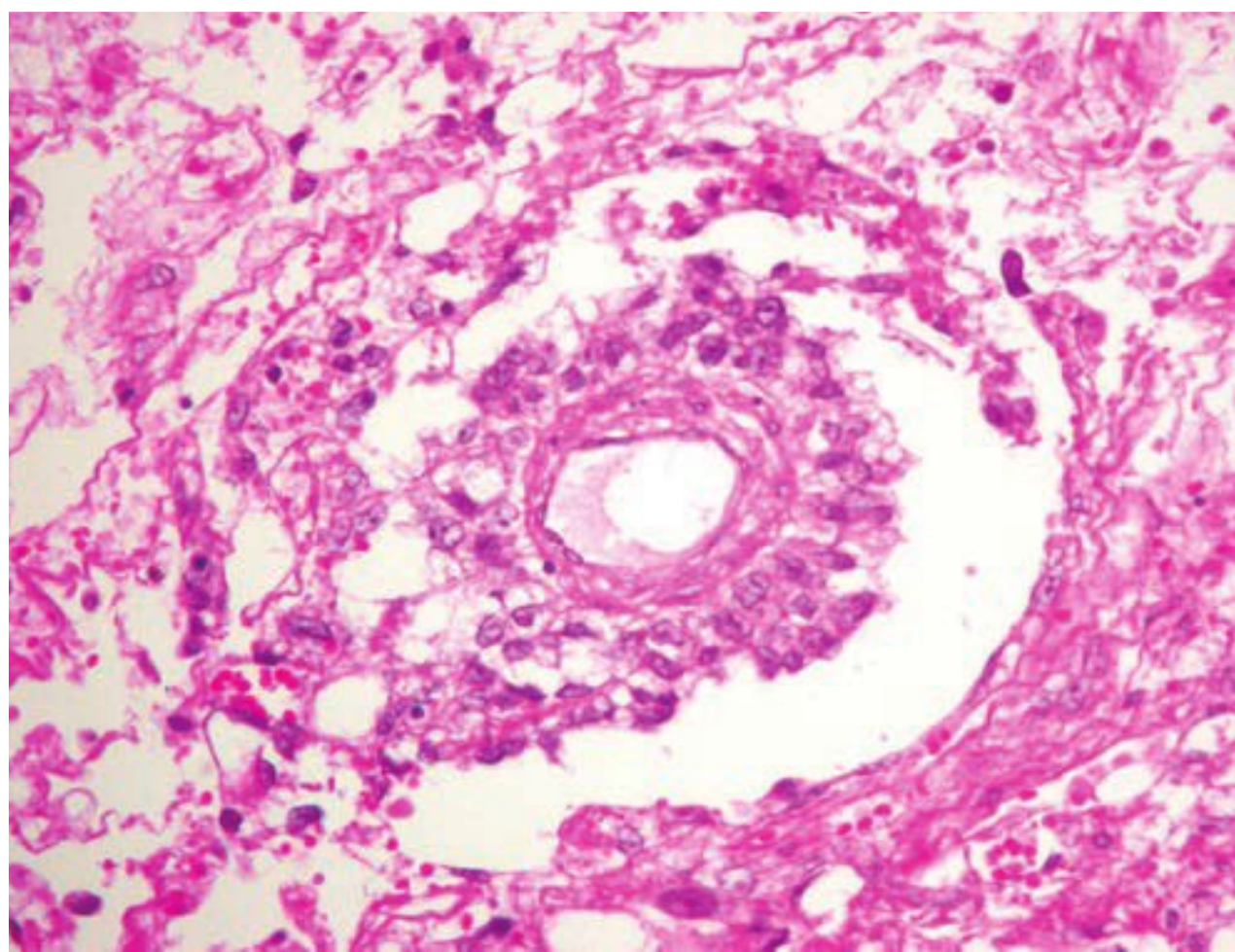
36–9. What percentage of gonadoblastomas undergoes malignant transformation?

- a. 0.1 percent
- b. 10 percent
- c. 40 percent
- d. 80 percent

36–10. Which germ cell tumor is most likely to be bilateral?

- a. Dysgerminoma
- b. Mature teratoma
- c. Immature teratoma
- d. Embryonal carcinoma

36–11. The histologic structure shown in the photomicrograph below, a single papilla lined by tumor cells and containing a central vessel, is pathognomonic for which germ cell tumor?



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- a. Dysgerminoma
- b. Yolk sac tumor
- c. Immature teratoma
- d. Nongestational choriocarcinoma

36–12. Which of the following malignant germ cell tumors has the worst prognosis?

- a. Dysgerminoma
- b. Yolk sac tumor
- c. Immature teratoma
- d. Nongestational choriocarcinoma

36–13. Which of the following is true regarding mixed germ cell tumors of the ovary?

- a. Dysgerminoma is the most common component.
- b. Treatment is based on the dysgerminoma component.
- c. Women with a presumed pure dysgerminoma and an elevated alpha-fetoprotein (AFP) level are likely to have a component of immature teratoma.
- d. All of the above

36–14. What is the most common germ cell malignancy of the ovary?

- a. Dysgerminoma
- b. Yolk sac tumor
- c. Mature teratoma
- d. Immature teratoma

36–15. Which of the following characteristics is primarily used to grade immature teratomas?

- a. Amount of solid component present
- b. Amount of immature elements present
- c. Amount of immature neural tissue present
- d. None of the above

36–16. An 18-year-old adolescent has a history of a stage IC grade 3 immature teratoma. She received adjuvant chemotherapy with bleomycin, etoposide, and cisplatin (BEP). At her 6-month follow-up, she is found to have a pelvic mass. Which of the following is the most appropriate management?

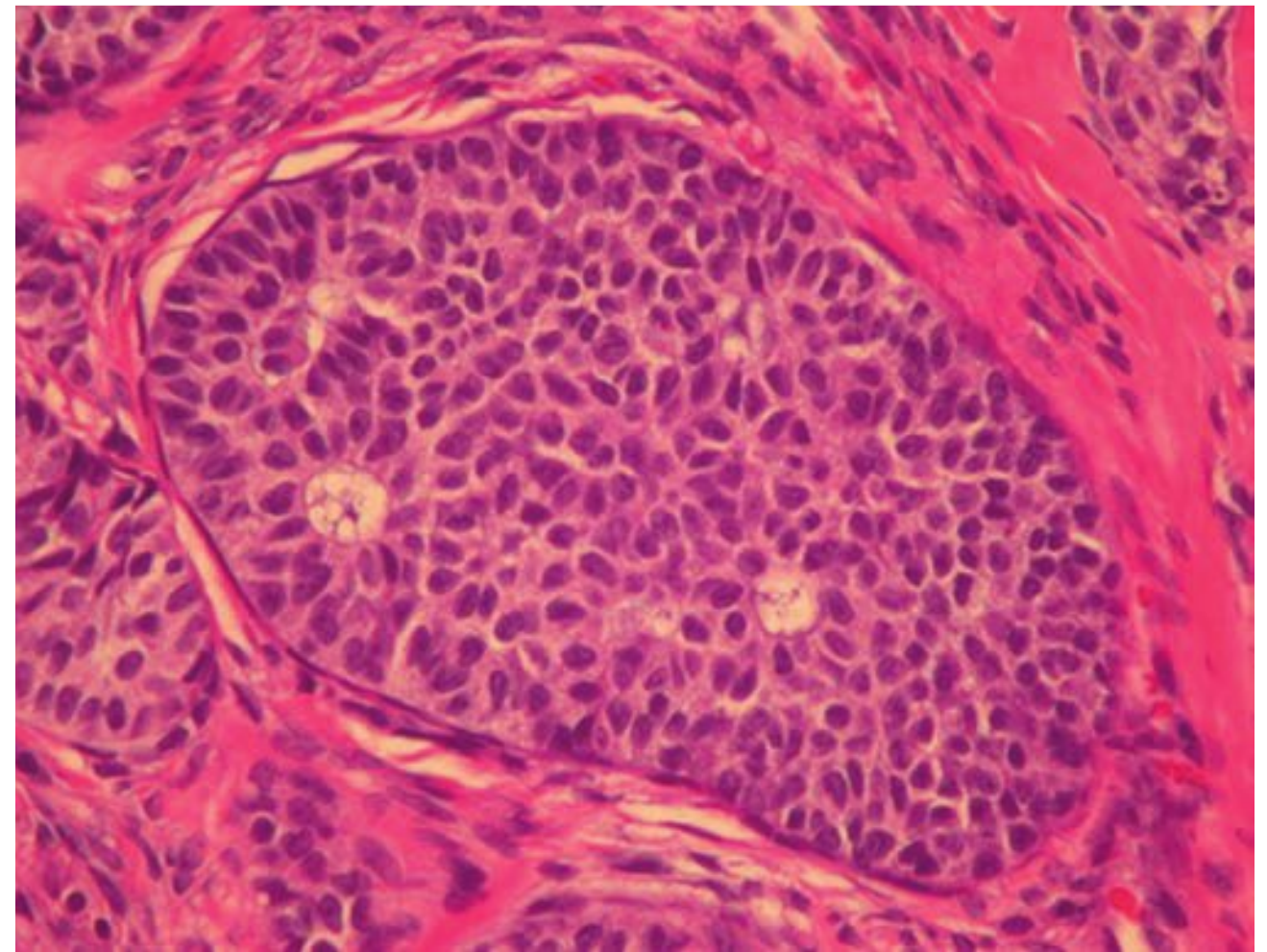
- a. Chemotherapy
- b. Radiation therapy
- c. Continued observation
- d. Exploratory laparotomy with removal of masses found

36–17. What is the most common cancer found in a mature teratoma?

- a. Struma ovarii
- b. Basal cell carcinoma
- c. Neuroectodermal tumors
- d. Squamous cell carcinoma

- 36–18.** Which of the following patients does **NOT** need adjuvant chemotherapy after unilateral salpingo-oophorectomy with surgical staging?
- Stage IA dysgerminoma
 - Stage IA yolk sac tumor
 - Stage IA grade 3 immature teratoma
 - All of the above
- 36–19.** What is the most common chemotherapy regimen used to treat malignant germ cell ovarian cancers?
- Carboplatin and etoposide
 - Carboplatin and paclitaxel
 - Bleomycin, etoposide, and cisplatin
 - Bleomycin, etoposide, and paclitaxel
- 36–20.** Which of the following is a prognostic factor for malignant ovarian germ cell cancers?
- Stage
 - Histologic subtype
 - Amount of residual tumor
 - All of the above
- 36–21.** Which of the following is **NOT** a protective factor against the development of a sex cord-stromal tumor?
- Smoking
 - Obesity
 - Multiparity
 - Combination oral contraceptive pills
- 36–22.** What is the most common presenting symptom of a sex cord-stromal tumor in a prepubescent girl?
- Hirsutism
 - Abdominal pain
 - Primary amenorrhea
 - Isosexual precocious puberty

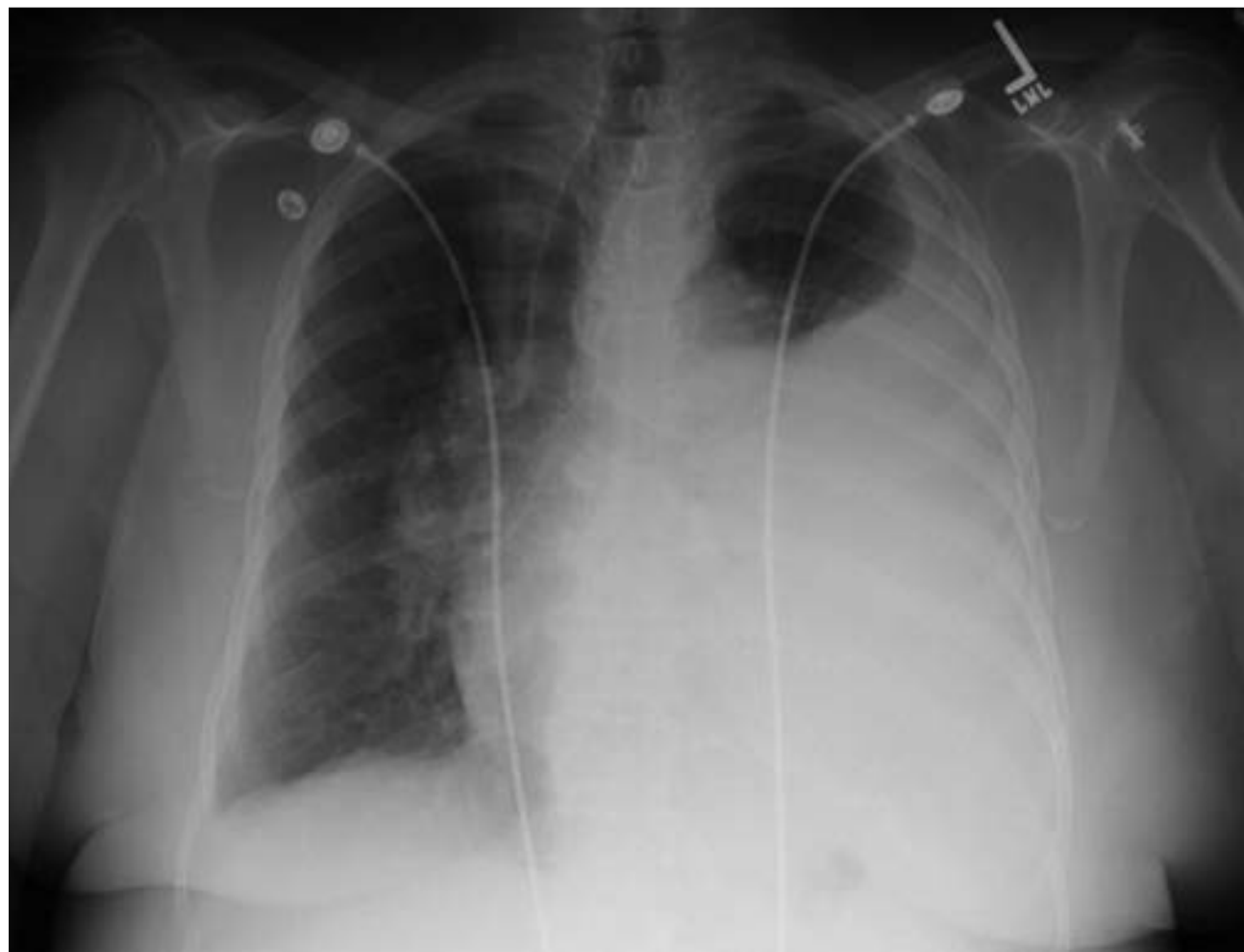
- 36–23.** Which of the following is true regarding the tumor represented in this photomicrograph?



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- Inhibin B is often elevated.
 - The tumor can often exceed 10 cm in size.
 - The characteristic microscopic feature is the Call-Exner body.
 - All of the above
- 36–24.** Which of the following tumors is hormonally active and most often secretes estrogen?
- Thecoma
 - Fibroma
 - Sertoli-Leydig tumor
 - None of the above

- 36–25.** A woman undergoes exploratory laparotomy, total abdominal hysterectomy, and bilateral salpingo-oophorectomy for a solid pelvic mass, ascites, and an elevated serum cancer antigen 125 (CA125) level. Her preoperative chest radiograph is shown below. Frozen section demonstrates a benign ovarian neoplasm. What is the most likely diagnosis?



- a. Meigs syndrome
- b. Benign ovarian neoplasm with cirrhosis
- c. Metastatic cancer with a benign adnexal mass
- d. Ovarian cancer with an inaccurate frozen section diagnosis

- 36–26.** A 22-year-old woman has the vulvar finding demonstrated below and an 8-cm pelvic mass palpable during bimanual examination. What is the most likely diagnosis?



Reproduced with permission from Hoffman BL, Schorge JO, Schaffer JI, et al (eds): Williams Gynecology, 2nd ed. New York, McGraw-Hill, 2012. Photo contributor: Dr. Ben Li.

- a. Sertoli tumor
 - b. Swyer syndrome
 - c. Leydig cell tumor
 - d. Sertoli-Leydig tumor
- 36–27.** A 30-year-old woman with Peutz-Jeghers syndrome is found to have a sex cord-stromal tumor. Which of the following is **FALSE**?
- a. Her sex cord-stromal tumor is malignant.
 - b. Her sex cord-stromal tumor is likely bilateral.
 - c. She probably has hamartomatous polyps in her colon.
 - d. She has a 15-percent chance of developing adenoma malignum.

- 36–28.** A 35-year-old nulligravida who desires future fertility is found to have a granulosa cell tumor during frozen section analysis of a right salpingo-oophorectomy (RSO) specimen. What is the appropriate surgical management of this patient?
- RSO alone
 - RSO, omentectomy, multiple peritoneal biopsies; consider pelvic and paraaortic lymph node dissection
 - RSO, omentectomy, multiple peritoneal biopsies; consider pelvic and paraaortic lymph node dissection and dilatation and curettage of endometrial cavity
 - Total abdominal hysterectomy, bilateral salpingo-oophorectomy, omentectomy, multiple peritoneal biopsies; consider pelvic and paraaortic lymph node dissection
- 36–29.** Routine surveillance for malignant sex cord-stromal tumors includes all of the following **EXCEPT**:
- Inhibin levels
 - History and physical examination at regular intervals
 - Routine abdominopelvic computed tomography every 6 months
 - Imaging as clinically indicated based on physical examination findings and tumor marker levels
- 36–30.** Which of the following is **NOT** an appropriate adjuvant treatment for a patient with a stage III granulosa cell tumor?
- Whole pelvic radiotherapy
 - Carboplatin and paclitaxel
 - Bleomycin-etoposide-cisplatin chemotherapy
 - All of the above are appropriate treatment options.
- 36–31.** A 52-year-old woman with a history of granulosa cell tumor has a rising inhibin level. Computed tomography reveals an isolated pelvic mass. What is the next most appropriate treatment?
- Surgical resection
 - Carboplatin and paclitaxel
 - Medroxyprogesterone acetate
 - Bleomycin-etoposide-cisplatin chemotherapy
- 36–32.** Which of the following is a prognostic factor for sex cord-stromal tumors?
- Age
 - Stage
 - Amount of residual disease
 - All of the above
- 36–33.** Which of the following is **NOT** true of sex cord-stromal tumors diagnosed during pregnancy?
- Granulosa cell tumors are most common.
 - Chemotherapy, if indicated, should be given during pregnancy.
 - A third of these cases are diagnosed incidentally at the time of cesarean delivery.
 - Surgery should consist of unilateral salpingo-oophorectomy, omentectomy, and peritoneal biopsies.

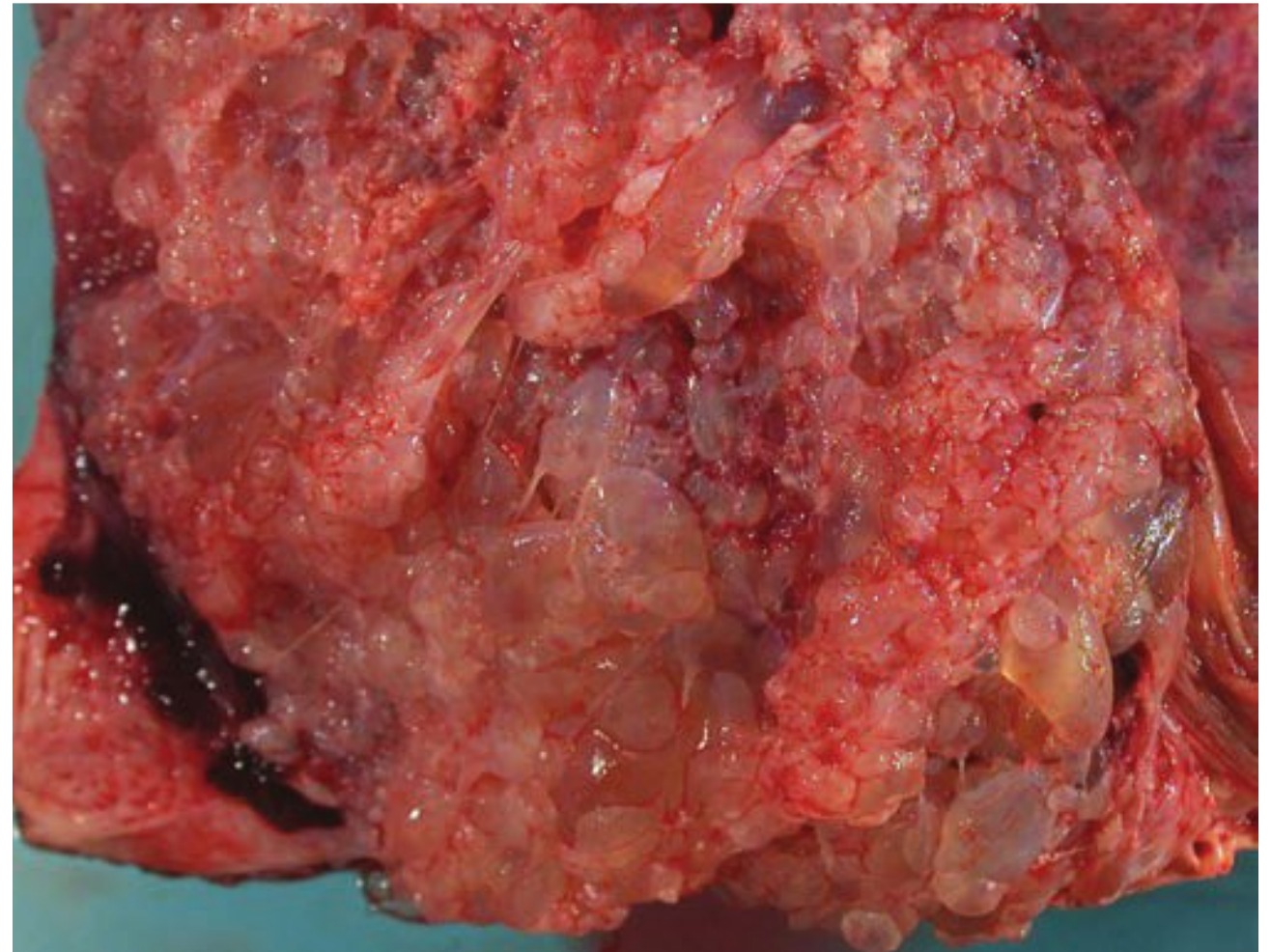
Chapter 36 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
36-1	c	p. 760	Ovarian Germ Cell and Sex Cord-Stromal Tumors	36-18	a	p. 766	Chemotherapy
36-2	a	p. 760	Malignant Ovarian Germ Cell Tumors	36-19	c	p. 766	Chemotherapy
36-3	c	p. 760	Epidemiology	36-20	d	p. 767	Prognosis
36-4	b	p. 760	Patient Findings	36-21	b	p. 768	Epidemiology
36-5	a	p. 761	Laboratory Testing, Dysgerminoma	36-22	d	p. 768	Patient Findings
36-6	d	p. 761	Role of the Generalist	36-23	d	p. 770	Adult Granulosa Cell Tumors
36-7	a	p. 762	Dysgerminoma	36-24	a	p. 771	Thecomas
36-8	a	p. 762	Dysgerminoma	36-25	a	p. 771	Fibromas Fibrosarcomas
36-9	c	p. 762	Dysgerminoma	36-26	d	p. 772	Sertoli-Leydig Cell Tumors
36-10	a	p. 762	Dysgerminoma	36-27	a	p. 773	Sex Cord Tumors with Annular Tubules
36-11	b	p. 764	Yolk Sac Tumors, Figure 36-5	36-28	c	p. 773	Surgery
36-12	b	p. 764	Yolk Sac Tumors	36-29	c	p. 774	Surveillance
36-13	a	p. 764	Mixed Germ Cell Tumors	36-30	a	p. 774	Radiation
36-14	d	p. 765	Immature Teratoma	36-31	a	p. 775	Relapse
36-15	c	p. 765	Immature Teratomas	36-32	d	p. 775	Prognosis
36-16	d	p. 765	Immature Teratomas	36-33	b	p. 775	Management During Pregnancy
36-17	d	p. 765	Malignant Transformation of Mature Cystic Teratomas				

CHAPTER 37

Gestational Trophoblastic Disease

- 37–1.** All of the following statements regarding gestational trophoblastic disease are true **EXCEPT**:
- The prognosis for most gestational trophoblastic neoplasia cases is poor.
 - Gestational trophoblastic neoplasia typically develops after a molar pregnancy.
 - Gestational trophoblastic neoplasia refers to a spectrum of tumors originating from the placenta.
 - Gestational trophoblastic neoplasia refers to a subset of gestational trophoblastic disease that develops malignant sequelae.
- 37–2.** Epidemiologic factors that carry a higher risk of gestational trophoblastic disease include all of the following **EXCEPT**:
- Young maternal age
 - Young paternal age
 - Low dietary intake of carotene
 - Native American living in the United States
- 37–3.** By what magnitude is the risk of molar pregnancy increased with a prior history of gestational trophoblastic disease?
- Twofold
 - Fourfold
 - Tenfold
 - Risk not increased
- 37–4.** A 45-year-old G3P1A1 presents with a newly diagnosed pregnancy. She used oral contraceptives prior to conceiving. All of the following elements of her history place her at increased risk for gestational trophoblastic disease **EXCEPT**:
- Age
 - Prior term pregnancy
 - Use of oral contraceptives
 - History of spontaneous abortion
- 37–5.** With regard to molar pregnancies, what does the term “androgenesis” refer to?
- Development of theca lutein cysts
 - Absence of fetal tissue and amnion
 - Development of a zygote that contains only maternal chromosomes
 - Development of a zygote that contains only paternal chromosomes
- 37–6.** Which of the following features is **NOT** a characteristic of complete hydatidiform molar pregnancies (shown below)?



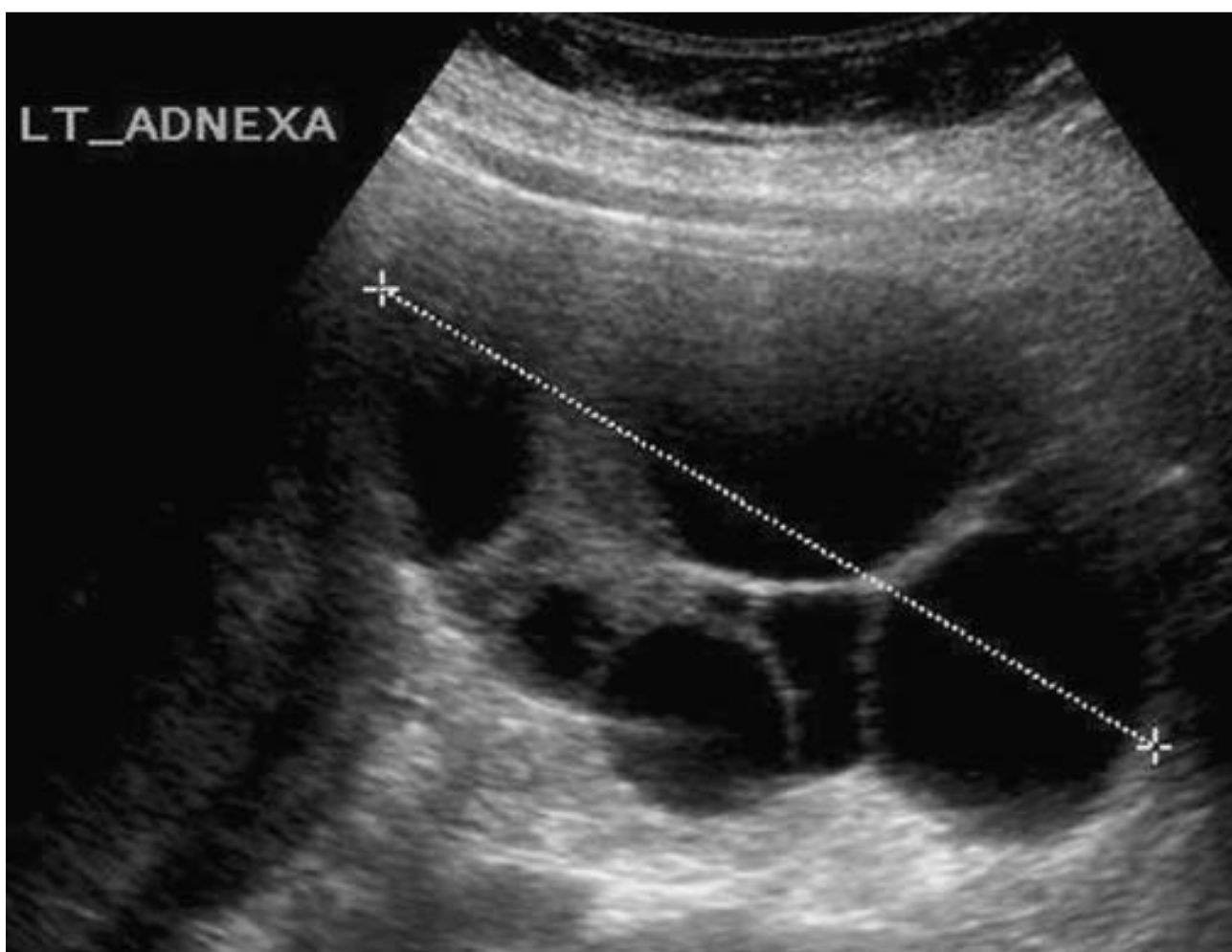
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- Diploid karyotype
- Absence of fetal tissue
- Focal villous edema
- Fifteen percent risk of postmolar malignant sequelae

37-7. Which of the following signs or symptoms is **NOT** typically seen today in the presentation of a complete hydatidiform molar pregnancy?

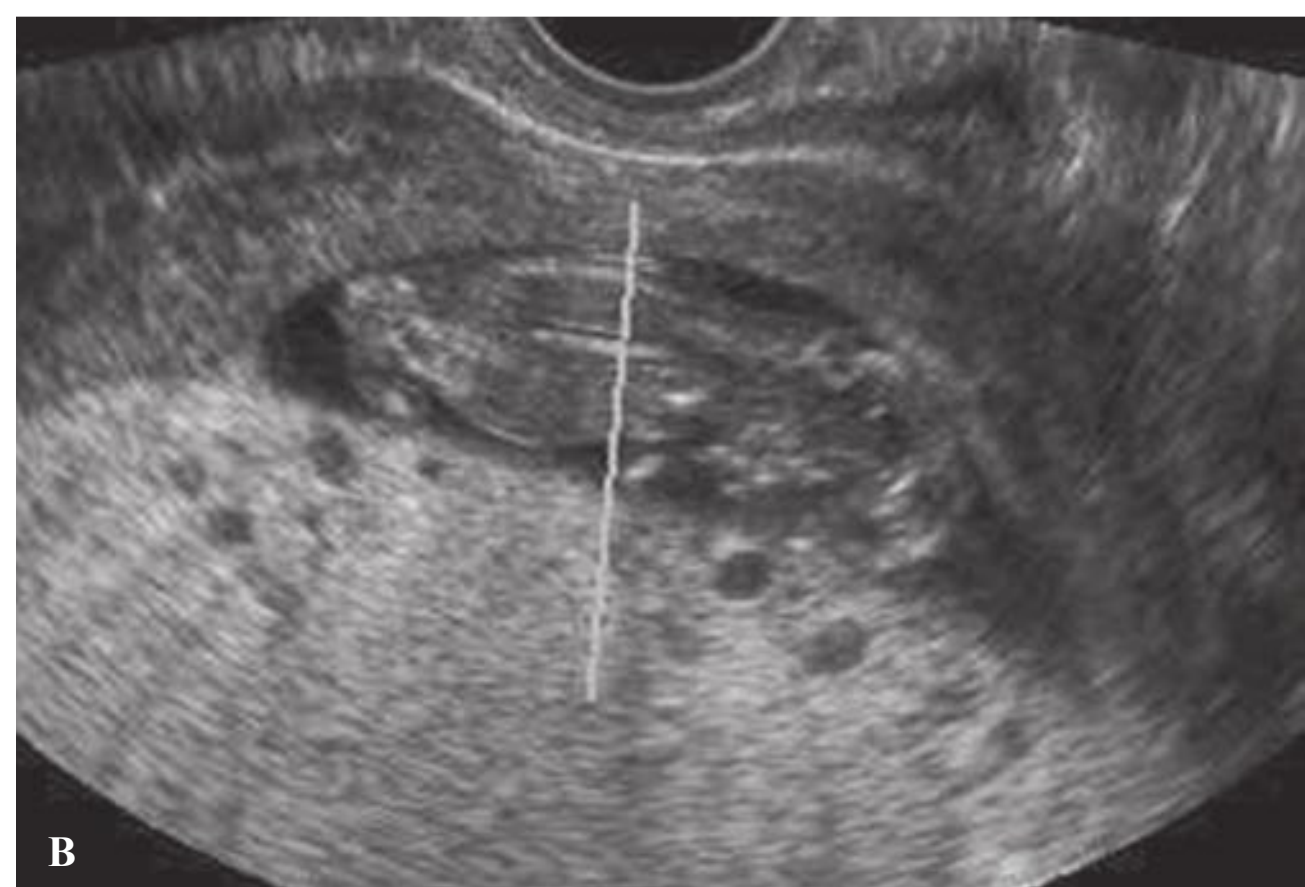
- a. Preeclampsia
- b. Vaginal bleeding
- c. Increased plasma thyroxine levels
- d. Greater than expected serum β -human chorionic gonadotropin levels

37-8. T is finding, if found bilaterally in the adnexa of a patient with a molar pregnancy, increases the risk of which of the following?



- a. Preeclampsia
- b. Thyroid storm
- c. Hyperemesis gravidarum
- d. Gestational trophoblastic neoplasia

37-9. A partial hydatidiform molar pregnancy is shown in these sonograms? Which feature is **NOT** characteristic of this form of gestational trophoblastic disease?



- a. Triploid karyotype
- b. Focal villous edema
- c. Present fetal tissue
- d. 25-percent risk of postmolar malignant sequelae

37-10. Which of the following signs or symptoms are typically seen with a partial hydatidiform molar pregnancy?

- a. Theca lutein cysts
- b. Uterine enlargement in excess of gestational age
- c. Higher β -human chorionic gonadotropin levels than those seen with complete moles
- d. None of the above

- 37–11. Sonographic features of a complete mole (shown here) include which of the following?



- a. Absent fetal and amniotic tissues
 b. Hydropic changes of the trophoblastic tissue
 c. Inhomogeneous and echogenic endometrial mass
 d. All of the above
- 37–12. Immunohistochemical staining for p57 is an effective ancillary technique for the histopathologic evaluation of abortal tissue because all of the following express this nuclear protein **EXCEPT**:
- a. Partial mole
 b. Complete mole
 c. Normal placenta
 d. Hydropic degeneration of a spontaneous abortion
- 37–13. A pregnant woman at an estimated gestational age of 7 to 8 weeks by last menstrual period presents to the emergency department. She complains of heavy vaginal bleeding and passage of tissue. Sonography reveals no identifiable normal intrauterine pregnancy but an endometrial cavity filled with blood and tissue exhibiting inhomogeneous echoes and some hydropic changes. A uterine dilatation and curettage is performed without complications. The pathology report for the evacuated products of conception subsequently shows the following:
- Specimen: uterine contents
 DNA interpretation: diploid
 Immunostaining: p57KIP2 positive
- These histologic findings are consistent with which of the following diagnoses?
- a. Partial mole
 b. Complete mole
 c. Spontaneous abortion
 d. None of the above
- 37–14. What is the most appropriate treatment for the patient with the complete mole shown in Question 37–11?
- a. Observation
 b. Hysterectomy
 c. Suction curettage
 d. Prostanoid induction
- 37–15. Which of the following statements is true regarding surveillance practices following evacuation of a molar pregnancy?
- a. Serial quantitative serum β -human chorionic gonadotropin (β -hCG) levels are the standard.
 b. A single blood sample demonstrating an undetectable level of β -hCG following partial molar evacuation is generally sufficient for surveillance completion.
 c. Ideally, serum β -hCG levels are monitored every 1 to 2 weeks until undetectable, after which monthly levels are drawn for the next 6 months.
 d. All of the above
- 37–16. Which of the following statements is true regarding contraceptive practices after evacuation of a molar pregnancy?
- a. Intrauterine devices should not be inserted until the β -human chorionic gonadotropin (β -hCG) level is undetectable.
 b. Use of hormonal contraception during the monitoring period increases the risk of progression to gestational trophoblastic neoplasia.
 c. Hormonal contraception, such as oral contraceptive pills and injectable medroxyprogesterone acetate, should not be initiated until the β -hCG level is undetectable.
 d. None of the above
- 37–17. Gestational trophoblastic neoplasia (GTN) includes all of the following histologies **EXCEPT**:
- a. Invasive mole
 b. Choriocarcinoma
 c. Hydatidiform mole
 d. Placental site trophoblastic tumor
- 37–18. Which of the following histologic types of gestational trophoblastic neoplasia (GTN) rarely develops metastases?
- a. Invasive mole
 b. Gestational choriocarcinoma
 c. Epithelioid trophoblastic tumor
 d. Placental site trophoblastic tumor

37–19. Compared with its postmolar gestational trophoblastic neoplasia (GTN) counterpart, which of the following is true for placental site trophoblastic tumor (PSTT)?

- a. Unlike choriocarcinoma, PSTT rarely follows a term pregnancy.
- b. Metastatic PSTT has a much better prognosis than metastatic choriocarcinoma.
- c. The pattern of metastasis for PSTT differs from that of gestational choriocarcinoma.
- d. Surgery is the primary treatment for nonmetastatic PSTT due to its relative insensitivity to chemotherapy.

37–20. A patient who delivered at term 12 weeks ago complains of continued vaginal bleeding since delivery. Evaluation of her abnormal bleeding may include which of the following?

- a. Transvaginal sonography
- b. β -human chorionic gonadotropin (β -hCG) levels to exclude choriocarcinoma
- c. Endometrial biopsy to exclude placental site trophoblastic tumor or epithelioid trophoblastic tumor
- d. All of the above

37–21. Serum β -human chorionic gonadotropin (β -hCG) level criteria for the diagnosis of gestational trophoblastic neoplasia (GTN) include which of the following?

- a. Rise of β -hCG levels
- b. Plateau of β -hCG levels
- c. Persistent elevation of β -hCG levels
- d. All of the above

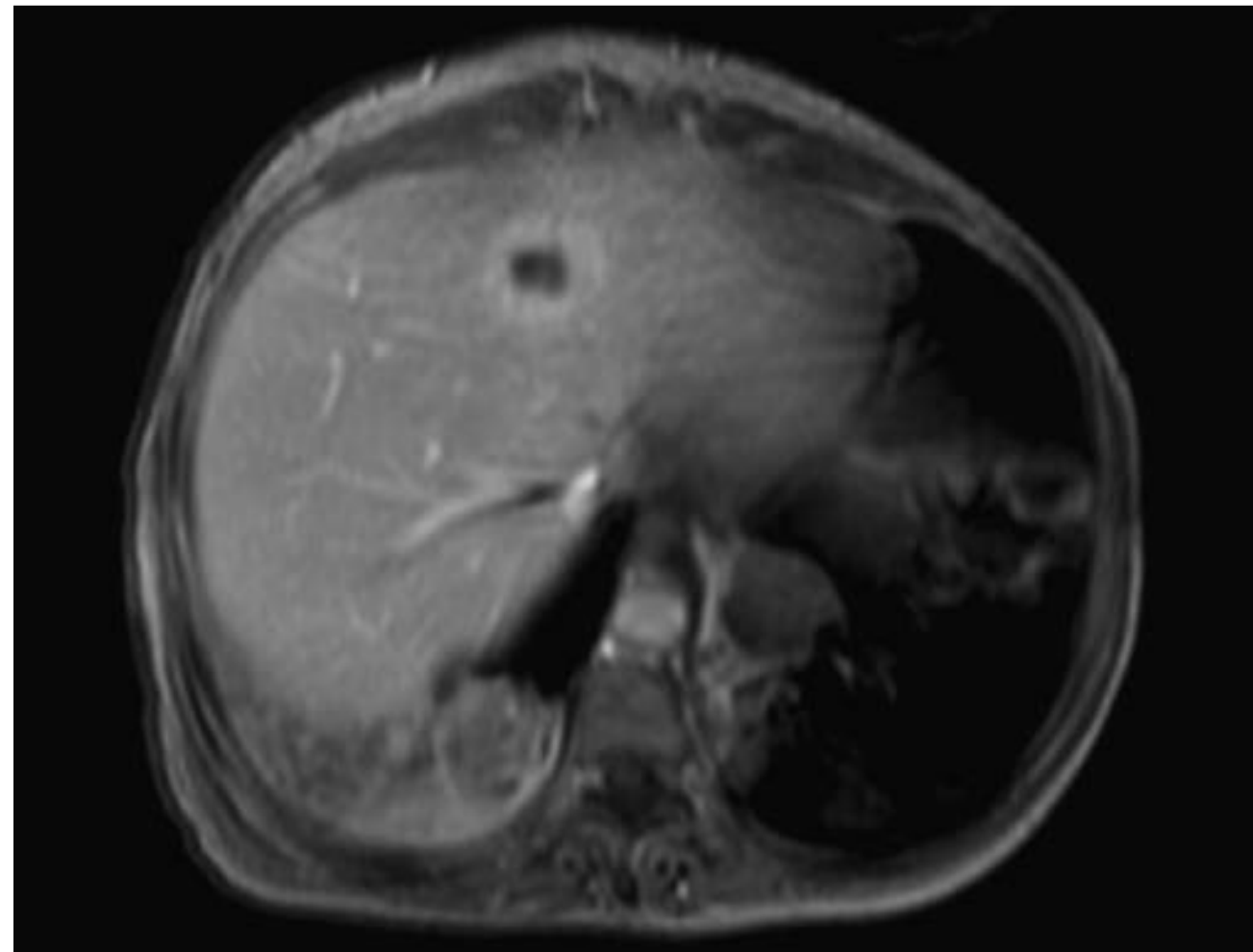
37–22. Which of the following tests is **NOT** useful for the pretreatment assessment of gestational trophoblastic neoplasia (GTN)?

- a. Pelvic sonography
- b. Chest radiograph (CXR)
- c. Chest computed tomography (CT)
- d. Abdominopelvic CT

37–23. According to the modified prognostic scoring system of the World Health Organization (WHO), patients with which score category are assigned to the high-risk gestational trophoblastic neoplasia (GTN) group?

- a. 0 to 6
- b. 4 to 6
- c. 7 or higher
- d. 12 or higher

37–24. Following dilatation and curettage (D&C) for a complete hydatidiform mole, a patient is surveilled with serial β -human chorionic gonadotropin (β -hCG) levels. For the last 3 weeks, the β -hCG values have plateaued. Diagnostic evaluation reveals a metastatic lesion in the liver (shown here). Given the extent of the disease, what is the International Federation of Gynecology and Obstetrics (FIGO) stage?



Used with permission from Dr. John Schorge.

- a. Stage I
- b. Stage II
- c. Stage III
- d. Stage IV

37–25. Criteria used in the modified prognostic scoring system of the World Health Organization (WHO) include all of the following **EXCEPT**:

- a. Age
- b. Site of metastases
- c. Antecedent pregnancy type
- d. Presence of theca lutein cysts

- 37–26.** What is the approximate overall survival rate for women diagnosed with International Federation of Gynecology and Obstetrics (FIGO) stage III gestational trophoblastic neoplasia (GTN), that is, metastases to the lungs (as shown) with or without genital tract involvement?



Used with permission from Dr. John Schorge.

- a. 5 percent
b. 25 percent
c. 50 percent
d. 100 percent
- 37–27.** What is the most common site of metastatic spread of choriocarcinoma?
- a. Brain
b. Liver
c. Lungs
d. Vagina
- 37–28.** A patient has been diagnosed with postmolar choriocarcinoma gestational trophoblastic neoplasia (GTN). She is presently asymptomatic. What is the most appropriate treatment for her initial management?
- a. Radiation
b. Chemotherapy
c. Hysterectomy
d. Dilatation and curettage (D&C)
- 37–29.** All of the following statements regarding the role of hysterectomy in gestational trophoblastic neoplasia (GTN) treatment are true **EXCEPT**:
- a. Hysterectomy eliminates any risk of GTN persistence.
b. Adjuvant hysterectomy decreases the total dose of chemotherapy for low-risk GTN.
c. Hysterectomy may be performed as treatment for placental site trophoblastic tumor (PSTT) or other chemotherapy-resistant diseases.
d. Hysterectomy may be necessary as an emergent procedure for uncontrollable vaginal or intraabdominal bleeding.
- 37–30.** Which of the following is **NOT** a criterion that makes a patient with metastatic gestational trophoblastic neoplasia (GTN) a candidate for thoracotomy?
- a. Stage III GTN
b. Multiple lung metastases
c. Solitary lung nodule resistant to chemotherapy
d. Preoperative β -human chorionic gonadotropin (β -hCG) level < 1500 mIU/mL
- 37–31.** Which of the following chemotherapeutic agents is most commonly used as primary treatment for low-risk gestational trophoblastic neoplasia (GTN)?
- a. Etoposide
b. Pulse dactinomycin
c. Intravenous (IV) methotrexate
d. Intramuscular (IM) methotrexate
- 37–32.** Which of the following symptoms is the most common side effect of methotrexate?
- a. Pleurisy
b. Stomatitis
c. Pneumonitis
d. Pericarditis
- 37–33.** Patients who do not respond to an initial single-agent methotrexate regimen are most often switched to which single-agent second-line therapy?
- a. Cisplatin
b. Etoposide
c. Vincristine
d. Dactinomycin
- 37–34.** Chemotherapy agents in the EMA/CO regimen for high-risk gestational trophoblastic neoplasia (GTN) include all of the following **EXCEPT**:
- a. Cisplatin
b. Etoposide
c. Methotrexate
d. Dactinomycin

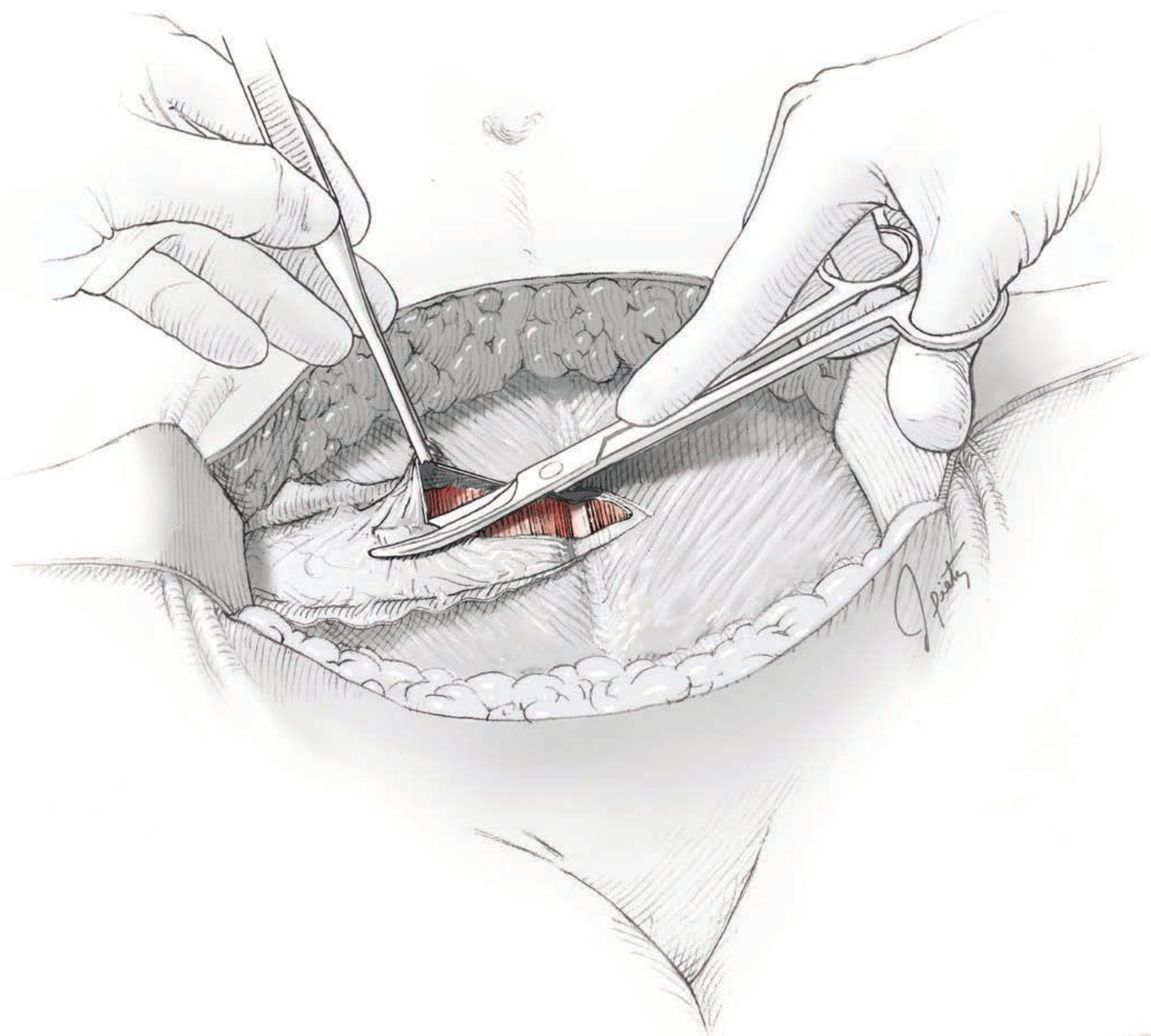
- 37–35.** Patients with brain metastases may present with which of the following symptoms?
- Seizures
 - Headaches
 - Hemiparesis
 - All of the above
- 37–36.** Compared with a molar pregnancy, how long are β -human chorionic gonadotropin (β -hCG) level measurements used posttreatment to monitor patients with gestational trophoblastic neoplasia (GTN)?
- Shorter length of time (3 months)
 - Equivalent length of time (6 months)
 - Longer length of time (12–24 months)
 - β -hCG surveillance should not follow GTN treatment.
- 37–37.** One year ago, a patient had a complete mole that was evacuated. Her β -human chorionic gonadotropin (β -hCG) levels have remained undetectable. What do you counsel her is the risk that she will have another mole in a subsequent pregnancy?
- 1 percent
 - 10 percent
 - 25 percent
 - 50 percent
- 37–38.** Which of the following chemotherapy agents used for gestational trophoblastic neoplasia (GTN) therapy does **NOT** increase the risk of early menopause?
- Paclitaxel
 - Dactinomycin
 - Methotrexate
 - Cyclophosphamide
- 37–39.** Which of the following chemotherapeutic agents used for gestational trophoblastic neoplasia (GTN) has been associated with an increased risk of certain cancers in patients who received the treatment?
- Etoposide
 - Vincristine
 - Dactinomycin
 - Methotrexate
- 37–40.** Heterophilic antibodies can interfere with serum β -human chorionic gonadotropin (β -hCG) level immunoassays and cause false-positive results. Performance of which of the following can clarify the diagnosis?
- Serial dilution
 - Urine pregnancy test
 - Specialized serum testing that blocks heterophilic antibodies
 - All of the above

Chapter 37 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
37-1	a	p. 779	Gestational Trophoblastic Disease	37-20	d	p. 786	Diagnosis
37-2	b	p. 779	Epidemiology and Risk Factors	37-21	d	p. 786	Diagnosis; Table 37-3
37-3	c	p. 779	Epidemiology and Risk Factors	37-22	c	p. 787	Assessment
37-4	b	p. 779	Epidemiology and Risk Factors	37-23	c	p. 787	Staging
37-5	d	p. 780	Complete Hydatidiform Mole	37-24	d	p. 787	Table 37-4
37-6	c	p. 780	Table 37-2	37-25	d	p. 788	Table 37-5
37-7	a	p. 780	Complete Hydatidiform Mole	37-26	d	p. 787	Staging
37-8	d	p. 780	Complete Hydatidiform Mole	37-27	c	p. 787	Metastatic Disease
37-9	d	p. 780	Table 37-2	37-28	b	p. 788	Surgery
37-10	d	p. 781	Partial Hydatidiform Mole	37-29	a	p. 788	Surgery
37-11	d	p. 782	Clinical Assessment	37-30	b	p. 788	Surgery
37-12	b	p. 782	Ancillary Techniques	37-31	d	p. 789	Methotrexate
37-13	c	p. 782	Ancillary Techniques	37-32	b	p. 789	Methotrexate
37-14	c	p. 783	Treatment	37-33	d	p. 789	Dactinomycin
37-15	d	p. 783	Postmolar Surveillance	37-34	a	p. 790	Chemotherapy for High-Risk GIN
37-16	a	p. 783	Postmolar Surveillance	37-35	d	p. 790	Brain Metastases
37-17	c	p. 784	Gestational Trophoblastic Neoplasia; Table 37-1	37-36	c	p. 791	Posttreatment Surveillance
37-18	a	p. 785	Invasive Mole	37-37	a	p. 791	Treatment Sequelae
37-19	d	p. 786	Placental Site Trophoblastic Tumor	37-38	c	p. 791	Treatment Sequelae
				37-39	a	p. 791	Treatment Sequelae
				37-40	d	p. 791	Phantom β -HCG

SECTION 5

ASPECTS OF GYNECOLOGIC SURGERY



CHAPTER 38

Anatomy

38–1. Wide scars that often develop following vertical midline incisions most likely result from which of the following?

- a. Marfan syndrome
- b. Langer lines of skin tension
- c. Poorly developed Camper fascia
- d. Inferior epigastric artery injury

38–2. Camper and Scarpa fasciae of the anterior abdominal wall are not discrete layers but represent a continuum of the subcutaneous tissue layer. Which of the following best describes Camper fascia?

- a. Deeper, more membranous
- b. Deeper, predominantly fatty
- c. Superficial, more membranous
- d. Superficial, predominantly fatty

38–3. The rectus sheath represents the conjoined aponeuroses of which of the following muscles?

- a. External and internal obliques
- b. Rectus abdominis and external oblique
- c. Transversus abdominis and pyramidalis
- d. External and internal obliques and transversus abdominis

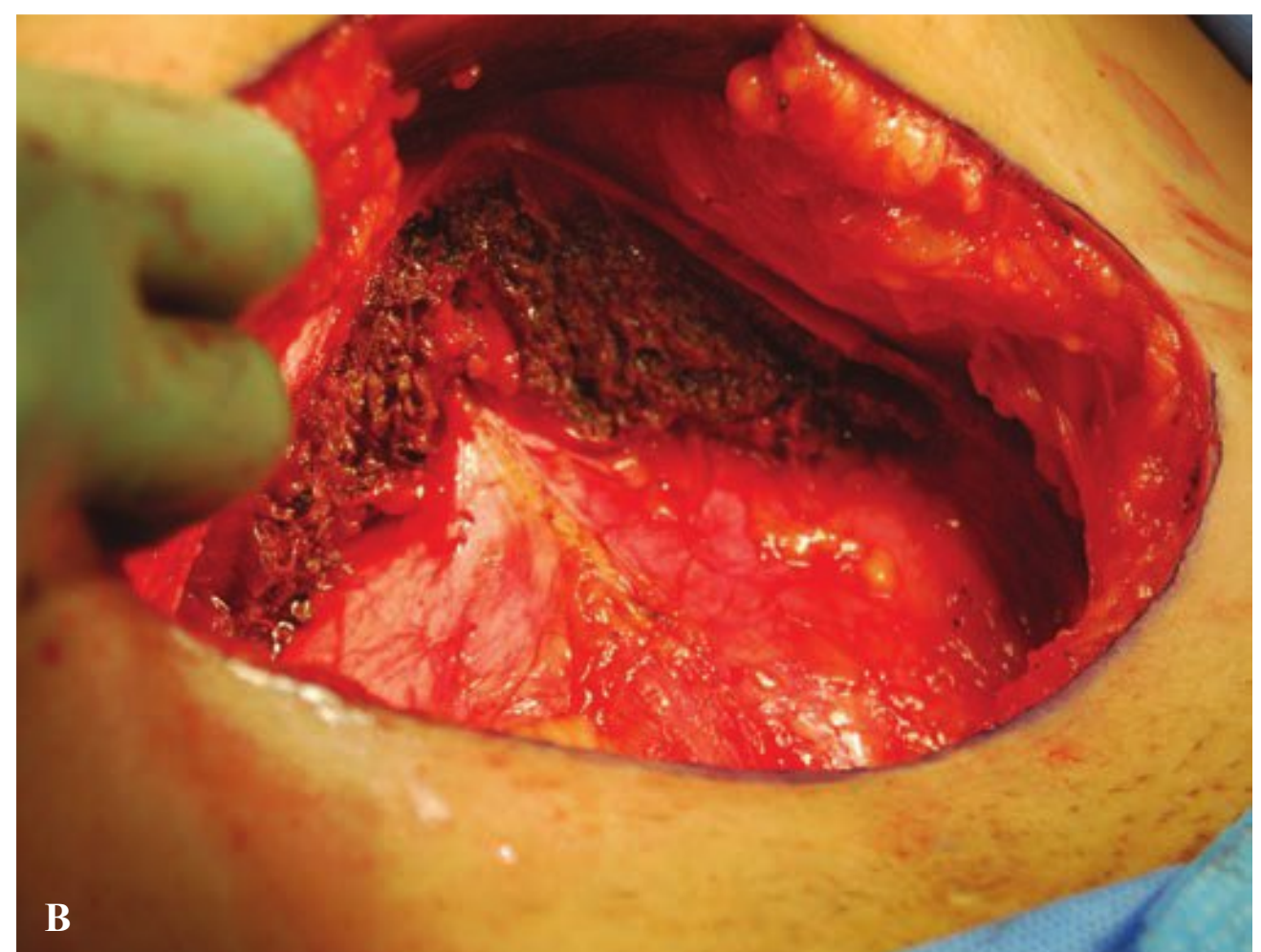
38–4. Vertical fascial incisions are prone to dehiscence and hernia formation. This is because of which of the following?

- a. Flank muscle fibers are oriented primarily transversely.
- b. Rectus sheath fibers are oriented primarily transversely.
- c. Vertical fascial suture lines must withstand more tension than those in a transverse incision.
- d. All of the above

38–5. The fascia best recognized as the layer dissected off the anterior surface of the bladder during entry into the abdominal cavity is which of the following?

- a. Camper
- b. Arcuate
- c. Superficial
- d. Transversalis

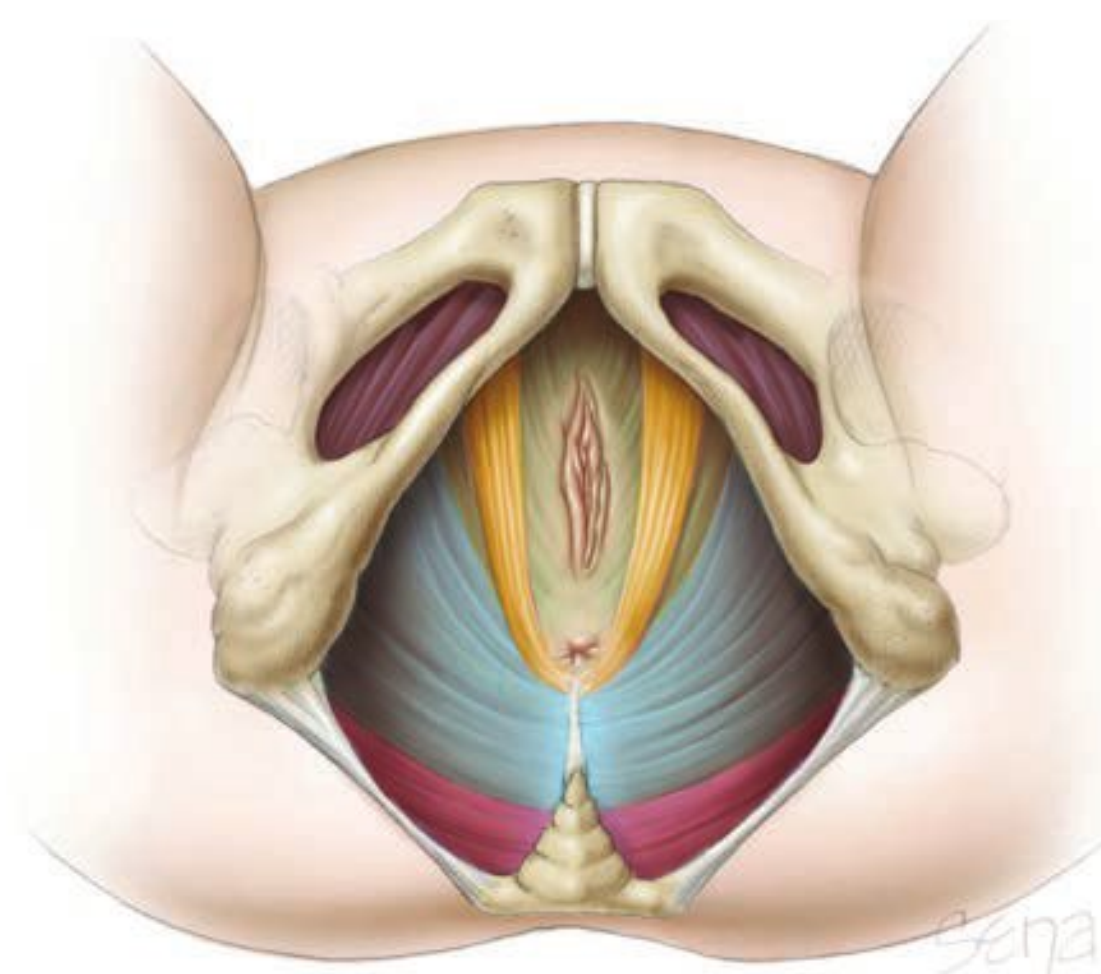
38–6. Prior to transversely dividing the rectus abdominis muscle during creation of a Maylard incision (shown here), which artery that lies lateral to each muscle belly is ideally ligated?



Used with permission from Dr. Jayanthi Lea.

- a. Deep circumflex artery
- b. Inferior epigastric artery
- c. Superior epigastric artery
- d. Superficial epigastric artery

- 38–7.** Laceration of abdominal wall vessels can increase blood loss and risk of postoperative hematoma formation. These vessels include the superficial epigastric, superficial circumflex iliac, and external pudendal arteries. These vessels all arise from which of the following?
- Femoral artery
 - External iliac artery
 - Deep circumflex artery
 - Internal thoracic artery
- 38–8.** The superficial epigastric vessels travel diagonally toward the umbilicus and can be identified coursing at a depth halfway between which of the following structures?
- Skin and anterior rectus sheath
 - Internal and external oblique muscles
 - Anterior and posterior rectus sheaths
 - Anterior rectus sheath and transversalis fascia
- 38–9.** Direct hernias protrude through the abdominal wall within the region bounded inferiorly by the inguinal ligament, medially by the lateral border of the rectus abdominis muscle, and laterally by the inferior epigastric vessels. This anatomic region is termed which of the following?
- Hesselbach triangle
 - Umbilicoinguinal fossa
 - Superficial inguinal ring
 - None of the above
- 38–10.** Damage to the ilioinguinal nerve during surgical abdominal entry may cause loss of sensory function to the skin over which of the following?
- Lower abdominal wall
 - Medial portion of the thigh
 - Upper portion of the labia majora
 - All of the above
- 38–11.** The bony pelvis is composed of the coccyx, the sacrum, and the two hip bones termed the *innominate bones*. The innominate bones consist of all of the following **EXCEPT**:
- Ilium
 - Pubis
 - Ischium
 - Sacrotuberous
- 38–12.** The innominate bones fuse at the *acetabulum*, a cup-shaped structure that articulates with which of the following?
- Sacrum
 - Pubic bone
 - Femoral head
 - Symphysis pubis
- 38–13.** The ligaments of the pelvis vary in composition and function. Which of the following ligaments significantly aid pelvic organ support?
- Round
 - Broad
 - Cardinal and uterosacral
 - All of the above
- 38–14.** The U-shaped opening in the pelvic floor muscles through which the urethra, vagina, and rectum pass is termed which of the following?
- Levator plate
 - Obturator canal
 - Urogenital hiatus
 - Greater sciatic foramen
- 38–15.** The muscles colored yellow, green, and blue in the following figure provide a critical component of pelvic organ support and compose which of the following?



Used with permission from Ms. Marie Sena, CMI.

- Perineal body
- Levator ani muscle
- Iliococcygeal raphe
- None of the above

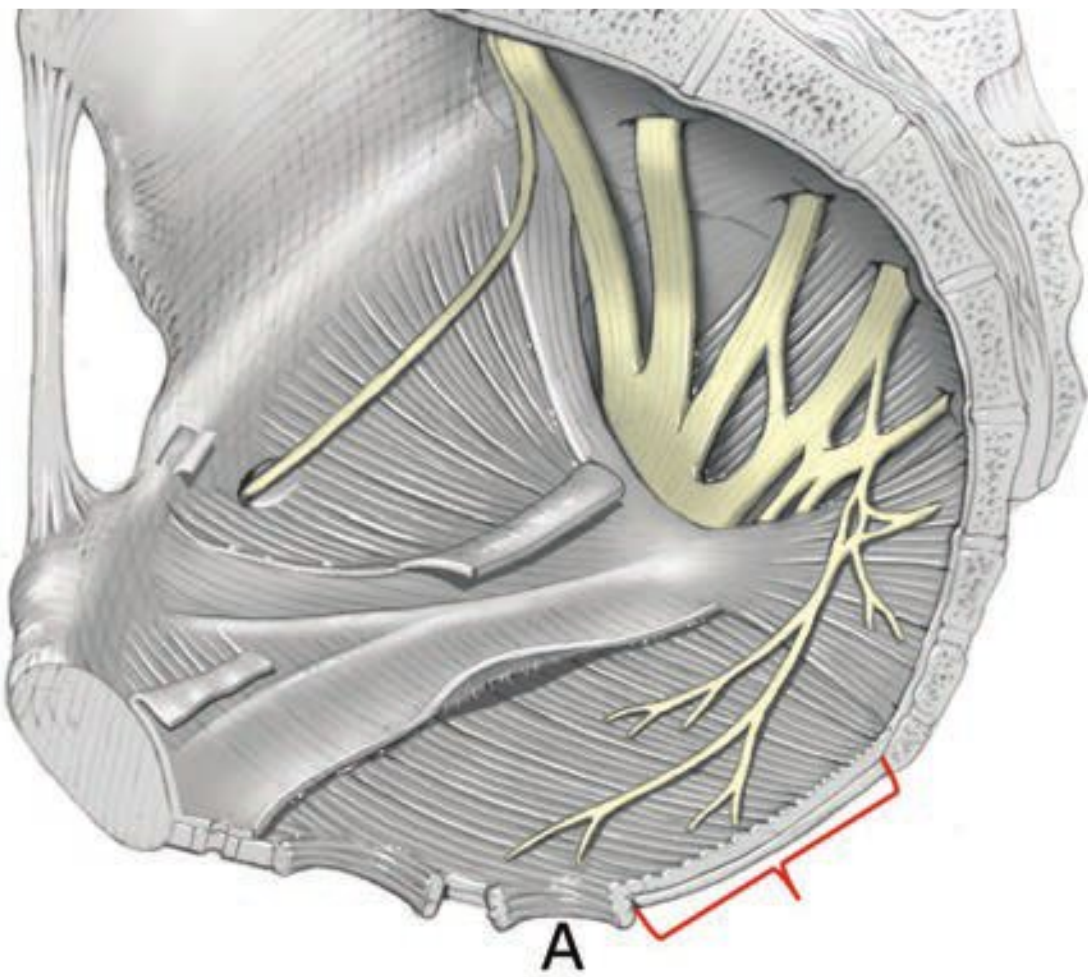
38–16. The levator ani muscles are important to pelvic organ support and consist of all of the following muscle components **EXCEPT**:

- a. Coccygeus
- b. Puborectalis
- c. Pubococcygeus
- d. Iliococcygeus

38–17. The medial and inferior fibers of the levator ani muscle that arise on either side from the pubic bone and form a U-shaped muscle sling behind the anorectal junction may contribute to fecal continence. This levator ani component is termed which of the following?

- a. Puboanalis muscle
- b. Puborectalis muscle
- c. Pubovaginalis muscle
- d. Puboperinealis muscle

38–18. Which of the following is the clinical term referring to the region (indicated below by the red bracket) that is formed primarily by the insertion of the iliococcygeus muscles and that stretches between the anus (A) and coccyx?



Modified with permission from Corton MM: Anatomy. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 38-7.

- a. Levator ani
- b. Levator plate
- c. Levator raphe
- d. Levator ligament

38–19. Which of the following uterine measurements typifies those of the adult, nonpregnant woman?

- a. 5 cm length, 7 cm width at fundus
- b. 7 cm length, 5 cm width at fundus
- c. 7 cm length, 10 cm width at fundus
- d. 10 cm length, 5 cm width at fundus

38–20. The uterine cervix begins caudal to the uterine isthmus, consists primarily of fibrous tissue and a smaller amount of smooth muscle, and is approximately how many centimeters in length?

- a. 1
- b. 2
- c. 3
- d. 5

38–21. The lower endocervical canal contains a transition from the columnar epithelium of the cervical canal to the squamous epithelium of the portio vaginalis. What is this boundary termed?

- a. Endocervical os
- b. Squamoendocervix
- c. Portio supravaginalis
- d. Squamocolumnar junction

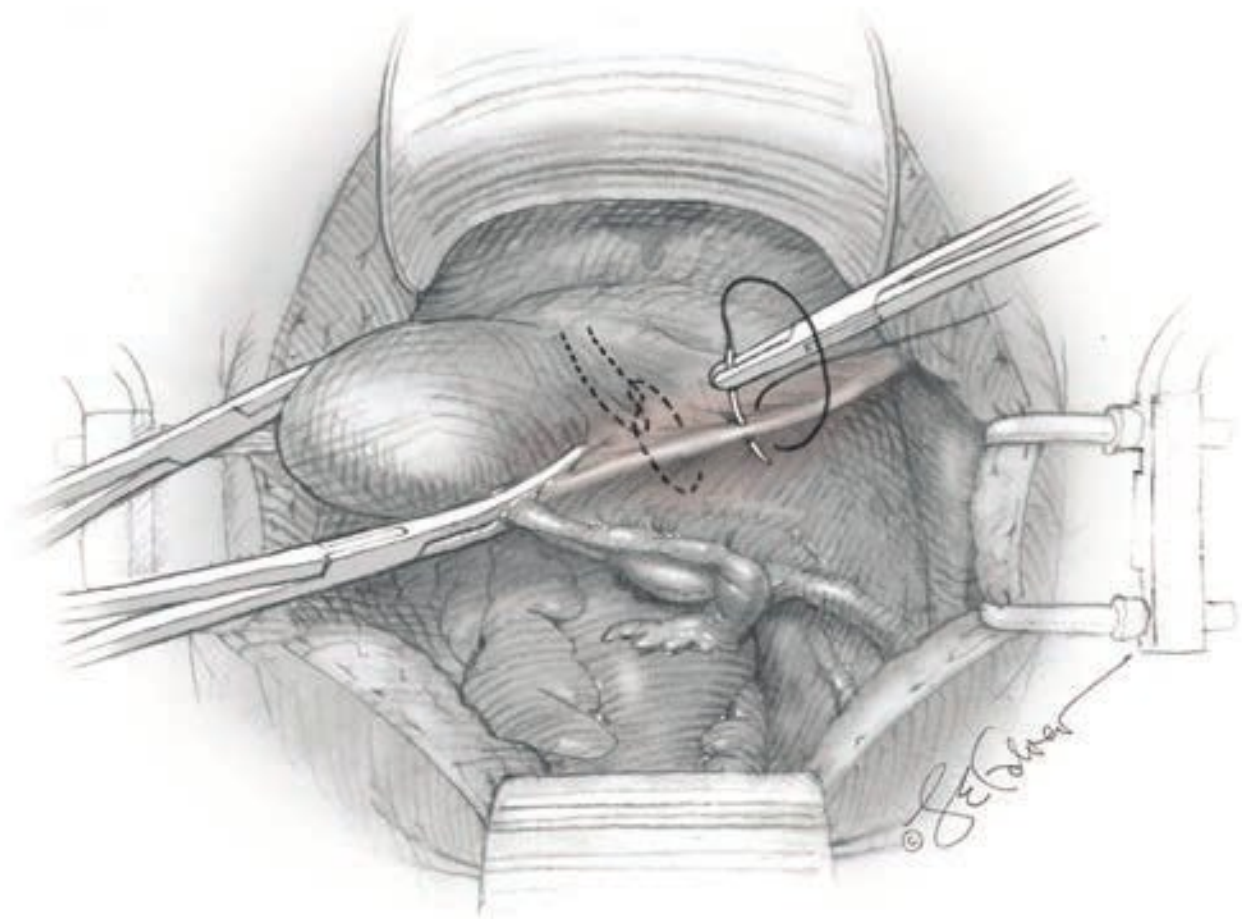
38–22. The main support of the uterus and cervix is provided by the levator ani muscles and the connective tissue that attaches the walls of the outer cervix to the pelvic walls. The connective tissue that attaches lateral to the uterus and cervix is called the *parametria* and consists of which of the following?

- a. Cardinal ligaments
- b. Uterosacral ligaments
- c. Transverse cervical ligaments or Mackenrodt ligaments
- d. All of the above

38–23. The broad ligaments are double layers of peritoneum that extend from the lateral walls of the uterus to the pelvic walls. Within these two layers lie which of the following?

- a. Fallopian tubes
- b. Round ligaments
- c. Ovarian ligaments
- d. All of the above

- 38–24.** During the initial steps of abdominal hysterectomy, the double layer of peritoneum of the upper broad ligament that drapes over the round ligament is pierced by sutures prior to round ligament transection. The mesentery of the round ligament is termed which of the following?

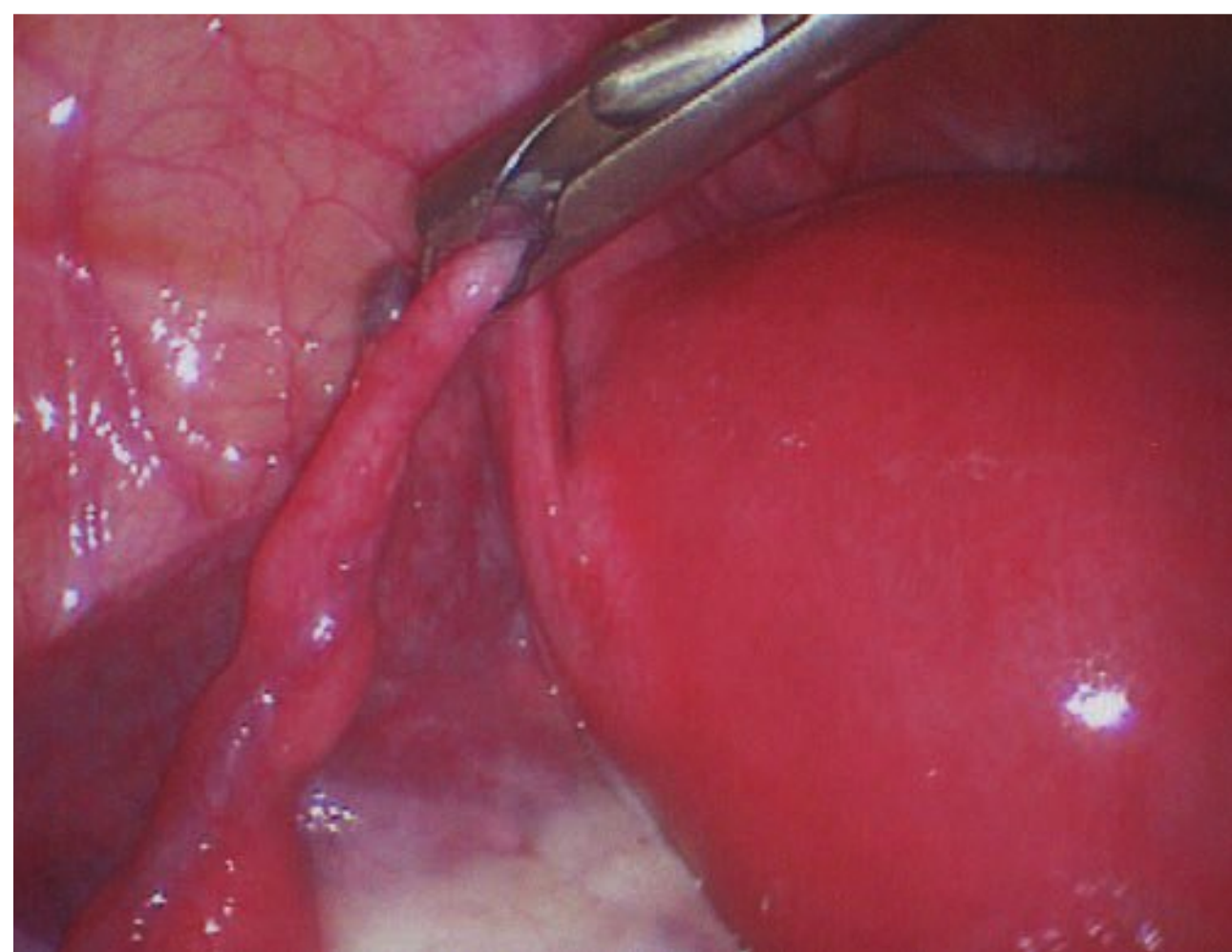


Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 43-12.2.

- a. Mesoteres
b. Mesovarium
c. Mesosalpinx
d. Mesosuspensum
- 38–25.** The blood supply to the uterine corpus generally arises from which of the following two arteries?
- a. Renal and ovarian
b. Renal and uterine
c. Uterine and ovarian
d. External iliac and vaginal
- 38–26.** The uterine artery approaches the uterus in the area of transition between the corpus and the cervix known as the *uterine isthmus*. In this area, the uterine artery courses over which of the following important structures?
- a. Ureter
b. Round ligament
c. Fallopian tube
d. Uterosacral ligament

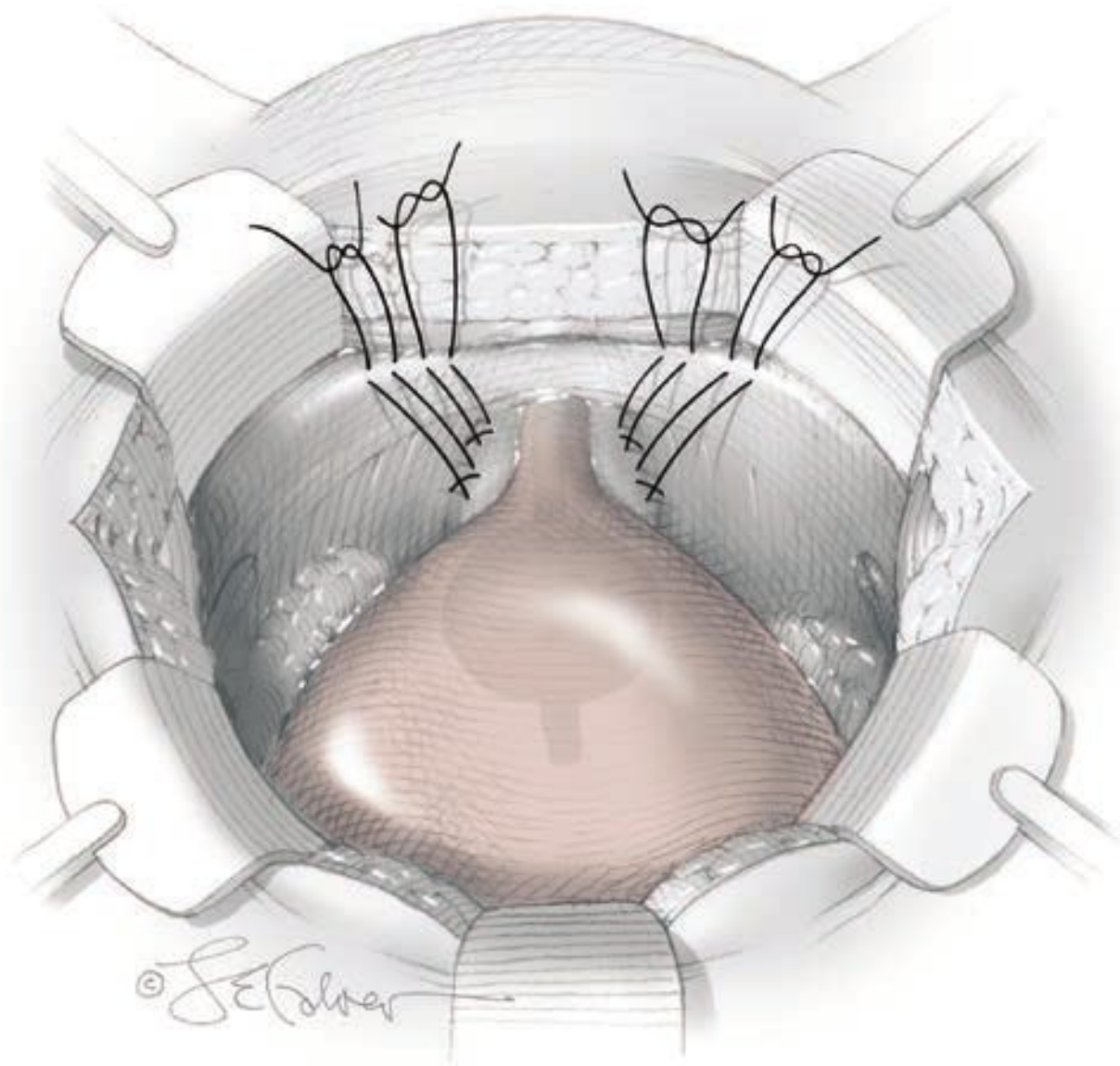
- 38–27.** Which of the following is true regarding the ovarian vessels?
- a. Both ovarian arteries arise from the aorta.
b. Both ovarian veins drain into the inferior vena cava.
c. Right and left ovarian arteries arise from the right renal artery and aorta, respectively.
d. Right and left ovarian veins drain into the right renal vein and inferior vena cava, respectively.

- 38–28.** The fallopian tube is a hollow structure that measures 7 to 12 cm in length and has four identifiable portions. In this figure, the Filshie clip is placed across which portion?



- a. Isthmic portion
b. Ampullary portion
c. Fimbriated portion
d. Interstitial portion
- 38–29.** The fallopian tube receives its blood supply through its mesosalpinx from several branches of which artery?
- a. Ovarian
b. Uterine
c. Fallopian
d. None of the above
- 38–30.** The walls of the vagina consist of three layers. Adjacent to the vaginal lumen, the first layer consists of which of the following?
- a. Smooth muscle
b. Collagen and elastin
c. Nonkeratinized squamous epithelium overlying a lamina propria
d. None of the above

- 38–31.** During the suspension procedure shown below, which of the following vessels are at particular risk for laceration?



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 45-2.2.

- a. Obturator vessels
 - b. External iliac vessels
 - c. Deep circumflex iliac vein
 - d. Periurethral-perivesical venous plexus
- 38–32.** Which of the following structures bifurcates anteriorly to form two folds that surround the glans of the clitoris?
- a. Labia majora
 - b. Labia minora
 - c. Mons veneris
 - d. Colles fascia

- 38–33.** Bartholin glands connect to the vestibule by ducts approximately 2 cm in length. In this patient with a Bartholin gland duct cyst, which site is best to place the drainage incision to recreate normal duct ostium anatomy?



- a. Posterior fourchette
 - b. Posterior vestibular bulb
 - c. At 9 o'clock position between the hymen and the labia minora
 - d. At 7 o'clock position between the hymen and the labia minora
- 38–34.** The pubic symphysis anteriorly, ischiopubic rami and ischial tuberosities anterolaterally, coccyx posteriorly, and sacrotuberous ligaments posterolaterally provide the boundaries for which of the following?
- a. Perineum
 - b. Ischiorectal fossa
 - c. Posterior anal triangle
 - d. Anterior urogenital triangle
- 38–35.** Measuring approximately 2 to 4 cm anterior to posterior as well as superior to inferior, this mass of fibromuscular tissue found between the distal part of the posterior vaginal wall and the anus is termed which of the following?
- a. Perineal body
 - b. Posterior fourchette
 - c. Bulbospongiosus muscle
 - d. External anal sphincter

- 38–36.** The internal anal sphincter is under the control of the autonomic nervous system and is responsible for approximately what percentage of the resting pressure of the anal canal?
- a.** 40 percent
 - b.** 60 percent
 - c.** 80 percent
 - d.** 100 percent
- 38–37.** With the exception of the erectile tissue of the clitoris, the vessels of vulvar and perineal structures drain into which of the following veins?
- a.** Middle sacral
 - b.** Superior rectal
 - c.** Internal pudendal
 - d.** Superficial epigastric

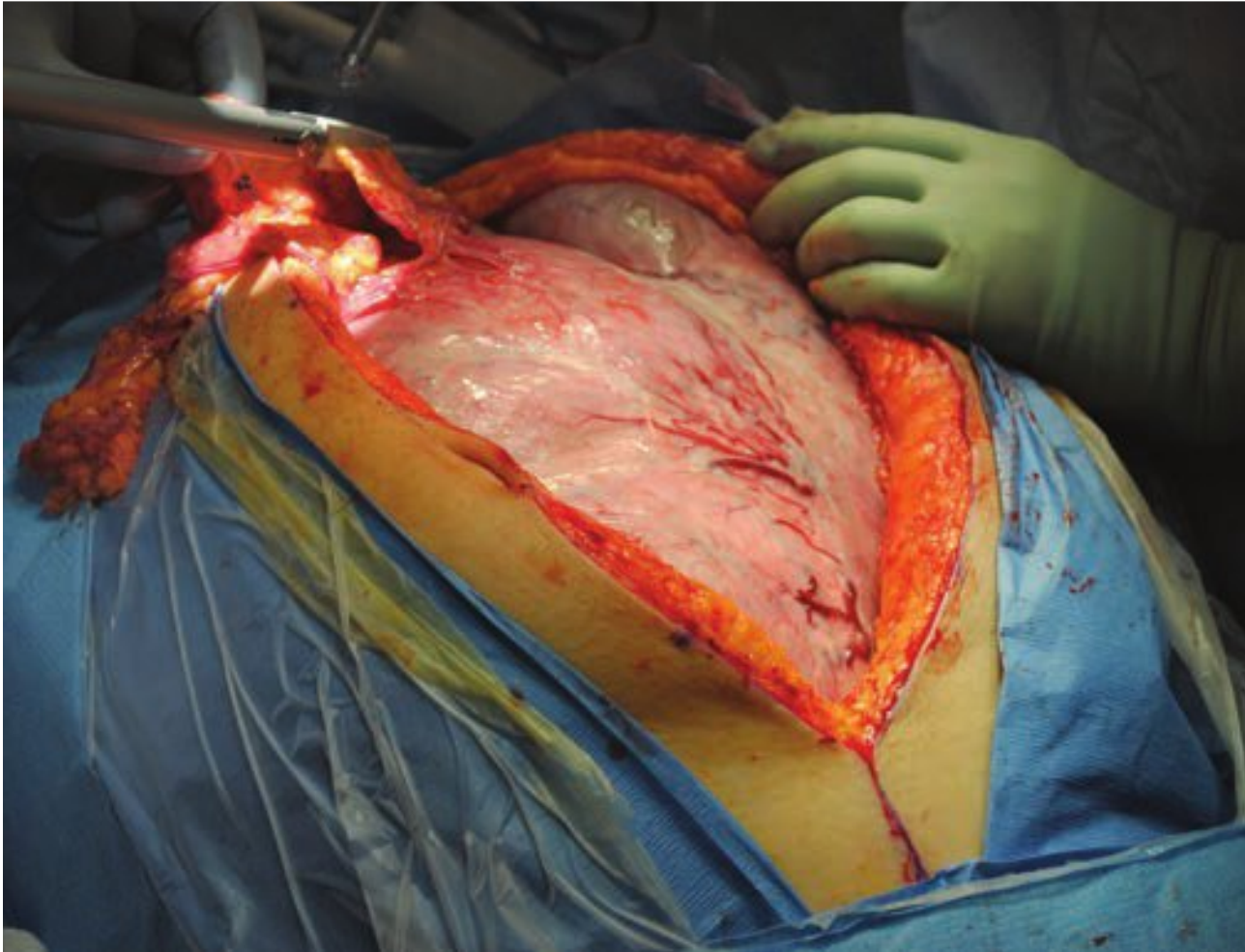
Chapter 38 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
38-1	b	796	Skin and Subcutaneous Layer	38-20	c	807	Cervix
38-2	d	796	Skin and Subcutaneous Layer	38-21	d	807	Cervix
38-3	d	796	Rectus Sheath	38-22	d	808	Uterine Support
38-4	d	796	Rectus Sheath	38-23	d	809	Broad Ligaments
38-5	d	796	Transversalis Fascia	38-24	a	809	Broad Ligaments
38-6	b	797	Peritoneum	38-25	c	809	Uterine Blood Supply
38-7	a	798	Femoral Branches	38-26	a	809	Uterine Blood Supply
38-8	a	798	Femoral Branches	38-27	a	809	Ovaries
38-9	a	798	External Iliac Branches	38-28	a	809	Fallopian Tubes
38-10	d	799	Innervation	38-29	a	809	Fallopian Tubes
38-11	d	799	Pelvic Bones and Joints	38-30	c	809	Vagina
38-12	c	799	Pelvic Bones and Joints	38-31	d	817	Prevesical Space
38-13	c	801	Ligaments	38-32	b	819	Labia Minora
38-14	c	802	Pelvic Floor	38-33	d	820	Bartholin Glands
38-15	b	802	Levator Ani Muscles	38-34	a	820	Perineum
38-16	a	802	Levator Ani Muscles	38-35	a	822	Perineal Body
38-17	b	803	Puborectalis Muscle	38-36	c	821	Posterior (Anal) Triangle
38-18	b	803	Iliococcygeus Muscle	38-37	c	822	Blood Vessels
38-19	b	807	Uterus				

CHAPTER 39

Preoperative Considerations

- 39–1.** Which of the following statements regarding a preoperative internal medical consultation is **FALSE**?
- It provides medical clearance for surgery.
 - It can discover previously undiagnosed diseases.
 - It provides a risk assessment of a patient's current medical state.
 - It can help optimize a patient's existing medical conditions prior to surgery.
- 39–2.** A 39-year-old woman is undergoing laparotomy for a large pelvic mass. Her history is significant for obesity and well-controlled asthma. Due to the mass size, it is necessary to extend the vertical midline incision above the umbilicus. The surgery takes 4 hours to perform, and the total estimated blood loss is 500 mL. Which of the following does **NOT** increase her risk of pulmonary complications postoperatively?



- Asthma
- Obesity
- Length of incision
- Duration of surgery

- 39–3.** This patient will be at increased risk for atelectasis following total laparoscopic hysterectomy. This is due to which of the following associated physiologic changes stemming from her body habitus?



- Decreased chest wall compliance
 - Increased expiratory reserve volume
 - Increased functional residual capacity
 - Increased maximum voluntary ventilation
- 39–4.** A 50-year-old woman with endometrial cancer presents for preoperative evaluation and planning for surgical staging. Her history is significant for a 30-pack-year smoking history. Which of the following statements should be included in counseling for smoking cessation?
- Preoperative cessation for at least 6 to 8 weeks offers significant improvement in lung function.
 - Preoperative cessation for at least 6 to 8 weeks offers reversal of smoking-related immune impairment.
 - Patients with a 6-month or longer history of cessation have pulmonary complication risks similar to patients who have never smoked.
 - All of the above

- 39–5.** For which of the following scenarios are pulmonary function tests (PFTs) superior to a thorough history and physical examination?
- Assessing the severity of asthma
 - Detecting undiagnosed pulmonary disease
 - Diagnosing chronic obstructive pulmonary disease (COPD)
 - PFTs are never superior to a thorough history and physical examination.
- 39–6.** A patient presents preoperatively prior to staging surgery for suspected ovarian cancer. Chest radiography reveals the effusion shown here. Chest radiography is **LEAST** beneficial for which of the following conditions?



- Hypertension
 - Immunosuppression
 - Recent chest radiation therapy
 - American Society of Anesthesiologists (ASA) Physical Status Classification System class 2
- 39–7.** What threshold level of serum albumin has been shown to be associated with increased perioperative pulmonary morbidity rates?
- Less than 35 mg/dL
 - Less than 55 mg/dL
 - Greater than 35 mg/dL
 - Greater than 55 mg/dL
- 39–8.** Which of the following definitions is correctly matched to its corresponding American Society of Anesthesiologists (ASA) Physical Status Classification System class?
- Mild systemic disease—Class 1
 - Normally healthy patient—Class 0
 - Systemic disease that is not incapacitating—Class 3
 - Moribund patient with expected survival less than 7 days with or without operation—Class 4
- 39–9.** A 70-year-old woman undergoes a 5-hour laparotomy for surgical staging and debulking of advanced ovarian cancer. Postoperatively she is advised to perform deep breathing exercises every hour while awake. She has difficulty performing this task and is observed to be taking frequent shallow breaths in 5-second intervals. Which of the following would be the best next option of pulmonary physiotherapy for her?
- Incentive spirometry
 - Chest physical therapy
 - Continuous positive airway pressure (CPAP)
 - Intermittent positive pressure breathing (IPPB)
- 39–10.** The incidence of which of the following is **NOT** increased by postoperative gastric decompression using a nasogastric tube?
- Nausea
 - Pneumonia
 - Aspiration
 - Atelectasis
- 39–11.** For patients with cardiac pacemakers, which of the following interventions would **NOT** help minimize the risk for electromagnetic interference from electro-surgery?
- Using monopolar cautery when possible
 - Using short intermittent bursts of electric current
 - Maximizing the distance between the current source and the cardiac device
 - Placing the grounding pad in a position to minimize current flow toward the device
- 39–12.** Which of the following cardiac conditions carries the highest independent risk for perioperative complications?
- Aortic stenosis
 - Pulmonary stenosis
 - Mitral valve prolapse
 - Tricuspid regurgitation
- 39–13.** Which of the following is **NOT** an indication for ordering an electrocardiogram as a preoperative cardiac test, according to the American Heart Association?
- Cerebrovascular disease
 - Peripheral venous disease
 - Known coronary heart disease
 - Significant heart structural disease

39–14. A 45-year-old woman presents for preoperative evaluation prior to a planned hysterectomy. She has a history of hypertension for which she takes an angiotensin-converting enzyme (ACE) inhibitor. On chart review, her systolic blood pressures typically range from 150 to 160 mm Hg, and her diastolic blood pressures from 90 to 100 mm Hg. All of the following would be appropriate perioperative considerations for this patient **EXCEPT**:

- a. Holding her medication the morning of surgery
- b. Canceling surgery due to uncontrolled hypertension
- c. Avoiding excessive pain or agitation postoperatively
- d. Assessing the patient's risk of cardiac complications according to the Revised Cardiac Risk Index (RCRI)

39–15. Which of the following preventive measures related to cardiac disease lowers perioperative morbidity and mortality rates?

- a. Maintaining a hemoglobin level above 10 g/dL in those with cardiac disease
- b. Using higher energy levels during electrosurgery for those with cardiac pacemakers
- c. Antibiotic endocarditis prophylaxis for those with valvular heart disease undergoing genitourinary procedures
- d. Initiation of perioperative β -blocker use for all patients with an elevated Revised Cardiac Risk Index (RCRI)

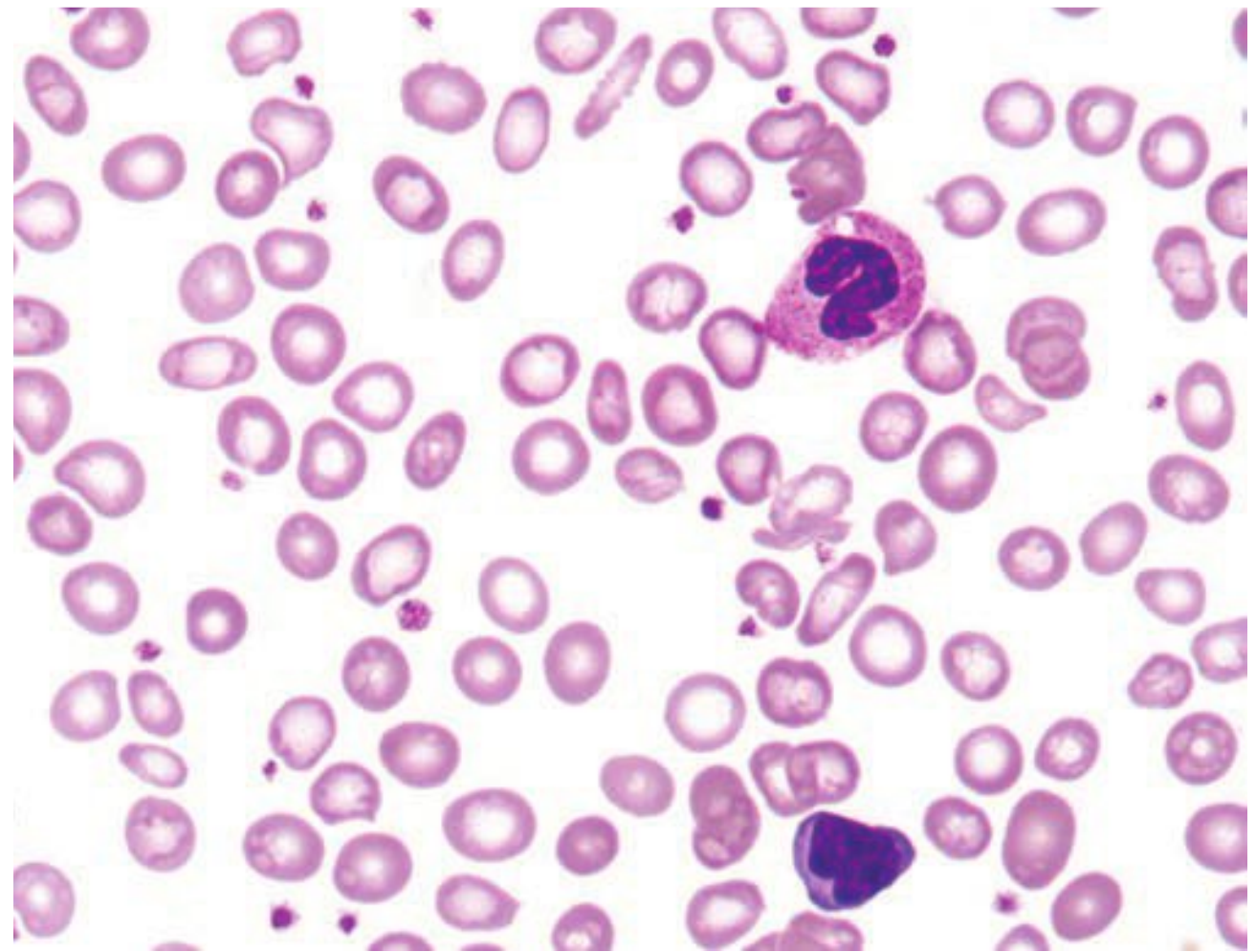
39–16. Which of the following hepatic diseases has the highest rate of perioperative mortality?

- a. Acute hepatitis
- b. Compensated chronic hepatitis
- c. Child-Pugh Class A cirrhosis
- d. Exposure to alcohol with normal liver function

39–17. Which electrolyte is of particular importance when considering preoperative optimization of a dialysis patient?

- a. Sodium
- b. Calcium
- c. Chloride
- d. Potassium

39–18. A photomicrograph of a hematologic smear from a patient with chronic blood loss anemia is shown here. Which of the following is **LEAST** likely to be found during laboratory evaluation?



Used with permission from Dr. Weina Chen.

- a. Elevated platelet count
- b. Decreased reticulocyte count
- c. Decreased mean corpuscular volume
- d. Increased mean corpuscular hemoglobin

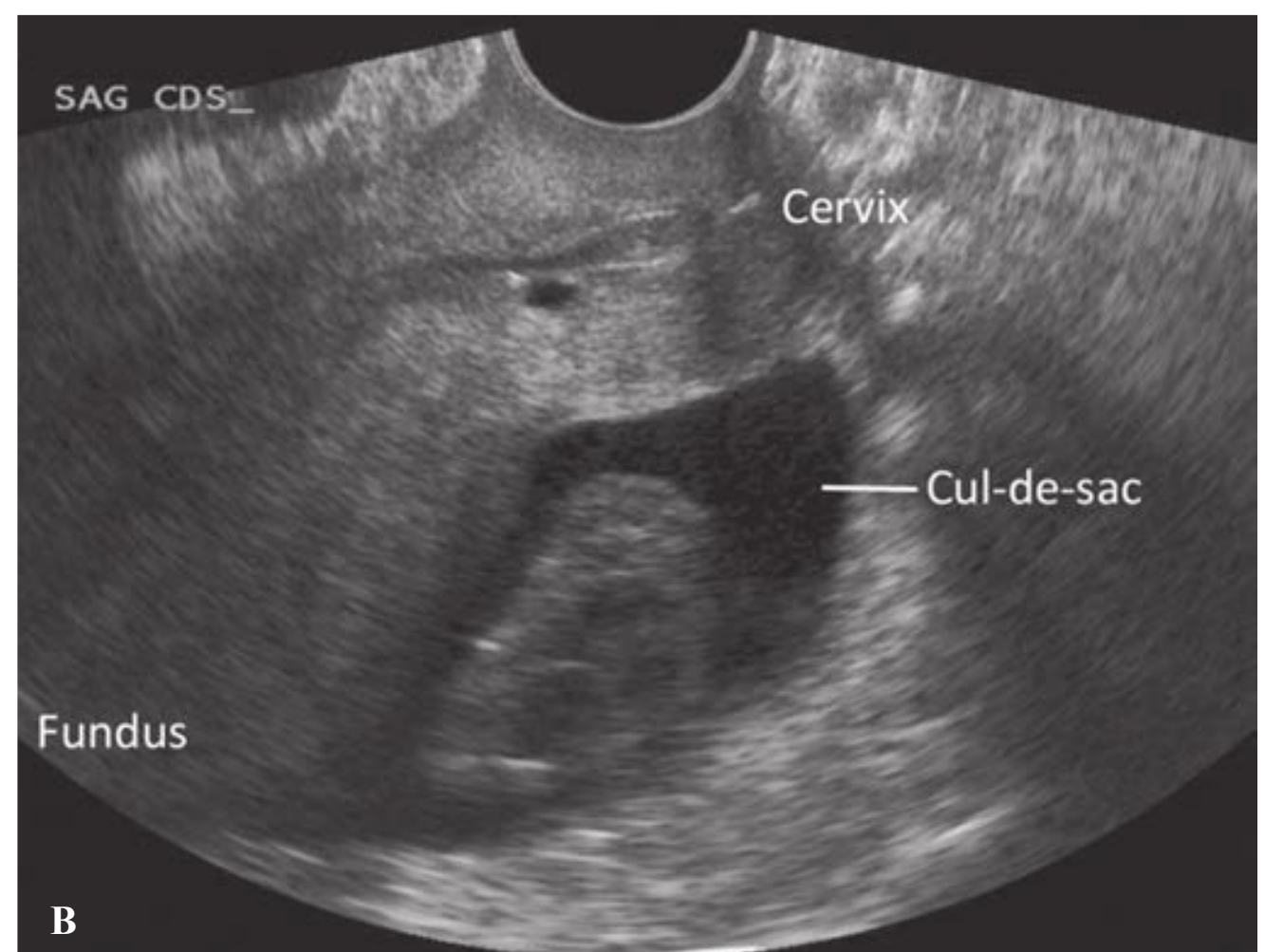
39–19. A 37-year-old woman presents for evaluation of abnormal uterine bleeding resulting in anemia. She desires definitive management with hysterectomy. Her history is significant for a Roux-en-Y gastric bypass surgery performed 5 years earlier. She is otherwise healthy. Which of the following iron formulations is best suited to correct her anemia preoperatively?

- a. Ferrous fumarate
- b. Ferrous gluconate
- c. Iron polysaccharide
- d. Ferric carboxymaltose

39–20. A patient complains of chest pain and dyspnea on postoperative day 1 following adhesiolysis and hysterectomy during a 4-hour laparotomy. Computed tomographic angiography (CTA) of the chest reveals a pulmonary embolus. After an acute venous thromboembolus, what is the recurrence risk without anticoagulation?

- a. 5 to 10 percent
- b. 10 to 20 percent
- c. 40 to 50 percent
- d. 80 to 90 percent

- 39–21.** A 45-year-old woman will soon undergo hysterectomy for heavy menstrual bleeding and pelvic pain from uterine leiomyomas and suspected adenomyosis. She is anticoagulated due to antiphospholipid syndrome with several past episodes of venous thromboembolism. “Bridging” with heparin prior to surgery must be planned. For patients taking warfarin who have a therapeutic international normalized ratio (INR), how many days after discontinuation does it typically take for the INR to reach 1.5?
- 1 to 2 days
 - 5 to 6 days
 - 7 to 10 days
 - 12 to 14 days
- 39–22.** For the patient in Question 39–21 who is chronically anticoagulated, when should unfractionated heparin be discontinued prior to surgery?
- 24 hours prior
 - 48 hours prior
 - 4 to 6 hours prior
 - 8 to 12 hours prior
- 39–23.** A 32-year-old woman presents with acute onset of severe pelvic pain. Her history is significant for having a mechanical heart valve for which she takes daily warfarin. She has also had a prior tubal ligation, but her urine pregnancy test result is positive. As seen below, transvaginal sonography shows an adnexal mass and a large amount of free fluid concerning for a ruptured ectopic pregnancy. Her international normalized ratio (INR) is 2.5. As preparations are made for emergent surgery, which of the following should be considered for reversal of her anticoagulation?
- 39–24.** What is the pharmacologic half-life of the direct oral anticoagulant rivaroxaban (Xarelto)?
- 2 hours
 - 9 hours
 - 16 hours
 - 24 hours
- 39–25.** In diabetic patients, above what threshold level of hemoglobin A_{1C} is the risk for postoperative wound infections significantly increased?
- 5 percent
 - 7 percent
 - 10 percent
 - 12 percent
- 39–26.** A 48-year-old woman is planning to undergo a hysterectomy and abdominal sacrocolpopexy for pelvic organ prolapse. She has a history of type 2 diabetes mellitus with a hemoglobin A_{1C} value of 6.5 percent. Which of the following would be beneficial for preoperative diagnostic testing in this patient?
- Urinalysis
 - Electrocardiogram
 - Serum electrolyte levels
 - All of the above



- Vitamin K
- Fresh frozen plasma
- Prothrombin complex concentrate
- All of the above

- 39–27.** Which of the following is the most appropriate perioperative management of a type 2 diabetic patient treated with oral hypoglycemic agents and undergoing laparotomy?
- Resume all agents postoperative day 1
 - Continue all agents through the day of surgery
 - Treat with subcutaneous insulin until resumption of a normal diet
 - Transition to sliding scale insulin beginning 7 days prior to surgery
- 39–28.** For which of the following patients are stress-dose steroids most appropriate?
- All patients who chronically take oral corticosteroids
 - Patients who chronically take 5 mg of prednisone daily
 - Patients taking high doses of corticosteroids and undergoing minor surgery
 - Patients receiving corticosteroids due to primary hypothalamic-pituitary-adrenal axis disease
- 39–29.** During informed consent, documentation of patient refusal for a specific procedure should include all of the following **EXCEPT**:
- The patient's reason for refusal
 - A description of the health consequences as described to the patient
 - Notation that the value of the intervention was explained to the patient
 - Documentation that the patient will be discharged from the provider's care following refusal
- 39–30.** Preprocedural antibiotic prophylaxis is recommended for which of the following procedures?
- Urodynamic testing
 - Hysteroscopic myomectomy
 - Total laparoscopic hysterectomy
 - Ovarian cystectomy via laparotomy
- 39–31.** A 56-year-old woman presents for an abdominal hysterectomy. During discussion of prophylactic antibiotics, she mentions that she experiences anaphylaxis after administration of penicillins. Which of the following regimens would be most appropriate in this scenario?
- Cefazolin alone
 - Clindamycin plus aztreonam
 - Metronidazole plus aztreonam
 - Gentamicin plus ciprofloxacin
- 39–32.** A 75-year-old woman is to undergo hysteroscopy and endometrial curettage for a history of postmenopausal bleeding. Her body mass index is 35 kg/m², and her medical history is otherwise unremarkable. During examination, the only remarkable finding is varicosities on both her legs. Based on the Caprini Risk Assessment Model, what is this patient's risk for perioperative venous thromboembolism?
- Low risk
 - High risk
 - Moderate risk
 - Very low risk
- 39–33.** What is the most thrombogenic heritable coagulopathy?
- Protein C deficiency
 - Antithrombin deficiency
 - Factor V Leiden mutation
 - Prothrombin G20210A mutation
- 39–34.** What is the most prevalent heritable coagulopathy?
- Protein C deficiency
 - Antithrombin deficiency
 - Factor V Leiden mutation
 - Prothrombin G20210A mutation

Chapter 39 ANSWER KEY

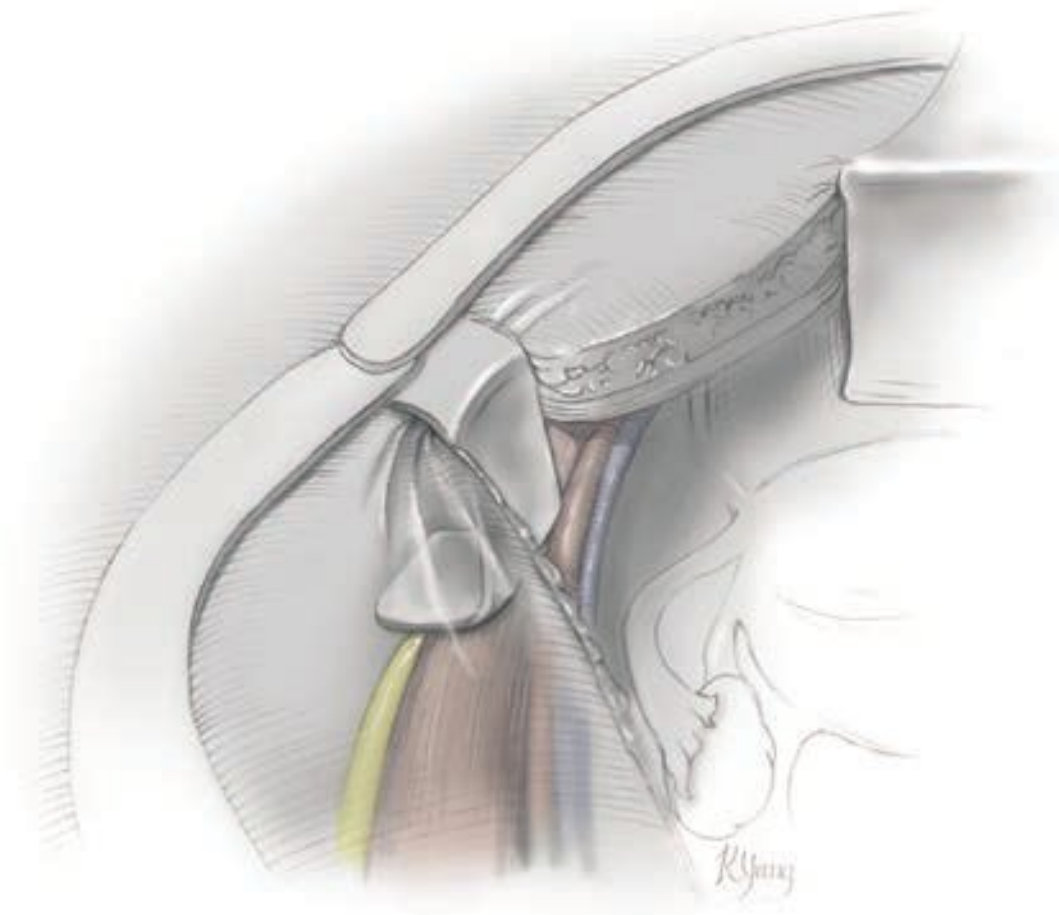
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
39-1	a	p. 825	Preoperative Patient Evaluation	39-15	a	p. 829	Anemia
39-2	a	p. 825	Risk Factors for Pulmonary Complications	39-16	a	p. 829	Hepatic Evaluation
39-3	a	p. 825	Risk Factors for Pulmonary Complications	39-17	d	p. 829	Renal Evaluation
39-4	d	p. 825	Risk Factors for Pulmonary Complications	39-18	d	p. 830	Anemia
39-5	c	p. 826	Pulmonary Function Tests (PFTs) and Chest Radiography	39-19	d	p. 830	Anemia
39-6	d	p. 826	Pulmonary Function Tests (PFTs) and Chest Radiography	39-20	c	p. 830	Oral Anticoagulation
39-7	a	p. 826	Biochemical Markers	39-21	b	p. 830	Preoperative Management
39-8	c	p. 826	Preoperative Pulmonary Guidelines	39-22	c	p. 830	Preoperative Management
39-9	a	p. 827	Lung Expansion Modalities	39-23	d	p. 830	Preoperative Management
39-10	a	p. 827	Nasogastric Decompression	39-24	b	p. 830	Preoperative Management
39-11	a	p. 827	Risk Factors for Cardiac Complications	39-25	b	p. 832	Diabetes Mellitus
39-12	a	p. 827	Risk Factors for Cardiac Complications	39-26	d	p. 832	Diabetes Mellitus
39-13	b	p. 828	Cardiac Testing	39-27	c	p. 833	Table 39-5
39-14	b	p. 828	Preoperative Cardiac Guidelines	39-28	d	p. 832	Adrenal Insufficiency
				39-29	d	p. 833	Informed Consent
				39-30	c	p. 835	Table 39-6
				39-31	b	p. 835	Table 39-6
				39-32	b	p. 836	Thromboembolism Prevention; Tables 39-7, 39-8
				39-33	b	p. 836	Thrombophilias
				39-34	c	p. 836	Thrombophilias

CHAPTER 40

Intraoperative Considerations

- 40–1.** To achieve adequate blockade of Frankenhaüser plexus during paracervical block, injections are ideally placed at what sites around the cervical base?
- 1 and 6 o'clock
 - 2 and 10 o'clock
 - 3 and 9 o'clock
 - 4 and 8 o'clock
- 40–2.** Classic signs of lidocaine toxicity include all of the following **EXCEPT**:
- Seizure
 - Tinnitus
 - Petechial rash
 - Perioral tingling
- 40–3.** The Joint Commission's Universal Protocol for Preventing Wrong Site, Wrong Procedure, and Wrong Person Surgery published in 2009 encompasses which of the following components?
- Marking the operative site
 - Preprocedural verification of all relevant documents
 - Completion of a "time out" prior to procedure initiation
 - All of the above
- 40–4.** During the presurgical "time out," the entire surgical team should routinely reach consensus agreement on all of the following **EXCEPT**:
- Patient's identity
 - Procedure planned
 - Patient's blood type
 - Side of the patient to be treated
- 40–5.** Correct patient positioning can avert many intraoperative neurologic injuries. All of the following patient's or surgical characteristics are associated with an increased risk of such injury **EXCEPT**:
- Diabetes mellitus
 - A body mass index (BMI) of 25
 - A 20-pack-year history of smoking
 - Use of a self-retaining retractor

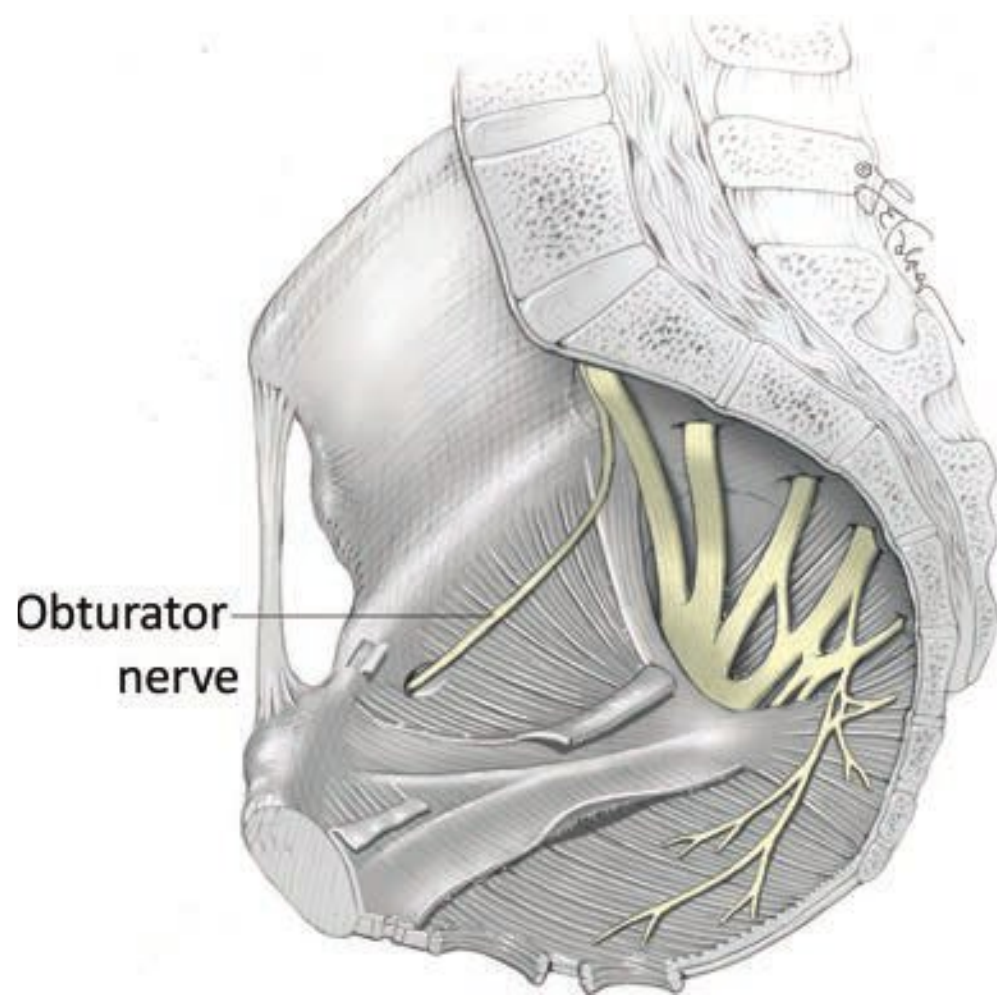
- 40–6.** On the second postoperative day, a patient who has undergone a technically challenging abdominal hysterectomy complains of right leg numbness above the knee and some difficulty walking due to weakness. Malpositioning of a self-retaining retractor can injure the femoral nerve as it runs near the psoas major muscle, as shown here. Which of the following may be seen classically with a femoral neuropathy?



Reproduced with permission from Balgobin S, Hamid CA, Hoffman BL: Intraoperative considerations. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 40-3.

- Absence of patellar reflex
 - Inability to flex the knee
 - Inability to extend the hip
 - Paresthesia over the posterior thigh
- 40–7.** A 30-year-old woman complains of increasingly frequent shooting pain that radiates from her left lower abdominal wall into her ipsilateral labia and upper thigh. She reports that she has had complete numbness of the skin over the left lower abdomen since her third cesarean delivery 4 months ago. On examination, you find decreased sensation around her Pfannenstiel scar. To avoid compromising the ilioinguinal and iliohypogastric nerves when creating a transverse incision, what may be a preventive step?
- Obtain excellent hemostasis
 - Avoid use of self-retaining retractors
 - Use a blunt technique to separate the fascia from the underlying rectus abdominis muscle
 - Avoid extending the fascial incision beyond the lateral borders of the rectus abdominis muscle

- 40–8.** All of the following procedures place the obturator nerve (shown below) at risk of injury **EXCEPT**:



Reproduced with permission from Corton MM: Anatomy. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 38-7.

- a. Burch colposuspension
 - b. Abdominal sacrocolpopexy
 - c. Pelvic lymph node dissection
 - d. Resection of endometriosis adhered to the pelvic sidewall
- 40–9.** A 30-year-old woman will soon undergo an abdominal hysterectomy for an enlarged, symptomatic leiomyomatous uterus. She requests the most cosmetic skin incision possible. In general, which of the following incisions for abdominal entry provides the **LEAST** operative space?
- a. Cherney
 - b. Maylard
 - c. Pfannenstiel
 - d. Midline vertical
- 40–10.** The Maylard incision may be contraindicated in patients with which of the following conditions?
- a. Fever
 - b. Poor pain tolerance
 - c. Peripheral vascular disease
 - d. Compromised pulmonary function
- 40–11.** Which of the following is commonly used to lower postoperative wound infection and dehiscence rates?
- a. Subcutaneous drain placement prior to skin closure
 - b. Closure of subcutaneous layer if greater than 2 cm deep
 - c. Wound irrigation with concentrated povidone-iodine solution prior to skin closure
 - d. All of the above

- 40–12.** For Pfannenstiel incisions, which of the following offers a clearly superior skin closure technique?
- a. Staples
 - b. Subcuticular suturing
 - c. Octyl-2-cyanoacrylate (Dermabond)
 - d. None of these techniques is clearly superior

- 40–13.** An 18-year-old woman presents with 1 week of increasing pain and swelling of her left vulva. She has difficulty walking and sitting and cannot adequately control the pain with over-the-counter analgesics. Which of the following blades would be preferred for incision and drainage of the Bartholin cyst shown here?



- a. No. 11 blade
 - b. No. 10 blade
 - c. No. 20 blade
 - d. Beaver blade
- 40–14.** Shown here, which of the following is mainly used as a vaginal retractor?



- a. Deaver retractor
- b. Richardson retractor
- c. Harrington retractor
- d. Breisky-Navratil retractor

- 40–15.** When the grounding pad is placed correctly for monopolar electrosurgery, the patient plays what role?
- The return electrode
 - Not part of the circuit
 - The source of impedance
 - All of the above

- 40–16.** Placement of the grounding pad on the upper thigh prior to hysterectomy, as shown here, serves all of the following goals **EXCEPT**:



- Provides a flat surface to maximize the area of exit for current
- Provides a small surface area over which to concentrate current
- Provides an exit site for current that is close to the operative site
- Aids prevention of electrical burns when using monopolar electrosurgery

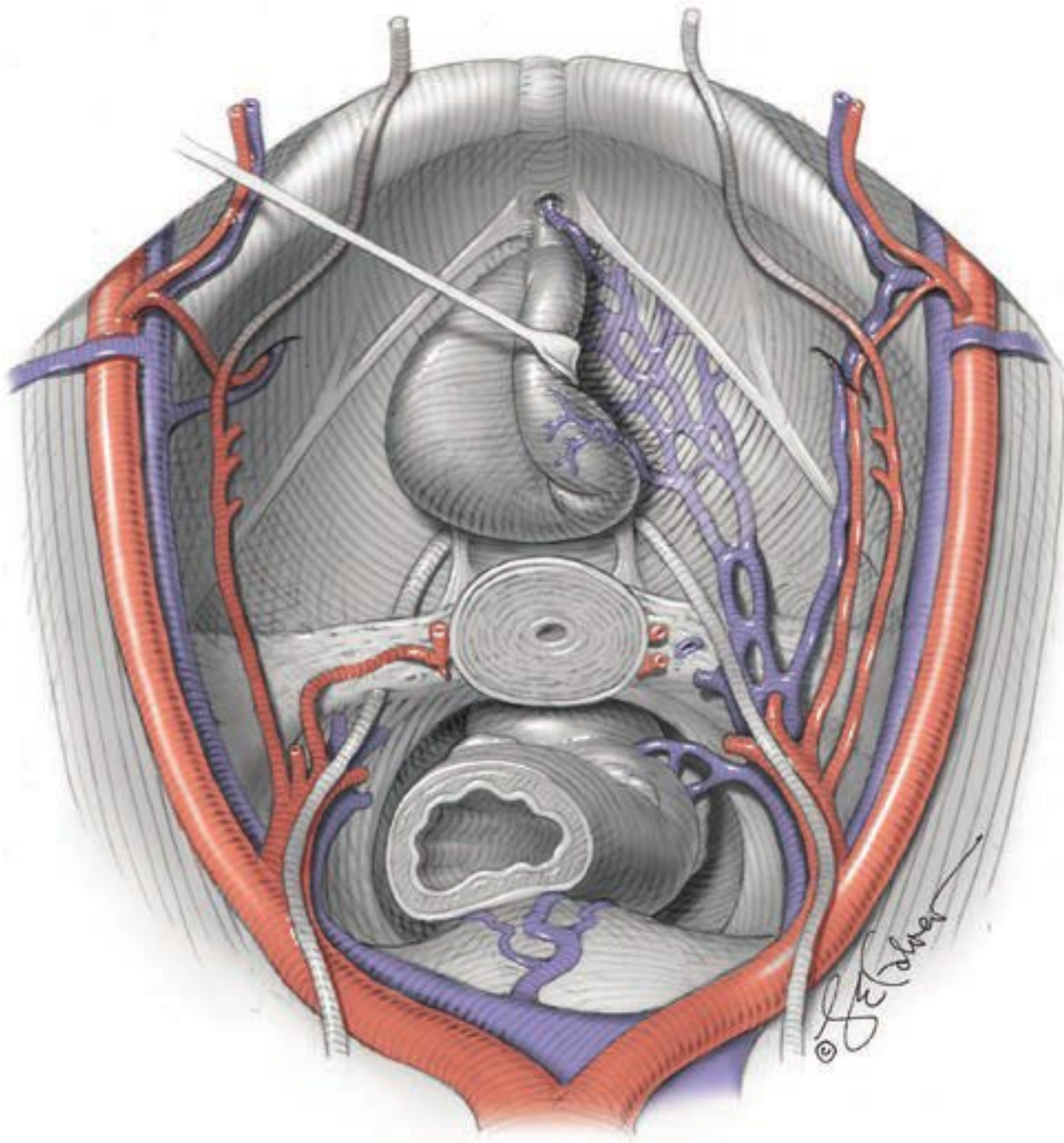
- 40–17.** Which of the following is true of cavitation ultrasonic surgical aspiration (CUSA)?



Reproduced with permission from Hoffman BL, Corton MM: Surgeries for benign gynecologic conditions. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 43-28.3B.

- Requires a grounding pad for patient safety
 - Is less disruptive to tissues with a high water content
 - Disrupts tissue architecture using a process termed *reabsorption*
 - May be selected to minimize nerve and blood vessel damage within affected tissues
- 40–18.** To control bleeding from an isolated small vessel, sealing the vessel using electrosurgical energy offers all of the following advantages compared with suture ligation **EXCEPT**:
- Faster
 - Avoids suture ligation slippage
 - Creates less damage to surrounding tissues
 - More easily reaches vessels in narrow spaces
- 40–19.** Which of the following topical hemostats does **NOT** include coagulation cascade proteins?
- Fibrin sealants
 - Active hemostats
 - Flowable hemostats
 - Mechanical hemostats

- 40–20.** Mechanical hemostats aid control of bleeding by which of the following mechanisms?
- Create a pressure scaffold that entraps platelets
 - Bind directly to von Willebrand factor to promote platelet aggregation
 - Directly stimulate thromboxane-A synthase production of thromboxane
 - Bind to prothrombinase complex to promote direct conversion of prothrombin to thrombin
- 40–21.** The space of Retzius is shown here. Bleeding in this space is **LEAST** likely to complicate which procedure?



Reproduced with permission from Corton MM: Anatomy. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figures 38-7 and 38-24.

- Burch colposuspension
 - Transobturator tape procedure
 - Tension-free vaginal tape procedure
 - Abdominal paravaginal defect repair
- 40–22.** What is the blood volume of a 50-kg woman?
- 2500 mL
 - 3500 mL
 - 4500 mL
 - 5500 mL
- 40–23.** Which of these blood volumes typically can be lost by a 50-kg woman before tachycardia and blood pressure changes develop?
- 500 mL
 - 1500 mL
 - 2000 mL
 - 2500 mL
- 40–24.** Targets of fluid replacement include which of the following?
- Urine output \geq 30 mL/hr
 - Heart rate $<$ 100 beats/min
 - Systolic blood pressure $>$ 90 mm Hg
 - All of the above
- 40–25.** Regarding intraoperative fluid management, the purported benefits of a restrictive fluid-management strategy include which of the following?
- Less bowel edema
 - Fewer pulmonary complications
 - Quicker return of bowel function
 - All of the above
- 40–26.** A 37-year-old woman undergoes hysterectomy for symptomatic uterine leiomyomas. She has a history of chronic anemia likely due to her years of heavy menses. Preoperatively, oral iron supplementation normalizes her hemoglobin level. She is otherwise healthy. Her hemoglobin on the second postoperative day is 9 g/dL, and you are asked if a red blood cell transfusion should be ordered. She is asymptomatic, and vital signs are in the normal range. In those without significant heart disease, what is the hemoglobin threshold above which red blood cell transfusion is seldom required?
- 8 g/dL
 - 9 g/dL
 - 10 g/dL
 - 11 g/dL
- 40–27.** Which of the following is true of packed red blood cell (RBC) transfusion?
- Each unit of packed RBCs provides 500 mL of volume.
 - Each unit of packed RBCs has a hematocrit of approximately 70 percent.
 - Each unit of packed RBCs typically increases the hemoglobin level by approximately 3 g/dL.
 - Each unit of packed RBCs contains enough fibrinogen to raise the fibrinogen level by 10 g/dL.

- 40–28.** Side effects seen with an acute hemolytic transfusion reaction include all of the following **EXCEPT**:
- Fever
 - Dyspnea
 - Acute tubular necrosis
 - Fulminant liver failure
- 40–29.** A postoperative patient is receiving a red blood cell transfusion. The patient complains of shaking chills, nausea, and mild shortness of breath. She has a low-grade fever with mild tachycardia and appears slightly distressed. Acute hemolytic transfusion reaction is suspected. Which of the following immediate steps is indicated?
- Halt transfusion
 - Initiate prompt diuresis with intravenous crystalloids and furosemide diuretic
 - Obtain a patient blood sample for the hematology laboratory to compare with the transfused bag
 - All of the above
- 40–30.** Injury to the bladder during total abdominal hysterectomy commonly occurs at which of the following surgical steps?
- Closing the vaginal cuff
 - Opening the vesicovaginal space
 - Dissecting the bladder of the cervix
 - All of the above
- 40–31.** Injury to the bladder may be identified using which of the following procedures?
- Cystoscopy
 - Direct visualization of the Foley bulb
 - Retrograde instillation of sterile milk
 - All of the above
- 40–32.** Injury to the ureter during total abdominal hysterectomy most commonly occurs at which of the following surgical steps?
- Closing the vaginal cuff
 - Ligating the uterine artery
 - Ligating of the infundibulopelvic ligament
 - Opening the anterior leaf of the broad ligament
- 40–33.** Proponents of universal cystoscopy argue that the procedure offers which of the following characteristics?
- Is cost effective
 - Carries minimal risk
 - Prevents postoperative morbidity
 - All of the above

Reference

Joint Commission: Universal protocol for preventing wrong site, wrong procedure, and wrong person surgery. Oakbrook Terrace, IL: Joint Commission, 2009.

Chapter 40 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
40-1	d	p. 841	Technique	40-17	d	p. 859	Ultrasonic Energy
40-2	c	p. 841	Technique	40-18	c	p. 861	Vessel Ligation
40-3	d	p. 843	Surgical Safety	40-19	d	p. 861	Table 40-5
40-4	c	p. 843	Surgical Safety	40-20	a	p. 861	Local Topical Hemostats
40-5	b	p. 843	Nerve Injury Prevention	40-21	b	p. 862	Space of Retzius and Presacral Venous Plexus
40-6	a	p. 844	Femoral Nerve, Table 40-2	40-22	b	p. 864	Clinical Assessment
40-7	d	p. 845	Transverse Incisions	40-23	a	p. 864	Clinical Assessment
40-8	b	p. 845	Pelvic Sidewall Dissection	40-24	d	p. 864	Fluid Resuscitation
40-9	c	p. 846	Transverse Incisions	40-25	d	p. 864	Fluid Resuscitation
40-10	c	p. 846	Transverse Incisions	40-26	c	p. 865	Clinical Assessment
40-11	b	p. 847	Subcutaneous Adipose Layer and Skin	40-27	b	p. 866	Transfusion, Table 40-7
40-12	d	p. 847	Subcutaneous Adipose Layer and Skin	40-28	d	p. 865	Complications
40-13	a	p. 848	Scalpel and Blades	40-29	d	p. 865	Complications
40-14	d	p. 852	Vaginal Surgery Retractors	40-30	d	p. 867	Bladder Injury
40-15	c	p. 857	Monopolar Electrosurgery	40-31	d	p. 867	Bladder Injury
40-16	b	p. 858	Patient Grounding	40-32	b	p. 867	Ureteral Injury
				40-33	d	p. 869	Universal Cystoscopy

CHAPTER 41

Minimally Invasive Surgery Fundamentals

- 41-1.** All of the following are contraindications to the use of pneumoperitoneum during laparoscopy **EXCEPT**:
- Acute glaucoma
 - Peritoneal shunt
 - Second-trimester pregnancy
 - Increased intracranial pressure
- 41-2.** Which of the following parameters is **NOT** increased during laparoscopy?
- Blood pressure
 - Intraabdominal pressure
 - Glomerular filtration rate
 - Systemic vascular resistance
- 41-3.** What is a consequence of hypercarbia?
- Acidemia
 - Arrhythmia
 - Tachycardia
 - All of the above
- 41-4.** Which of the following favors better oxygenation during laparoscopy?
- T_i in patient
 - Upward displacement of the diaphragm
 - Diminished functional residual capacity
 - Stiffening of the diaphragm and chest wall during insufflation
- 41-5.** A woman with a history of coronary artery disease presents with an adnexal mass. After thorough review, she is determined to be an appropriate candidate for a laparoscopic procedure. What measures can you take to minimize the risk of cardiovascular morbidity?
- Lay the patient on a gel pad
 - Use steeper Trendelenburg
 - Increase the intraabdominal pressure
 - Decrease the intraabdominal pressure and flatten the degree of Trendelenburg
- 41-6.** To effectively compensate for difficulties encountered during laparoscopy in an obese patient, a surgeon may use all of the following **EXCEPT**:
- Steeper Trendelenburg position to improve patient ventilation
 - Veress needle insertion at an angle that is nearly perpendicular to the skin
 - Placement of additional ancillary ports to assist in lifting a fattier omentum from the operating field
 - Use of a gel pad beneath the patient and tucking of patient's arms to limit patient slippage while in Trendelenburg position
- 41-7.** A patient presents for preoperative counseling prior to her laparoscopic hysterectomy. She has questions regarding anesthesia selection. A benefit of general anesthesia in her case would include which of the following?
- Muscle relaxation
 - Orogastric tube placement
 - Controlled ventilation to prevent hypercarbia
 - All of the above
- 41-8.** Which organ is most frequently injured during laparoscopy?
- Liver
 - Bowel
 - Stomach
 - Bladder
- 41-9.** A patient planned for laparoscopic hysterectomy has had three prior laparotomies. Accordingly, abdominal adhesive disease is anticipated. A preventive step to avoid bowel injury could include which of the following?
- An alternative site for primary trocar entry
 - Introduction of a microlaparoscope to scout for adhesions
 - Preoperative sonography using the visceral slide test to exclude bowel adhered to the anterior abdominal wall
 - All of the above

- 41–10.** During laparoscopic hysterectomy, the inferior epigastric vessels are injured during placement of an ancillary port. A technique to control hemorrhage includes which of the following?
- Use bipolar electro-surgical coagulation at the site
 - Inflate a Foley balloon to tamponade the site for 12 hours
 - Place a suture that traverses the skin, abdominal wall, and peritoneum, and then arches under the vessel and exits the abdomen to directly ligate the vessel
 - All of the above
- 41–11.** All of the following measures can help prevent brachial plexus injuries during laparoscopy **EXCEPT**:
- Use shoulder braces
 - Tuck arms at the side
 - Avoid upper extremity hyperextension
 - Place antiskid material beneath the patient
- 41–12.** What is the standard length of laparoscopic instruments?
- 10 cm
 - 15 cm
 - 33 cm
 - 45 cm

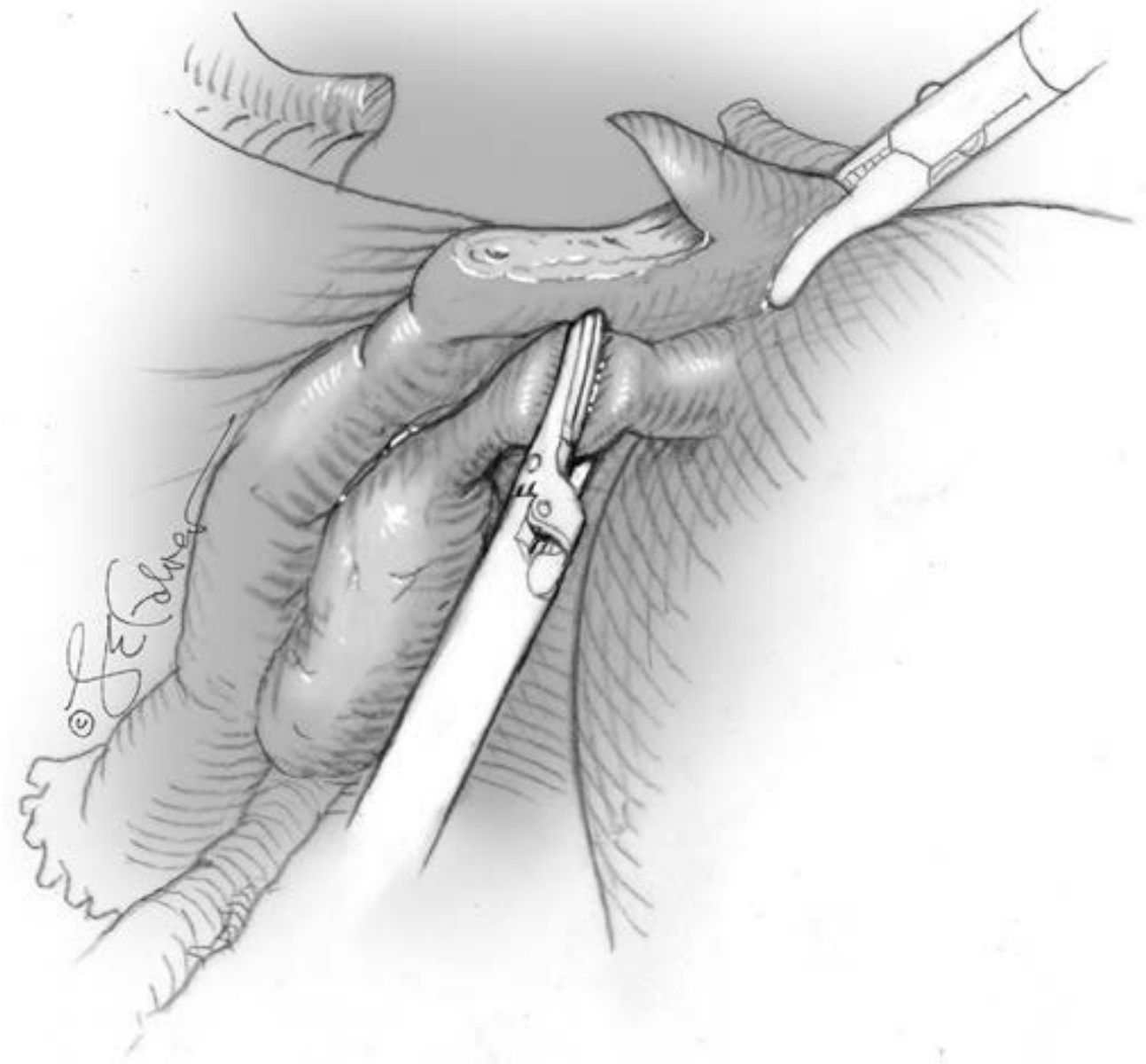
- 41–13.** Shown here, which of the following uterine manipulators does **NOT** affix to the cervix for stability?



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- Hulka
- Cohen
- Sargis
- Zinnanti Uterine Manipulator Injector (ZUMI)

- 41–14.** What factor associated with monopolar instruments may cause unintended electro-surgical burns?
- Direct coupling
 - Insulation failures
 - Capacitive coupling
 - All of the above
- 41–15.** What property of bipolar instruments decreases the concern for burns?
- Currents are higher.
 - Thermal spread is lower.
 - Current travels to a grounding pad.
 - Currents are confined between two closely approximated electrodes.
- 41–16.** A woman is undergoing a laparoscopic hysterectomy with planned ovarian conservation. The surgeon is using an ultrasonic scalpel. How does the surgeon use the instrument to cut rather than coagulate tissue?



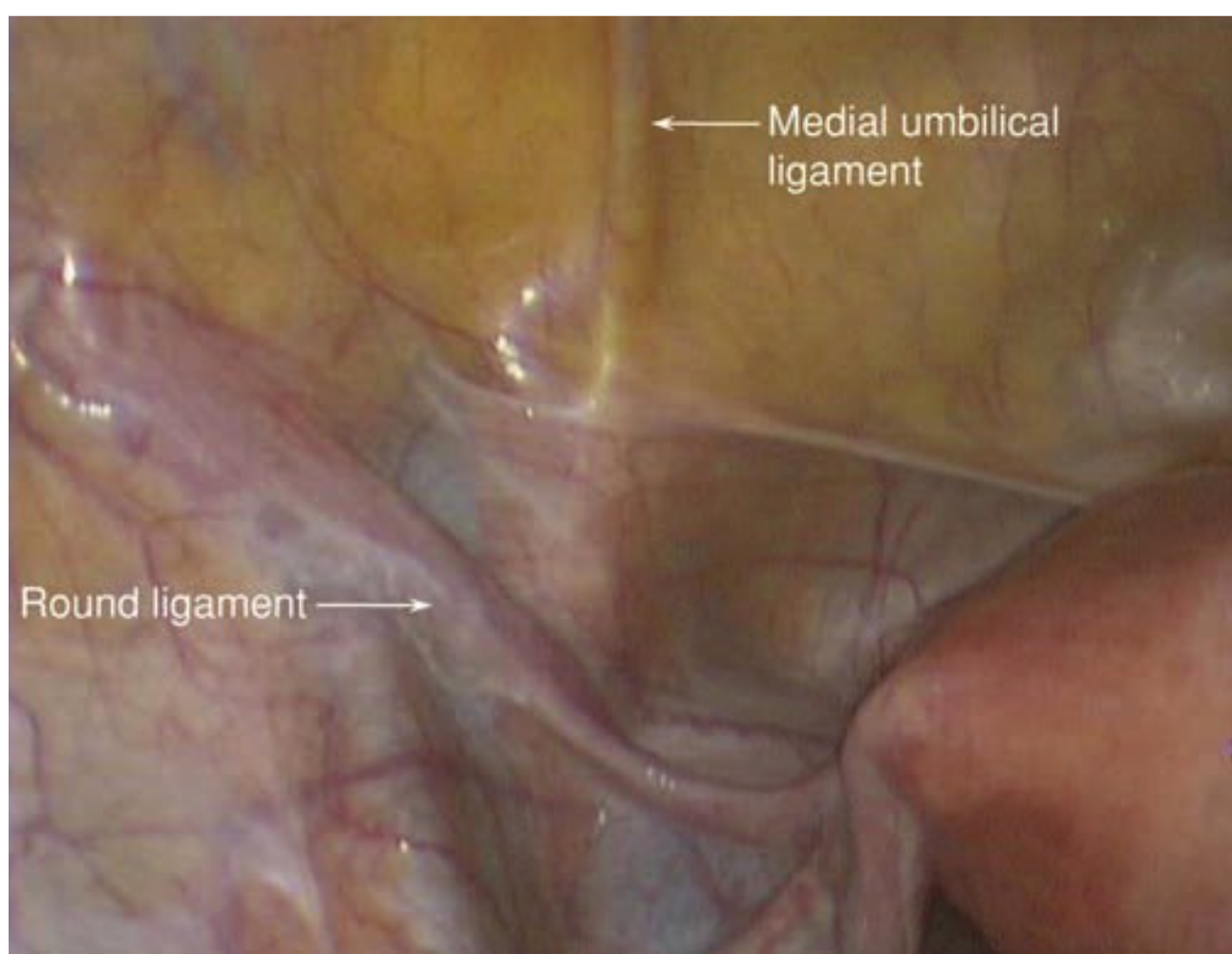
Reproduced with permission from Thompson MJ, Kho KA: Minimally invasive surgery. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 44-9.2.

- Uses a lower power setting
- Decreases tissue tension
- Uses higher power and increased tissue tension
- Repetitively grasps and slightly releases tissue tension

41–17. During laparoscopic lysis of adhesions at the time of hysterectomy, dense adhesive disease is noted throughout the pelvis. Why might the surgeon choose an angled-view endoscope rather than a 0-degree laparoscope?

- a. A lateral view of pathology is required.
- b. The traditional forward view is obstructed.
- c. Multiple instruments are in use and a panoramic view is needed.
- d. All of the above

41–18. The medial umbilical ligament and round ligament are ideally identified prior to ancillary trocar placement through the lower anterior abdominal wall. This assists in minimizing injury to which of the following vessels?



Used with permission from Dr. Mayra Thompson.

- a. Inferior epigastric artery
- b. Superior epigastric artery
- c. Superficial epigastric artery
- d. Superficial circumflex iliac artery

41–19. When used for entry at the umbilicus, which of the following abdominal entry methods is associated with the lowest rate of puncture injury?

- a. Open umbilical entry
- b. Optical access trocar entry
- c. Closed entry with Veress needle
- d. All have similar rates.

41–20. With abdominal entry using the Veress needle, what threshold for initial abdominal pressure is used to reassure the surgeon regarding correct intraperitoneal needle placement?

- a. < 3 mm Hg
- b. < 8 mm Hg
- c. < 15 mm Hg
- d. < 20 mm Hg

41–21. Transillumination of the anterior abdominal wall (shown here) may assist in locating which of the following vessels prior to ancillary trocar placement?



- a. Inferior epigastric artery
- b. Superior epigastric artery
- c. Superficial epigastric artery
- d. Superficial circumflex iliac artery

41–22. An alternative to power morcellation includes which of the following?

- a. Minilaparotomy
- b. Posterior colpotomy
- c. Enclosed power morcellation
- d. All of the above

41–23. In determining when fascial defect closure is indicated, what port site size threshold is generally used?

- a. ≥ 5 mm
- b. ≥ 8 mm
- c. ≥ 10 mm
- d. ≥ 15 mm

41–24. What factor associated with laparoscopic knot tying makes greater tensile strength and increased memory more valued suture traits?

- a. Increased friction
- b. Increased suture fraying
- c. Longer time between knot throws
- d. All of the above

41–25. The harmonic grasper is able to seal a vessel of up to what caliber?

- a. 2 mm
- b. 5 mm
- c. 7 mm
- d. 10 mm

- 41–26.** What is an absolute contraindication to hysteroscopy?
- Uterine synechiae
 - Endometrial cancer
 - Müllerian anomalies
 - Intrauterine pregnancy
- 41–27.** Which family of drugs can be used to induce endometrial atrophy prior to hysteroscopy?
- Progestins
 - Combination oral contraceptives
 - Gonadotropin-releasing hormone agonists
 - All of the above
- 41–28.** A patient presents for operative hysteroscopy and polypectomy. Her past surgical history is notable for a prior loop electrosurgical excision procedure 3 years ago. Unexpectedly, her cervix is stenotic. Intracervical injection of dilute vasopressin is selected to aid cervical dilation. What medical condition would contraindicate the use of dilute vasopressin?



Used with permission from Dr. Benjamin Kogutt.

- Asthma
- Arthritis
- Uncontrolled hypertension
- Inflammatory bowel disease

- 41–29.** What are the effects of increased intrauterine pressures in hysteroscopy?
- Increased bleeding
 - Limited visualization
 - Increased intravasation
 - Limited operating space
- 41–30.** During which of the following hysteroscopic procedures does carbon dioxide serve best as a distention media?
- Leiomyoma resection
 - Uterine septum excision
 - Diagnostic hysteroscopy
 - Endometrial polyp resection
- 41–31.** What potential effects of low-viscosity electrolyte fluids make them incompatible with monopolar electrosurgery?
- Cause hyponatremia
 - Cause pulmonary edema
 - Increase the risk of infection
 - Conduct current, thus dissipating energy, rendering the monopolar instrument useless
- 41–32.** If excess fluid volume is absorbed during hysteroscopy, patients are at greatest risk of developing hyponatremia with use of which of the following distention solutions?
- 1.5-percent glycine
 - Normal saline
 - Lactated Ringer solution
 - All have equivalent risk of producing hyponatremia.
- 41–33.** If gas embolism during hysteroscopy is suspected, all of the following should be performed **EXCEPT**:
- Remove the hysteroscope
 - Clamp the cervical os closed
 - Place the patient in reverse Trendelenburg position
 - Move the patient to a left lateral decubitus position

Chapter 41 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
41-1	c	p. 874	Patient Factors	41-18	a	p. 888	Anterior Abdominal Wall
41-2	c	p. 874	Laparoscopic Physiology	41-19	d	p. 889	Umbilical Entry
41-3	d	p. 874	Laparoscopic Physiology	41-20	b	p. 890	Veress Needle Entry
41-4	a	p. 874	Laparoscopic Physiology	41-21	c	p. 895	Accessory Port Placement
41-5	d	p. 875	Health Conditions	41-22	d	p. 896	Tissue Extraction
41-6	a	p. 875	Obesity	41-23	c	p. 897	Abdominal Entry Closure
41-7	d	p. 876	Anesthesia Selection	41-24	d	p. 897	Suturing Tools
41-8	b	p. 877	Organ Injury	41-25	b	p. 900	Hemostasis
41-9	d	p. 877	Organ Injury	41-26	d	p. 901	Patient Evaluation
41-10	d	p. 877	Vascular or Nerve Injury	41-27	d	p. 901	Endometrial Thickness
41-11	a	p. 879	Patient Positioning	41-28	c	p. 901	Cervical Dilatation
41-12	c	p. 879	Instrument Anatomy	41-29	c	p. 903	Distention Media
41-13	d	p. 881	Uterine Manipulators	41-30	c	p. 904	Carbon Dioxide
41-14	d	p. 884	Monopolar Electrosurgery	41-31	d	p. 904	Low-Viscosity Electrolyte Fluids
41-15	d	p. 884	Bipolar Energy	41-32	a	p. 904	Low-Viscosity, Electrolyte-Poor Fluids
41-16	c	p. 884	Ultrasonic Energy	41-33	c	p. 905	Gas Embolization
41-17	d	p. 886	Angles of View				

CHAPTER 42

Postoperative Considerations

42–1. Which of the following electrolytes is **NOT** a major contributor to the osmolarity of the intracellular compartment?

- a. Chloride
- b. Magnesium
- c. Phosphate
- d. Potassium

42–2. What is the approximate daily liquid requirement for an average-sized adult?

- a. 20 mL/kg per day
- b. 30 mL/kg per day
- c. 40 mL/kg per day
- d. 50 mL/kg per day

42–3. Volume resuscitation with crystalloid solution primarily expands which of the following compartments?

- a. Plasma
- b. Vascular
- c. Interstitial
- d. Intracellular

42–4. Which of the following statements regarding isotonic (normal) saline solution is true?

- a. It has a higher pH compared to plasma.
- b. It has a lower chloride concentration compared to plasma.
- c. When infused at large volumes, it can result in lactic acidosis.
- d. Saline-induced acidosis usually has no adverse clinical consequences.

42–5. A 45-year-old woman recently underwent a total abdominal hysterectomy of a large myomatous uterus. Her course since surgery has been complicated by postoperative ileus, shown here, for which a nasogastric tube was placed. Which of the following is the most appropriate solution to replace volume lost in her gastric secretions?



- a. Isotonic saline
- b. Lactated Ringer
- c. 5 percent dextrose in water
- d. 5 percent dextrose in 0.45 percent normal saline with 20 mEq/L of potassium chloride

45–6. Which of the following is the **LEAST** common opiate used to treat postoperative pain following gynecologic surgery?

- a. Fentanyl
- b. Morphine
- c. Meperidine
- d. Hydromorphone

- 45–7.** A 62-year-old woman undergoes surgical debulking of advanced-stage ovarian cancer. She is given morphine for postoperative pain, after which she experiences severe itching over most of her body. Which of the following medications would be **LEAST** helpful in treating her pruritus?
- Naloxone
 - Midazolam
 - Ondansetron
 - Diphenhydramine
- 42–8.** Which of the following routes of administration is available for hydromorphone (Dilaudid)?
- Rectal
 - Subcutaneous
 - Intramuscular
 - All of the above
- 42–9.** A 35-year-old woman undergoes exploratory laparotomy and unilateral oophorectomy for a large ovarian cyst. On the first postoperative day, she is noted to have diminished breath sounds and dullness to percussion over the lower lung fields. Her pulse oximetry reads 95 percent on room air, and she otherwise feels well. What is the most common postsurgical pulmonary complication that this patient likely is experiencing?
- Pneumonia
 - Atelectasis
 - Pulmonary embolus
 - Acute respiratory distress syndrome
- 42–10.** A chest radiograph is performed for the patient in Question 42–9 and confirms atelectasis. The patient desires to know how this will affect her recovery. Which of the following statements regarding postoperative atelectasis is true?
- It will likely prolong hospital stay.
 - It will likely slow patient recovery.
 - It can be treated with lung expansion therapies.
 - It usually lasts up to 7 days.
- 42–11.** A 55-year-old woman reports a new productive cough 3 days after an abdominal hysterectomy. You are concerned for hospital-acquired pneumonia and order a chest radiograph. Which of the following clinical features is typically present when diagnosing pneumonia?
- Leukocytosis
 - Purulent secretions
 - Fever greater than 38°C
 - All of the above

- 42–12.** The chest radiograph for the patient in Question 42–11 is shown below. It shows a new right lower lung infiltrate confirming your suspicion of hospital-acquired pneumonia. Which of the following antibiotic regimens is most appropriate for treating this patient?



- Cefepime alone
 - Meropenem alone
 - Gentamicin with ciprofloxacin
 - Piperacillin and tazobactam with levofloxacin
- 42–13.** Which of the following measures can be implemented to prevent the complication of hospital-acquired pneumonia?
- Elevating the head of the patient's bed 45 degrees, especially during feeding
 - Substituting an orogastric tube in place of a nasogastric tube intraoperatively
 - Removing subglottic secretions if the patient is unable to clear these herself
 - All of the above
- 42–14.** Which of the following diagnostic tests is the gold standard in diagnosing a pulmonary embolus?
- Electrocardiogram
 - Contrast venography
 - Ventilation/perfusion scan
 - Computed tomographic (CT) angiography
- 42–15.** A postoperative patient is suspected of having a pulmonary embolus. Computed tomographic (CT) angiography is ordered and aids in confirming the diagnosis. Which of the following medications is **LEAST** appropriate for acute management?
- Oral warfarin
 - Subcutaneous enoxaparin (Lovenox)
 - Subcutaneous dalteparin (Fragmin)
 - Intravenous unfractionated heparin infusion

- 42–16.** For at least how many days should heparin be continued after initiating warfarin?
- 2 days
 - 5 days
 - 8 days
 - Heparin can be stopped immediately after initiating warfarin.
- 42–17.** Which of the following increases myocardial oxygen demand?
- Anemia
 - Hypotension
 - Tachycardia
 - Lowered coronary perfusion
- 42–18.** What is the most common complaint in patients experiencing a postoperative myocardial infarction?
- Dyspnea
 - Chest pain
 - Palpitations
 - Chest pressure
- 42–19.** Which of the following best predicts that a patient will have postoperative hypertension issues?
- Poor postoperative pain control
 - Preoperative use of multiple antihypertensive agents
 - Preoperative diastolic blood pressures greater than 110 mm Hg
 - Intraoperative systolic blood pressures greater than 160 mm Hg
- 42–20.** Which of the following is **NOT** a risk factor for postoperative nausea and vomiting?
- Female gender
 - Extended surgery
 - Cigarette smoking
 - History of prior motion sickness
- 42–21.** Which of the following is a benefit of early postoperative feeding?
- Promotes gut motility
 - Improves wound healing
 - Decreases intestinal stasis
 - All of the above
- 42–22.** Which of the following is the most common cause of bowel obstruction?
- Infection
 - Malignancy
 - Surgical adhesions
 - Inflammatory bowel disease

- 42–23.** A 56-year-old woman presents to the emergency department complaining of abdominal pain, nausea, and vomiting. Five years ago, she underwent exploratory laparotomy following a motor vehicle collision. She is tachycardic and febrile. Physical examination is significant for abdominal distention and high-pitched bowel sounds. Abdominopelvic computed tomography is performed and aids in confirming the diagnosis of partial bowel obstruction, shown here. Which of the following is the **LEAST** appropriate treatment option for her?



- Antiemetics
 - Intravenous fluid infusion
 - Placement of nasogastric tube
 - Surgery to relieve the obstruction
- 42–24.** When evaluating colonic obstruction, at what cecal diameter threshold is immediate intervention necessary to reduce the risk of perforation?
- > 5 to 7 cm
 - > 10 to 12 cm
 - > 20 to 22 cm
 - > 30 to 32 cm
- 42–25.** Which of the following is the most appropriate treatment regimen for *Clostridium difficile* infection?
- Oral vancomycin continued until resolution of diarrhea
 - Intravenous metronidazole continued until resolution of diarrhea
 - Oral metronidazole continued for 10 to 14 days after resolution of diarrhea
 - Intravenous vancomycin continued for 10 to 14 days after resolution of diarrhea

- 42–26.** Which of the following thresholds of urine output is used to define postoperative oliguria?
- < 0.1 mL/kg/hr
 - < 0.5 mL/kg/hr
 - < 1.0 mL/kg/hr
 - < 1.5 mL/kg/hr
- 42–27.** What fractional excretion of sodium (FE_{Na}) ratio is most consistent with an intrarenal injury?
- < 1
 - < 3
 - > 1
 - > 3
- 42–28.** A 52-year-old woman has undergone a laparoscopic hysterectomy for heavy uterine bleeding. On the first postoperative day, her urine output is recorded as 100 mL for the last 6 hours. Her Foley catheter was discontinued in the operating room at the conclusion of the surgery. What is the most likely cause of her oliguria?
- Renal calculus
 - Urinary retention
 - Ligation of the ureter
 - Laceration of the bladder
- 42–29.** The patient in Question 42–28 is treated with an indwelling urinary catheter for her urinary retention. On the third postoperative day, she undergoes an active voiding trial, during which 300 mL of sterile water is instilled into her bladder. She spontaneously voids 30 minutes after instillation. Which of the following voided volumes constitutes a successful voiding trial?
- 75 mL
 - 100 mL
 - 150 mL
 - 225 mL
- 42–30.** A healthy, 36-year-old woman is admitted to the postanesthesia care unit following a hysteroscopic myomectomy. She develops seizure activity, and as part of her evaluation, a basic metabolic panel is drawn. Her serum sodium level is 120 mEq/L. What is the most likely cause of this patient's hyponatremia?
- Diuretic overuse
 - Adrenal insufficiency
 - Syndrome of inappropriate antidiuretic hormone secretion (SIADH)
 - Venous absorption of hysteroscopic distention media
- 42–31.** All of the following statements are important considerations in correcting hyponatremia **EXCEPT**:
- The speed of correction should not exceed 0.5 mEq/L/hr.
 - The goal of correction should be a serum sodium level of 130 mEq/L.
 - Overaggressive correction can result in a demyelination disorder called central pontine myelinolysis.
 - Isotonic fluids are typically sufficient in patients with acute neurologic symptoms.
- 42–32.** Below which of the following serum potassium level thresholds can muscle necrosis occur?
- 1.5 mEq/L
 - 2.0 mEq/L
 - 2.5 mEq/L
 - 3.5 mEq/L
- 42–33.** What is the earliest electrocardiogram finding associated with hyperkalemia?
- Peaked T-waves
 - Absent P-waves
 - Widened QRS interval
 - Lengthened PR interval
- 42–34.** In which phase of wound healing does the epithelium form to cover the wound?
- Recovery phase
 - Remodeling phase
 - Inflammatory phase
 - Proliferative phase

42–35. A 44-year-old woman presents to the emergency department complaining of drainage from her healing surgical incision. She underwent an abdominal hysterectomy 5 days previously. Her examination is significant for a superficial wound separation with surrounding erythema and induration, shown here. Which of the following would be the **LEAST** beneficial intervention in wound management?



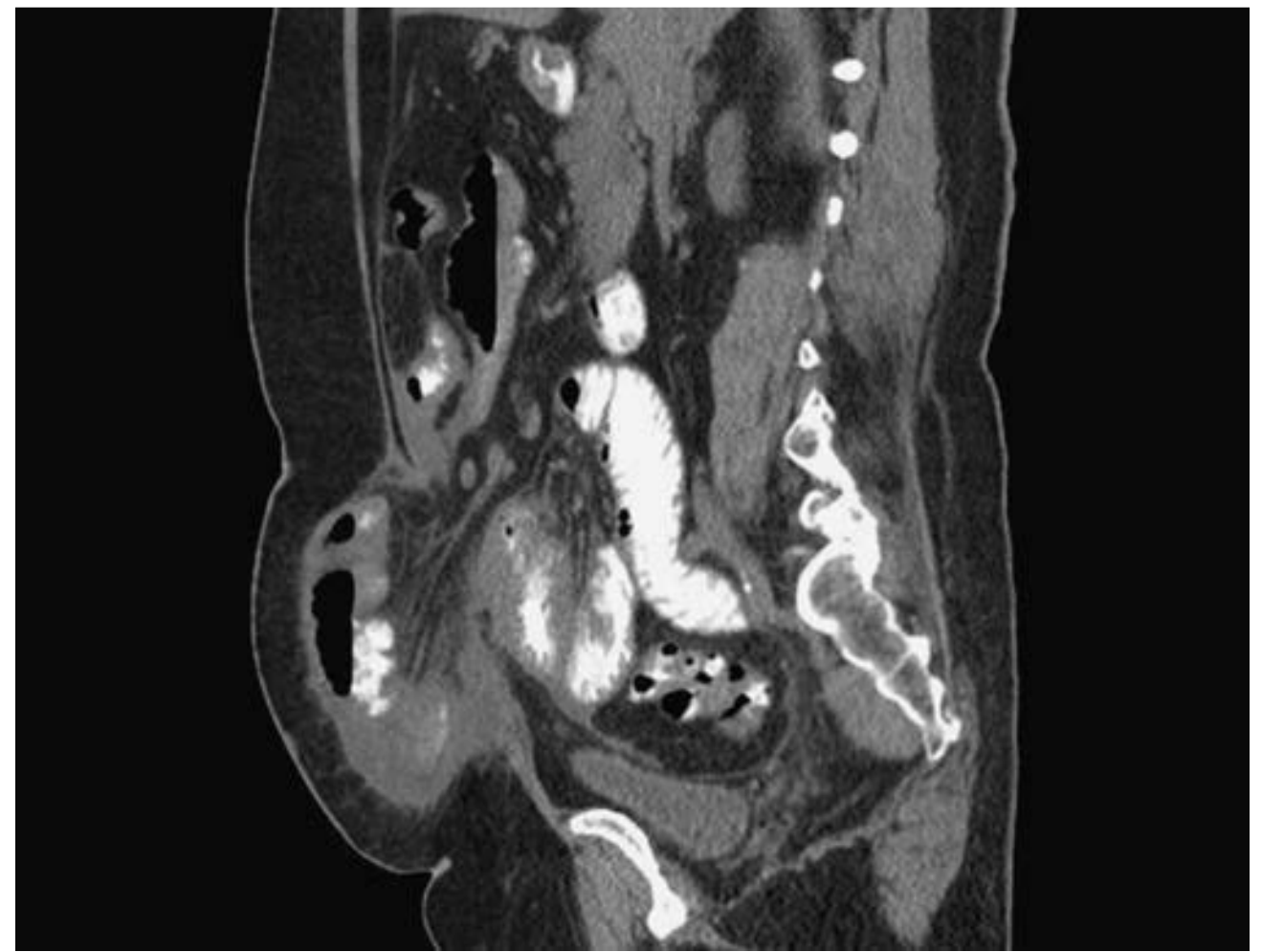
- a. Antibiotics
- b. Wet-to-dry dressing changes
- c. Wound exploration and debridement
- d. Dressing changes with dilute hydrogen peroxide

42–36. The negative pressure created by the vacuum device, shown here, provides wound care by which of the following mechanisms?



- a. Promotes cytokine release
- b. Reduces bacterial colonization
- c. Increases tissue perfusion and oxygenation
- d. All of the above

42–37. A patient presents 7 days following abdominal hysterectomy through a midline vertical incision. The surgery was performed for relief of symptoms from a large myomatous uterus. She complains of abdominal pain, nausea, and vomiting, and constant “water-like” drainage from her incision that began today. During examination, you note abundant serosanguineous drainage. Abdominopelvic computed tomography is obtained and shown here. Surgery is planned. Which of the following is the best management step?



- a. Seroma evacuation and wound debridement
- b. Wound exploration for fascial dehiscence
- c. Wound debridement of necrotizing fasciitis
- d. Urinoma evacuation and ureteral laceration repair

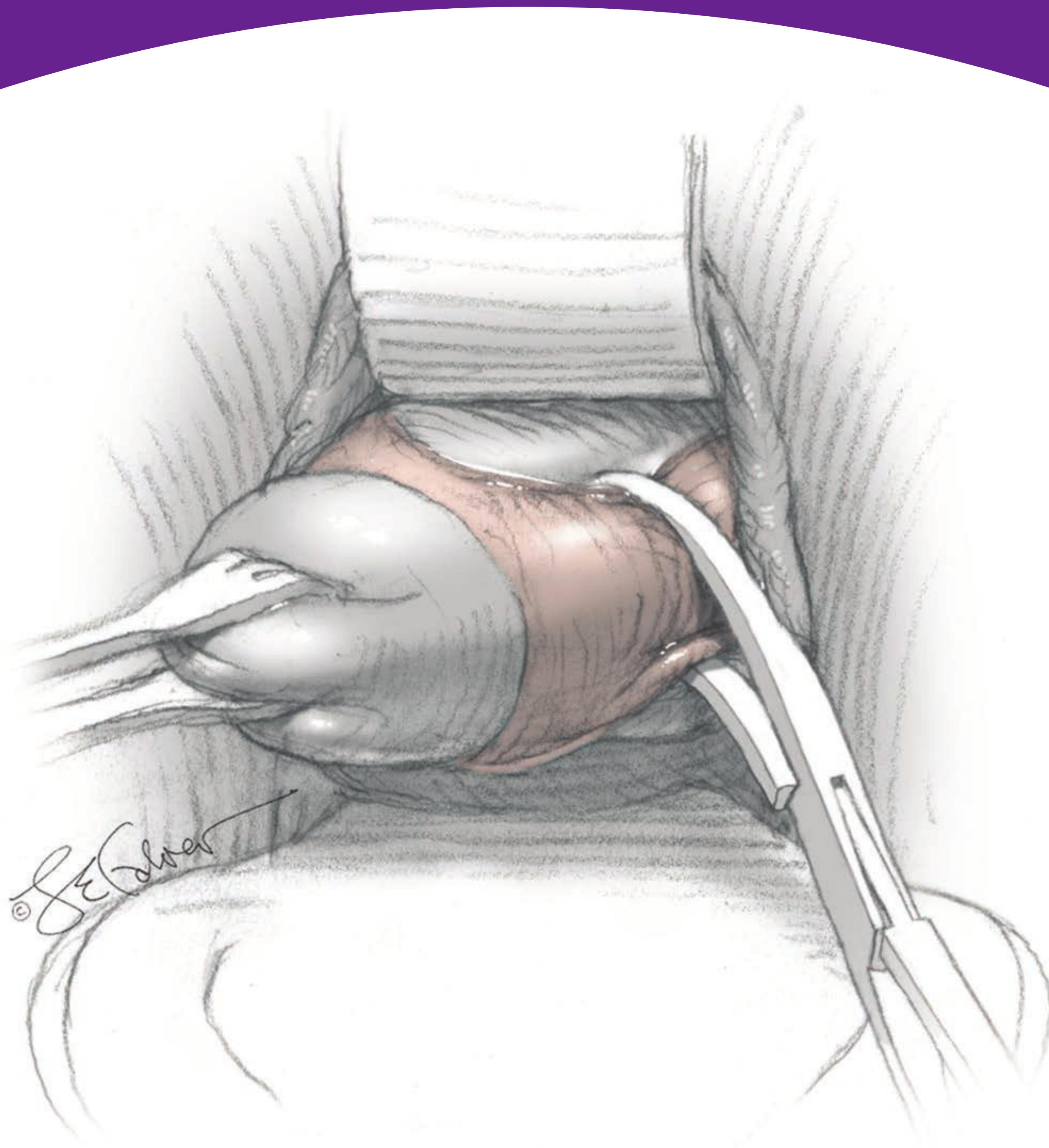
Chapter 42 ANSWER KEY

Question number	Letter answer	Page cited	Header cited
42-1	a	p. 908	Fluid and Electrolytes
42-2	b	p. 908	Fluid and Electrolytes
42-3	c	p. 908	Fluid and Electrolytes
42-4	d	p. 908	Fluid and Electrolytes
42-5	d	p. 908	Fluid and Electrolytes
42-6	c	p. 909	Opioid Treatment Options
42-7	b	p. 909	Opioid Treatment Options
42-8	d	p. 909	Opioid Treatment Options
42-9	b	p. 911	Atelectasis
42-10	c	p. 911	Atelectasis
42-11	d	p. 911	Hospital-Acquired Pneumonia
42-12	d	p. 911	Table 42-3
42-13	d	p. 911	Hospital-Acquired Pneumonia
42-14	b	p. 912	Pulmonary Embolus
42-15	a	p. 912	Pulmonary Embolus
42-16	b	p. 912	Pulmonary Embolus
42-17	c	p. 913	Myocardial Infarction
42-18	a	p. 913	Myocardial Infarction
42-19	c	p. 914	Hypertension
42-20	c	p. 914	Postoperative Nausea and Vomiting

Question number	Letter answer	Page cited	Header cited
42-21	d	p. 914	Bowel Function and Diet Resumption
42-22	c	p. 915	Bowel Obstruction
42-23	d	p. 915	Bowel Obstruction
42-24	b	p. 915	Bowel Obstruction
42-25	c	p. 916	Diarrhea
42-26	b	p. 916	Prerenal Oliguria
42-27	d	p. 916	Intrarenal Oliguria
42-28	b	p. 917	Urinary Retention
42-29	d	p. 917	Voiding Trials
42-30	d	p. 918	Hyponatremia
42-31	d	p. 918	Hyponatremia
42-32	c	p. 918	Hypokalemia
42-33	a	p. 918	Hyperkalemia
42-34	d	p. 919	Acute Wound Healing
42-35	d	p. 920	Wet-to-Dry Dressing Changes
42-36	d	p. 920	Negative-Pressure Wound Therapy
42-37	b	p. 922	Fascial Dehiscence Treatment

SECTION 6

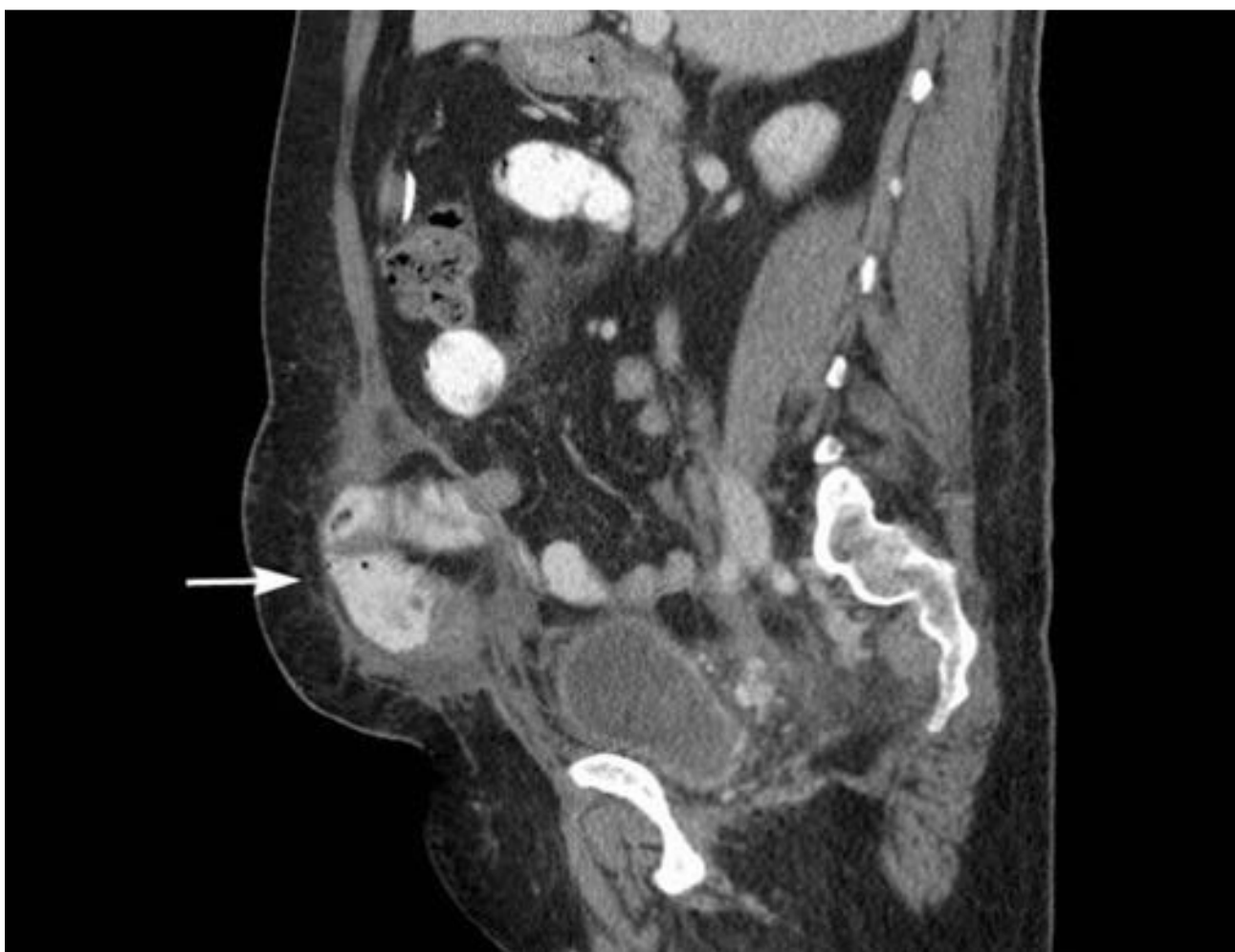
ATLAS OF GYNECOLOGIC SURGERY



CHAPTER 43

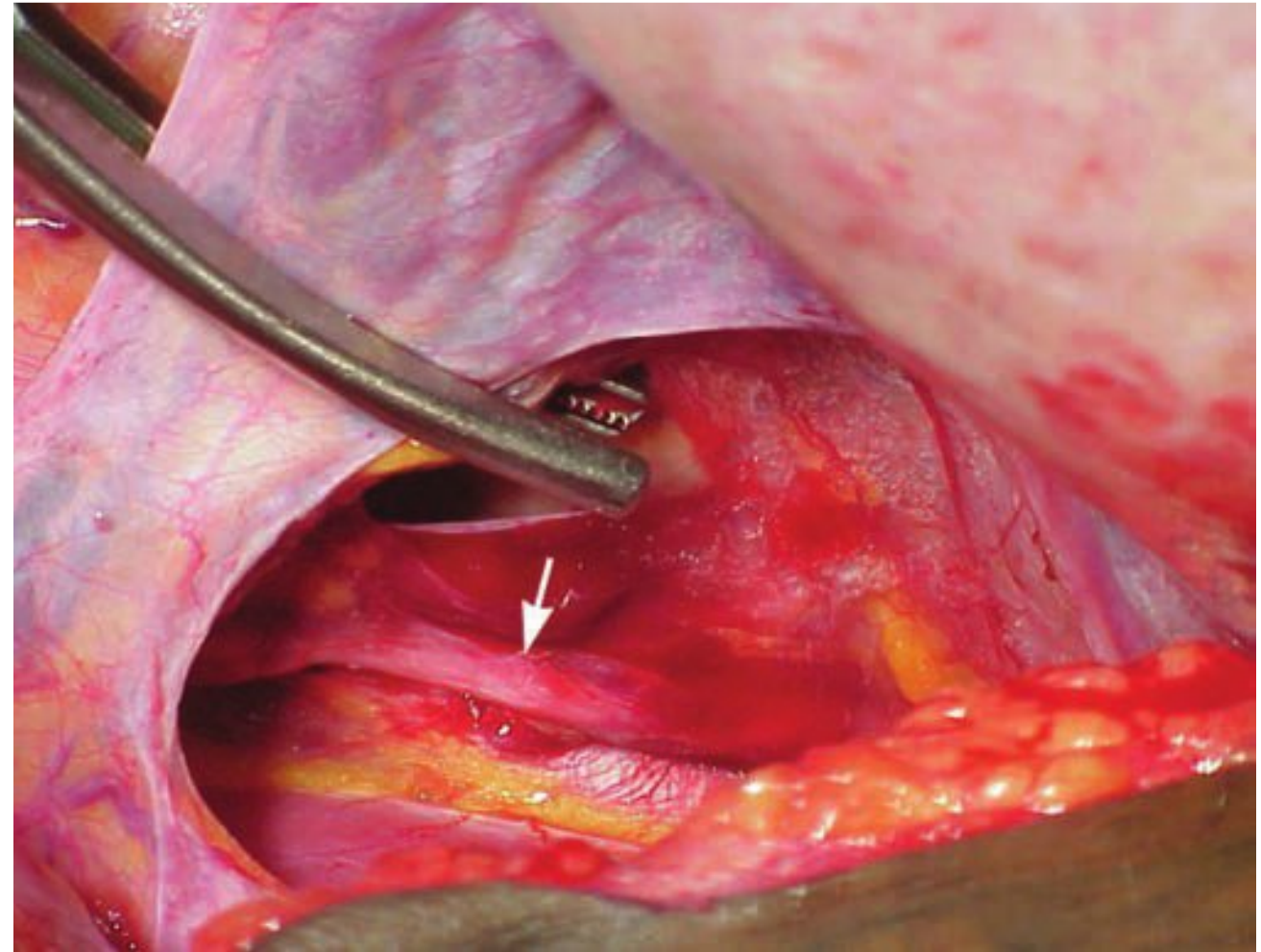
Surgeries for Benign Gynecologic Disorders

- 43–1.** What are some advantages of the vertical midline laparotomy incision?
- Minimal blood loss
 - Access to the upper abdomen
 - Easy wound extension if greater space or access is needed
 - All of the above
- 43–2.** Which of the following incision types carries the greatest risk for fascial dehiscence, such as that shown here in the computed tomography image?



- Cherney
 - Maylard
 - Pfannenstiel
 - Midline vertical
- 43–3.** When extending a vertical midline laparotomy incision cephalad, why is the incision typically arched to the left around the umbilicus?
- Improves cosmesis
 - Avoids incising the ligamentum teres
 - Decreases the risk of wound infection
 - Decreases the risk of wound dehiscence
- 43–4.** Which of the following nerves may be damaged by allowing a self-retaining retractor blade to rest on the psoas major muscle?
- Sciatic nerve
 - Femoral nerve
 - Pudendal nerve
 - Common fibular nerve
- 43–5.** Which nerve may commonly be injured when creating a low transverse laparotomy incision?
- Femoral nerve
 - Pudendal nerve
 - Genitofemoral nerve
 - Iliohypogastric nerve
- 43–6.** Which artery is frequently encountered in the subcutaneous layer when creating a low transverse laparotomy incision?
- Inferior epigastric artery
 - Deep circumflex iliac artery
 - Superficial epigastric artery
 - Deep circumflex femoral artery
- 43–7.** You are counseling a patient who has elected hysterectomy due to symptoms from a wide, bulky myomatous uterus. The patient strongly desires a low transverse abdominal incision. As you discuss various incision types, how would you describe the main difference between Pfannenstiel and Cherney incisions?
- The Cherney type incises the skin and fascia vertically.
 - The Cherney type divides the bellies of the rectus abdominis muscles.
 - The Cherney type incises the skin transversely but the fascia vertically.
 - The Cherney divides the tendons of the rectus abdominis and pyramidalis muscles.

- 43–8.** You performed a Cherney incision for the previously mentioned patient. The case went well and you are now closing the wound. At what site will you affix the cut ends of the rectus abdominis muscle tendons?
- To the symphysis pubis
 - To the undersurface of the inferior aspect of the fascial incision
 - They do not require suturing, as reapproximation of the fascia alone will sufficiently approximate the tendon ends.
 - Any of these methods is suitable.
- 43–9.** The Maylard incision differs mainly from the Pfannenstiel and Cherney incisions in which of the following ways?
- The Maylard type incises the skin and fascia vertically.
 - The Maylard type divides the bellies of the rectus abdominis muscles.
 - The Maylard type incises the skin transversely but the fascia vertically.
 - The Maylard divides the tendons of the rectus abdominis and pyramidalis muscles.
- 43–10.** Which of the following situations are contraindications to a Maylard incision?
- When cosmesis is a priority
 - When access to the pelvic sidewall is required
 - When the superior epigastric vessels have been previously ligated
 - None of the above
- 43–11.** Your patient desires future childbearing but has a painful ovarian cyst that will require laparotomy due to suspected dense adhesions. During counseling you note that compared with oophorectomy, ovarian cystectomy is associated with which of the following postoperative outcomes?
- Greater ovarian reserve
 - Higher wound infection rates
 - Higher venous thromboembolism rates
 - All of the above
- 43–12.** During ovarian cystectomy, what step follows abdominal entry?
- Cell washings are collected.
 - Upper abdomen and pelvis are explored.
 - Excrescences on the peritoneum are sampled and sent for frozen section analysis.
 - All of the above
- 43–13.** What are some indications for salpingo-oophorectomy?
- Suspected ovarian malignancy
 - Ovarian cancer prevention for at-risk women
 - Large, symptomatic ovarian cysts in postreproductive women
 - All of the above
- 43–14.** During oophorectomy, the infundibulopelvic ligament is isolated prior to clamping, transection, and ligation. This ideally averts injury to the structure shown beneath the arrow.

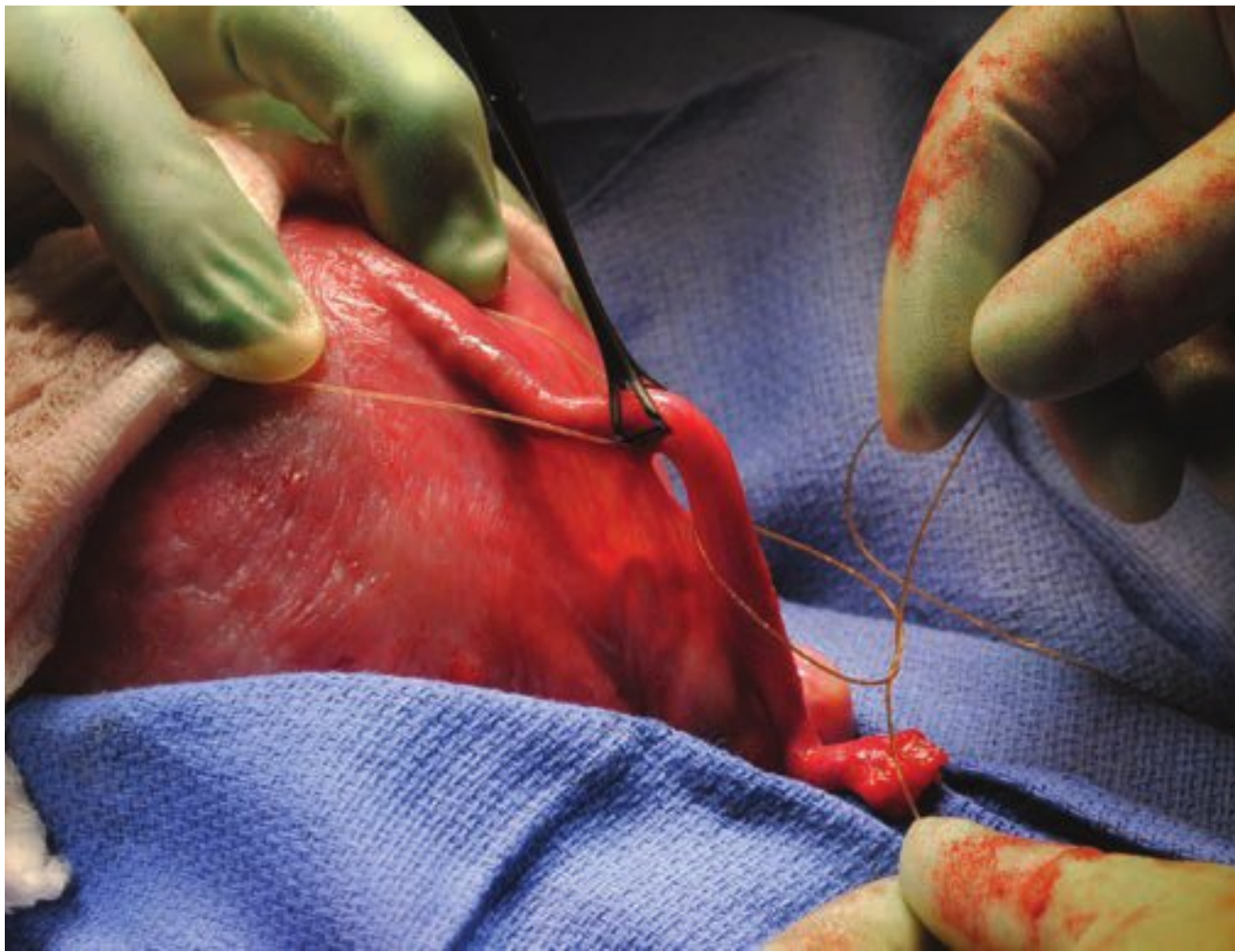


Photograph contributed by Dr. David Miller.

- Ureter
- Uterine artery
- Obturator nerve
- Genitofemoral nerve

- 43–15.** Your patient wishes to discuss tubal sterilization. Aside from physical risks, what counseling points should you cover?
- Risk of regret
 - Permanence of the procedure
 - Alternative, effective long-term contraceptive methods
 - All of the above

43–16. The image below illustrates which interval partial salpingectomy method?



Photograph contributed by Dr. Wilmer Moreno.

- a. Uchida
- b. Irving
- c. Pomeroy
- d. Parkland

43–17. Which of the following is a recognized indication for salpingectomy?

- a. Sterilization
- b. Removal of a hydrosalpinx
- c. Removal of an ectopic pregnancy
- d. All of the above

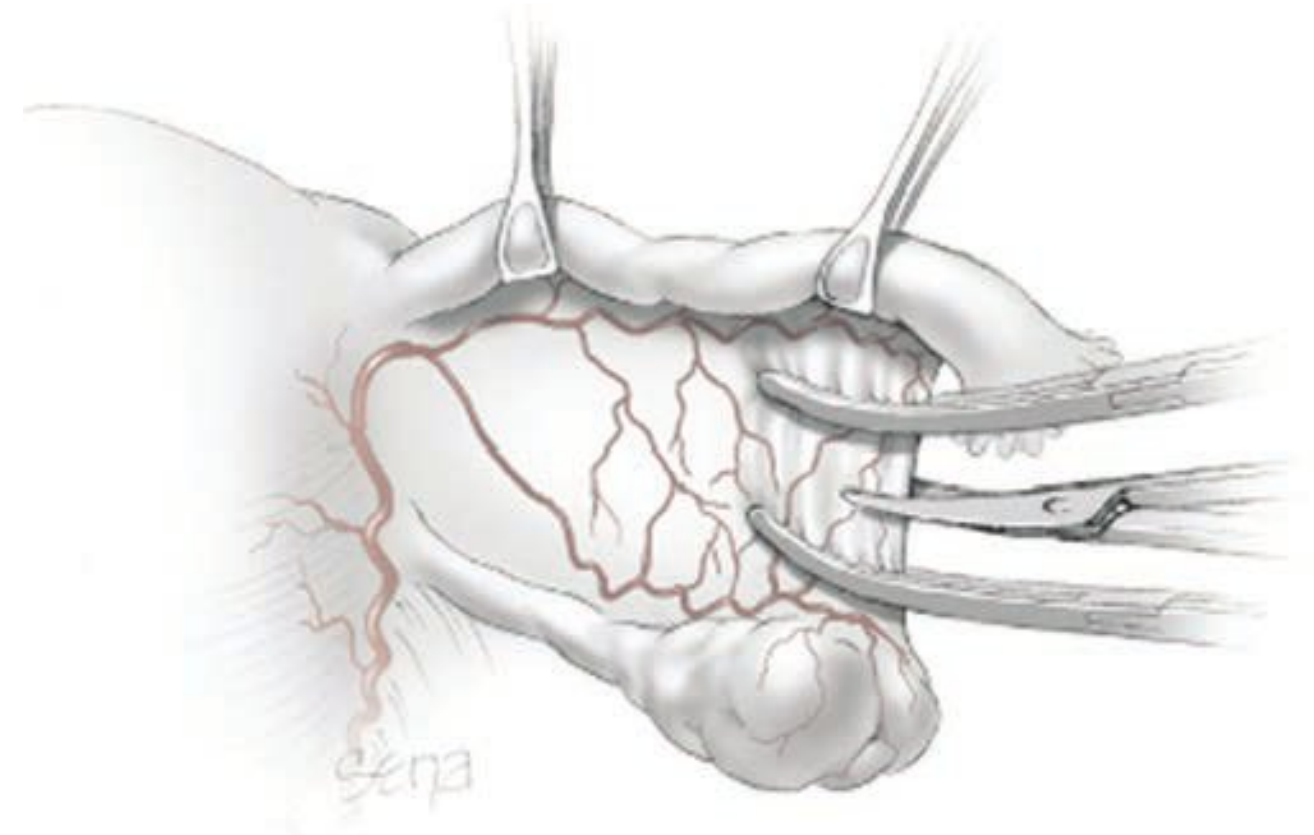
43–18. Why does the Society of Gynecologic Oncology now recommend consideration of salpingectomy in lieu of tubal ligation or at the time of other pelvic surgery?

- a. To lower long-term pregnancy rates
- b. To improve later detection of ovarian cancer
- c. To improve later in vitro fertilization rates
- d. To lower long-term rates of pelvic serous carcinomas

43–19. You are counseling a patient with an unruptured ectopic pregnancy. She has renal insufficiency and is therefore not a candidate for methotrexate. Which of the following statements is correct regarding salpingectomy and salpingostomy?

- a. Risk of bleeding is lower with salpingostomy.
- b. Risk of infection is lower with salpingectomy.
- c. Risk of persistent trophoblastic tissue is lower with salpingectomy.
- d. Salpingostomy has a distinct fertility advantage in patients with a healthy contralateral tube.

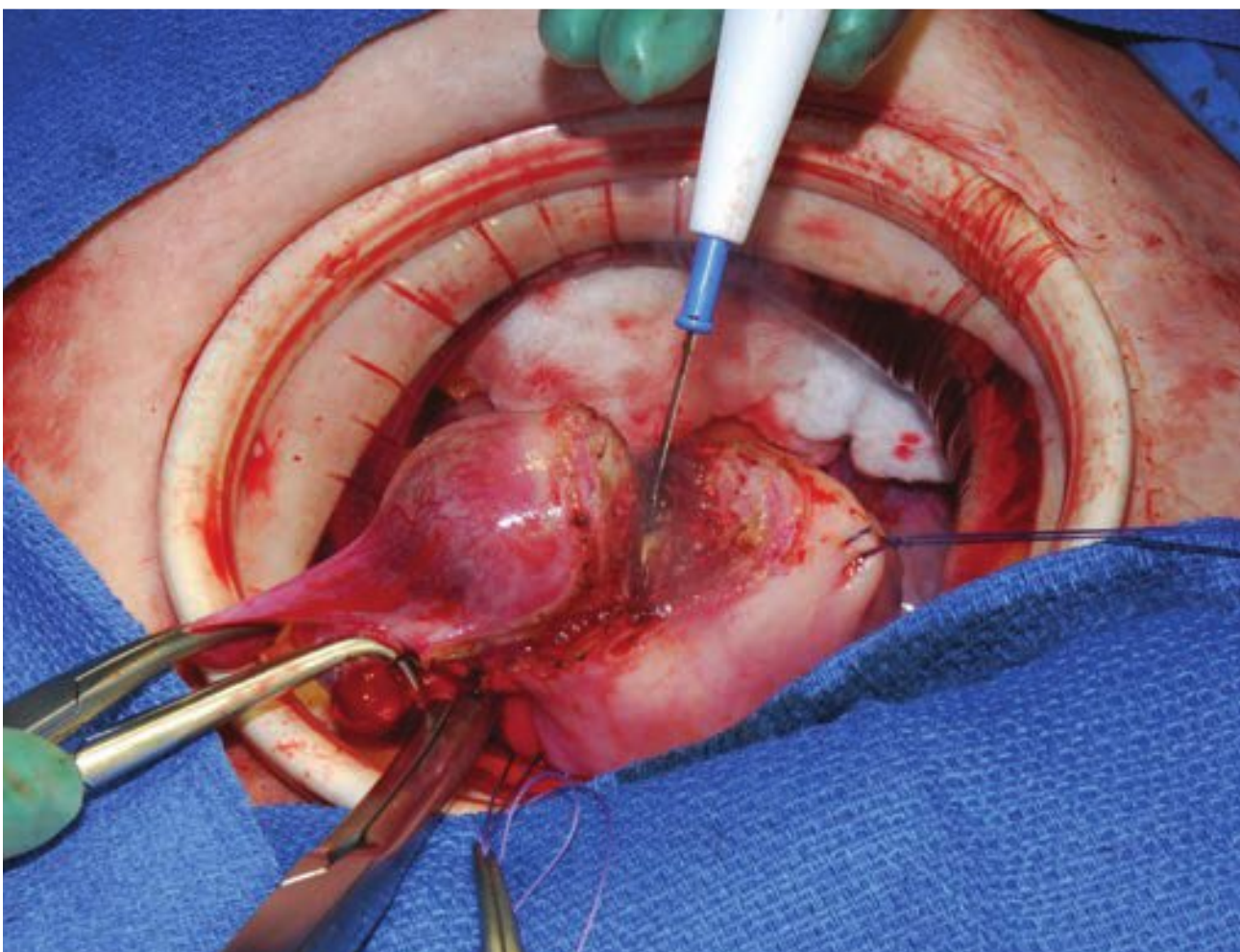
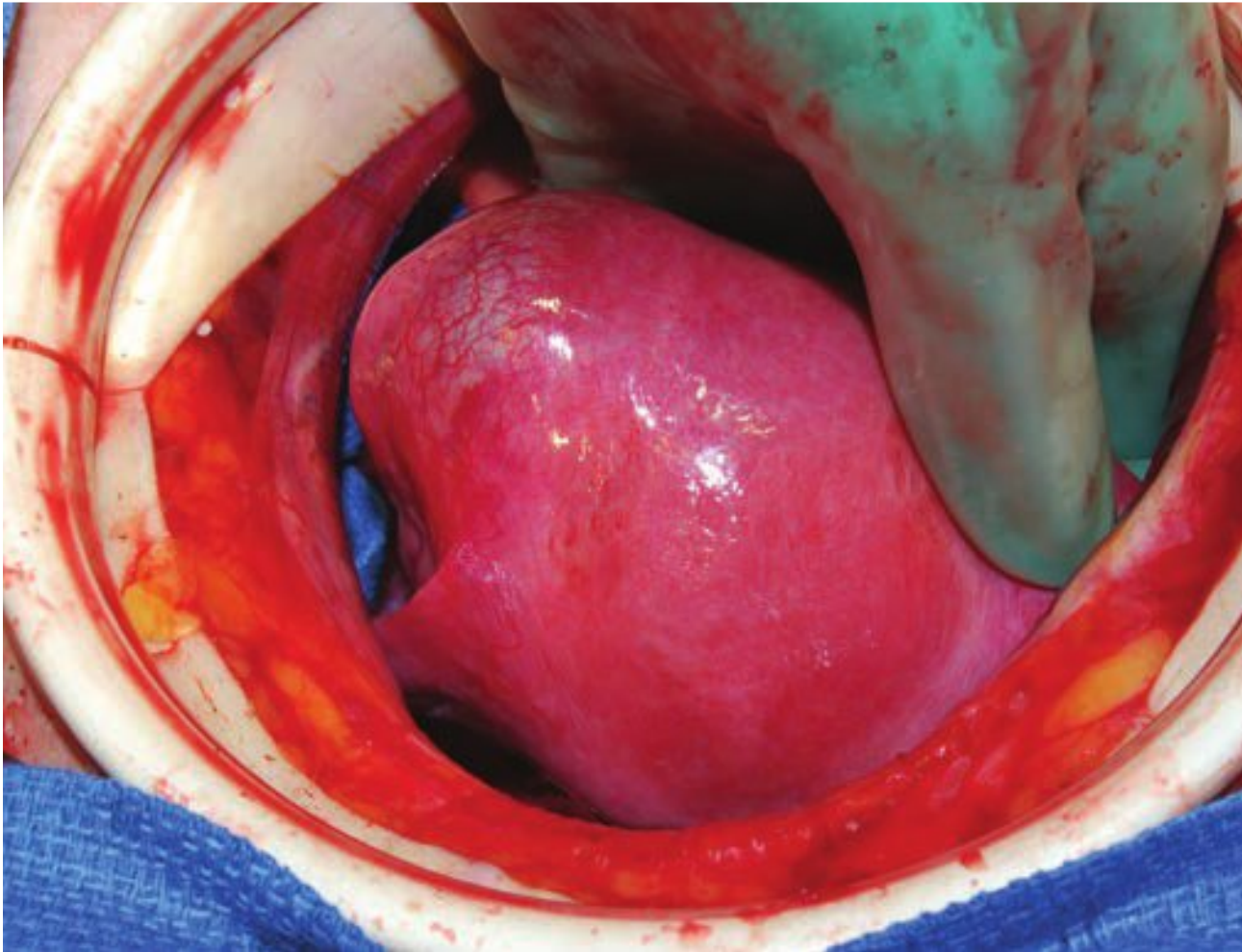
43–20. The image below illustrates incision of the mesosalpinx, which is an early step performed in which of the following operative procedures?



Reproduced with permission from Hoffman BL, Corton MM: Surgeries for benign gynecologic conditions. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016, Figure 43-8.1.

- a. Cystectomy
- b. Salpingostomy
- c. Salpingectomy
- d. Salpingoplasty

- 43–21.** During a cornual wedge resection for an interstitial ectopic pregnancy, such as that shown here, which of the following is typically transected or excised?



Photographs contributed by Drs. David Rogers and Elaine Duryea.

- a.** Ipsilateral ovary
b. Ipsilateral mesoteres
c. Ipsilateral fallopian tube
d. Ipsilateral uteroovarian ligament
- 43–22.** Which of the following statements is true regarding postoperative management of interstitial pregnancies?
- a.** There is a risk for persistent trophoblastic disease after cornuostomy.
b. Rh-negative women do not require anti-D immune globulin postoperatively.
c. Affected women do not carry a future increased risk for ectopic pregnancy.
d. All patients managed surgically should be allowed a trial of labor in future pregnancies.
- 43–23.** What are some indications for myomectomy?
- a.** Pelvic pain
b. Recurrent miscarriage
c. Abnormal uterine bleeding
d. All of the above
- 43–24.** Gonadotropin-releasing hormone agonist (GnRH) use may improve menorrhagia and anemia prior to myomectomy. Which of the following is an additional benefit of GnRH use preoperatively?
- a.** Decreases uterine volume
b. Increases uterine blood flow
c. Increases leiomyoma vascularity
d. Improves myomectomy cleavage planes
- 43–25.** During myomectomy, 8-arginine vasopressin (Pitressin) is effective in limiting uterine blood loss. Patients with which of the following health conditions may be poor candidates for this agent?
- a.** Migraine headaches
b. Uncontrolled hypertension
c. Chronic obstructive pulmonary disease
d. All of the above
- 43–26.** Which of the following has been shown to reduce the incidence of adhesion formation following myomectomy?
- a.** Postoperative antibiotics
b. Absorbable adhesion barriers
c. Normal saline pelvic irrigation
d. Postoperative transfusion for anemic patients
- 43–27.** Which of the following is **NOT** a likely cause of febrile morbidity following myomectomy?
- a.** Atelectasis
b. Pelvic infection
c. Myometrial incisional hematoma
d. Factors released with myometrial destruction
- 43–28.** A patient presents to the emergency department with heavy vaginal bleeding. Examination reveals a prolapsed leiomyoma that has a thick stalk. The patient does not tolerate manipulating the myoma. What risks of vaginal myomectomy should you discuss with this patient?
- a.** Uncontrolled bleeding
b. Later myoma recurrence
c. Possibility of hysterectomy
d. All of the above

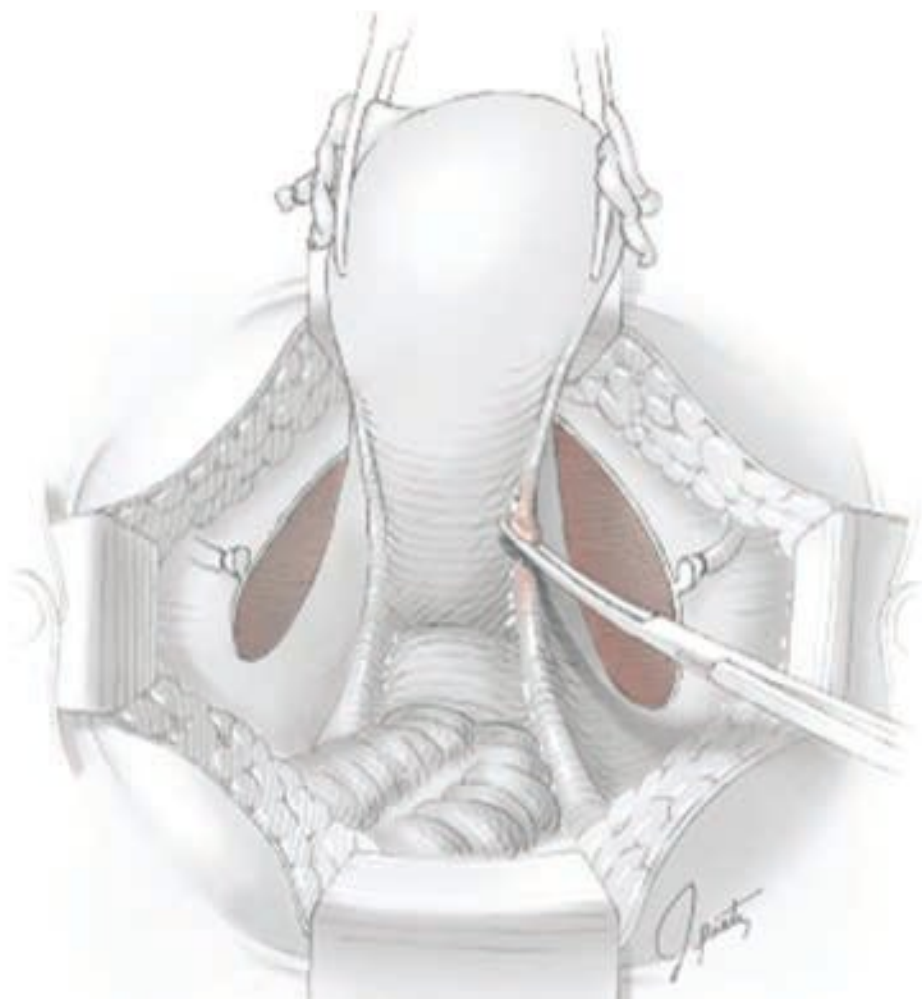
- 43–29.** You take the patient in Question 43–28 to the operating room to remove the prolapsed myoma, shown here. Which of the following methods is **NOT** recommended?



Photograph contributed by Dr. Kimberly Kho.

- a.** Repetitively twist the stalk slowly clockwise
b. Use strong traction to access to the myoma stalk
c. Encircle and ligate the stalk with a delayed-absorbable preformed knot and knot pusher
d. Clamp the stalk, excise the myoma, and ligate the pedicle with delayed-absorbable suture
- 43–30.** What are some common benign reasons for hysterectomy?
a. Symptomatic leiomyoma
b. Pelvic organ prolapse
c. Premalignant conditions of the uterus or cervix
d. All of the above
- 43–31.** What are some disadvantages of abdominal hysterectomy compared with vaginal hysterectomy?
a. Longer patient recovery
b. Increased incisional pain
c. Increased risk of postoperative fever and wound infection
d. All of the above
- 43–32.** With regard to urinary tract injury rates, which of the following is true when comparing abdominal and vaginal hysterectomies?
a. Ureteral and bladder injury rates are equal.
b. Vaginal hysterectomy has a greater risk of both ureteral and bladder injuries.
c. Vaginal hysterectomy has a greater risk of ureteral injury but lower risk of bladder injury.
d. Abdominal hysterectomy has a greater risk of ureteral injury but lower risk of bladder injury.
- 43–33.** Of the hysterectomy types, which has the highest associated risk of ureteral injury?
a. Vaginal hysterectomy
b. Abdominal hysterectomy
c. Laparoscopic hysterectomy
d. Supracervical hysterectomy
- 43–34.** If all factors are equal, which route of hysterectomy should be selected?
a. Vaginal hysterectomy
b. Abdominal hysterectomy
c. Laparoscopic hysterectomy
d. Supracervical hysterectomy
- 43–35.** Compared with total hysterectomy, supracervical hysterectomy offers superior long-term postoperative function in which of the following areas?
a. Bowel function
b. Sexual function
c. Urinary function
d. None of the above
- 43–36.** During total hysterectomy, which of the following concerns associated with excision of the cervix may prompt a surgeon intraoperatively to choose supracervical hysterectomy?
a. Concern for increased bleeding
b. Concern for increased operating time
c. Concern for damage to surrounding organs
d. All of the above
- 43–37.** In what percentage of hysterectomy cases are bilateral fallopian tubes and ovaries prophylactically removed every year?
a. 1 percent
b. 10 percent
c. 40 percent
d. 70 percent
- 43–38.** A 44-year-old woman is scheduled for hysterectomy, and you discuss with her the risks and benefits of prophylactic removal of her fallopian tubes and ovaries. She has no genetic predisposition for breast or ovary cancer. Which of the following points is true regarding prophylactic bilateral adnexectomy?
a. It lowers the risk of future ovarian cancer.
b. It lowers the risk of future surgery to remove retained ovaries for benign disease.
c. Menopause is often earlier following hysterectomy, even with ovarian retention.
d. All of the above

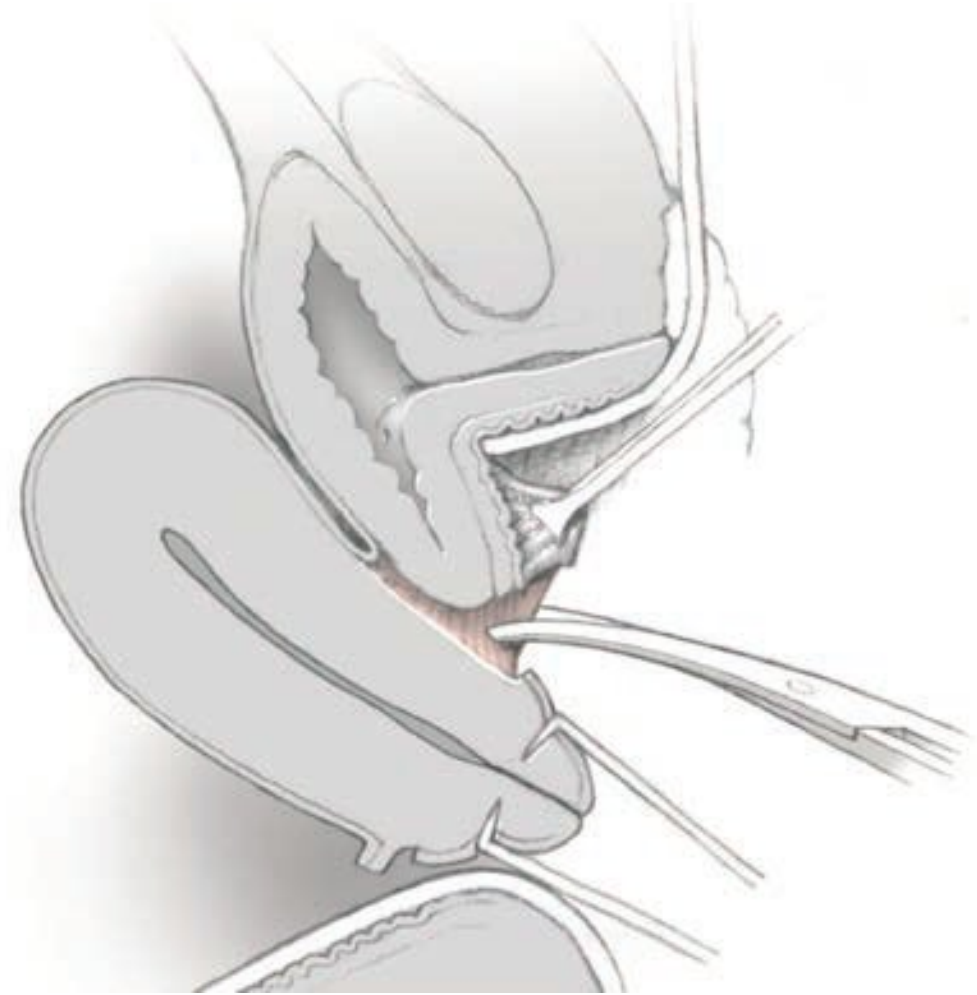
- 43–39.** Regarding the effects of ovarian retention at the time of hysterectomy, which of the following statements is **FALSE**?
- Ovarian conservation delays the effects of hypoestrogenism.
 - The patient's risk of ovarian cancer remains equal to that before hysterectomy.
 - The importance of ovarian androgen production in later life has not been entirely delineated.
 - There is a lower rate of all-cause mortality in women who retained their ovaries compared with those who have bilateral adnexectomy without estrogen replacement therapy.
- 43–40.** During abdominal hysterectomy, why is the bladder dissected of the anterior vaginal wall at least 1 cm below the lower margin of the cervix?
- To prevent bladder injury
 - To prevent ureteral injury
 - To prevent later genitourinary fistulas
 - All of the above
- 43–41.** During abdominal hysterectomy, this figure illustrates clamping which of the following structures prior to transection?



Reproduced with permission from Word L, Hoffman BL: Surgeries for benign gynecologic conditions. In Hoffman BL, Schorge JO, Halvorson LM, et al (eds): Williams Gynecology, 2nd ed. New York, McGraw-Hill, 2012, Figure 41-12.8.

- Round ligament
- Uterine artery
- Cardinal ligament
- Uterosacral ligament

- 43–42.** With anterior peritoneal cavity entry during vaginal hysterectomy, the final layer incised to gain entry is which of the following?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Figure 43-13.3B.

- Vesicouterine fold
 - Pubocervical fascia
 - Cul-de-sac of Douglas
 - Bladder fibrous bands
- 43–43.** At the conclusion of a vaginal hysterectomy, which ligaments are sutured to the lateral aspects of the vaginal cuff to improve long-term vaginal vault suspension?
- Round ligament
 - Broad ligament
 - Uterosacral ligament
 - Infundibulopelvic ligament
- 43–44.** Which of the following are common indications for trachelectomy?
- Bleeding
 - Pelvic organ prolapse
 - Symptomatic pelvic mass
 - All of the above
- 43–45.** Your patient notes continued bleeding after supracervical hysterectomy and desires trachelectomy. She has had four prior cesarean deliveries. During preoperative counseling, you explain that she has an increased risk for which of the following complications?
- Bowel injury
 - Urinary tract injury
 - Vaginal cuff cellulitis and abscess
 - All of the above

- 43–46.** With the resurgence of supracervical hysterectomy now performed via laparoscopy, rates of trachelectomy for benign causes are expected to rise in the future. Unlike vaginal hysterectomy, which of the following characterizes trachelectomy?
- Clear tissue planes are usually encountered.
 - Entry into the peritoneal cavity is not required.
 - During separation of the vaginal wall from the cervix, blunt, not sharp, dissection is preferred.
 - None of the above
- 43–47.** What is the overall complication rate for sharp dilatation and curettage?
- 1 percent
 - 10 percent
 - 25 percent
 - 33 percent
- 43–48.** To decrease the risk of uterine perforation during sharp dilatation and curettage (D&C), which of the following is the first surgical step?
- Uterine sounding
 - Uterine dilation
 - Bimanual examination
 - Transvaginal sonography
- 43–49.** When performing a suction curettage for a patient with a 12-week fetal demise, the large-bore suction cannula seems to freely pass deep into the pelvis. You suspect uterine perforation. What is the most appropriate next step?
- Sonography
 - Observation
 - Laparoscopy or laparotomy
 - None of the above
- 43–50.** What methods are available to dilate the cervix for suction dilatation and curettage (D&C)?
- Misoprostol
 - Metal dilators
 - Hygroscopic dilators
 - All of the above
- 43–51.** When should elective hymenectomy be optimally scheduled?
- During infancy
 - After symptoms develop
 - During puberty, after menarche
 - During puberty, before menarche

- 43–52.** When suturing hymeneal leaflets following hymenectomy, why is a running, interlocking suture avoided?
- Time consuming
 - Increased risk of infection
 - Increased risk of circumferential narrowing of the introitus
 - Increased risk of hymeneal reepithelization and need for a second procedure
- 43–53.** Following provision of local lidocaine anesthesia, shown here, this patient's Bartholin gland duct abscess was drained in the emergency room. The main surgical goal following the incision and drainage includes steps to create which of the following?



- A new duct ostium
 - An obliterated gland duct
 - A drainage site on the lateral aspect of the labium minus
 - Agglutination between the hymen and ipsilateral labium minus
- 43–54.** A 45-year-old woman reports a third recurrence of a Bartholin gland duct cyst. The examination was difficult and limited because of scarring. For this reason, you obtain magnetic resonance imaging, which shows a cyst with some associated solid components. What factors in this case would prompt you to biopsy the cyst wall?
- Multiple cyst recurrences
 - Presence of solid components
 - Patient's age older than 40 years
 - All of the above

- 43–55.** Compared with Word catheter placement, this treatment of a Bartholin gland duct cyst is associated with which of the following?



Photograph contributed by Dr. William N. Denson.

- a. Less operative pain
 - b. Higher recurrence rates
 - c. Smaller intraoperative incision
 - d. None of the above
- 43–56.** Which of the following is a potential complication of Bartholin gland excision?
- a. Postoperative wound cellulitis
 - b. Bleeding and hematoma formation
 - c. Pain from postoperative scarring
 - d. All of the above
- 43–57.** Most bleeding complications during Bartholin gland excision originate from the ipsilateral vestibular bulb. This vascular structure has what anatomic relationship to the gland?
- a. Medial to the gland
 - b. Lateral to the gland
 - c. Superficial to the gland
 - d. Deep and superior to the gland
- 43–58.** Which of the following is a common pathogen in vulvar abscesses?
- a. *Clostridium difficile*
 - b. Vancomycin-resistant enterococcus
 - c. Methicillin-resistant *Staphylococcus aureus*
 - d. Extended-spectrum, β -lactamase-producing organisms

- 43–59.** You have just incised and drained a large vulvar abscess for a woman with poorly controlled diabetes. This patient has greater risks for which of the following postoperative complications?
- a. Need for reoperation
 - b. Hospitalization for more than 7 days
 - c. Progression to necrotizing fasciitis
 - d. All of the above
- 43–60.** Most cases of vulvodynia are managed conservatively, but for refractory cases, which of the following has been employed?
- a. Perineoplasty
 - b. Vestibulectomy
 - c. Vestibuloplasty
 - d. All of the above
- 43–61.** The most important factor for surgical success in treating vulvar pain is identifying the proper candidate. Which of the following coexists in approximately half of patients with vulvodynia and is associated with lower rates of postoperative pain relief?
- a. Vitiligo
 - b. Vaginismus
 - c. Vaginal atrophy
 - d. Chronic depression
- 43–62.** Prior to correction of this condition, the consenting discussion should include which of the following points?



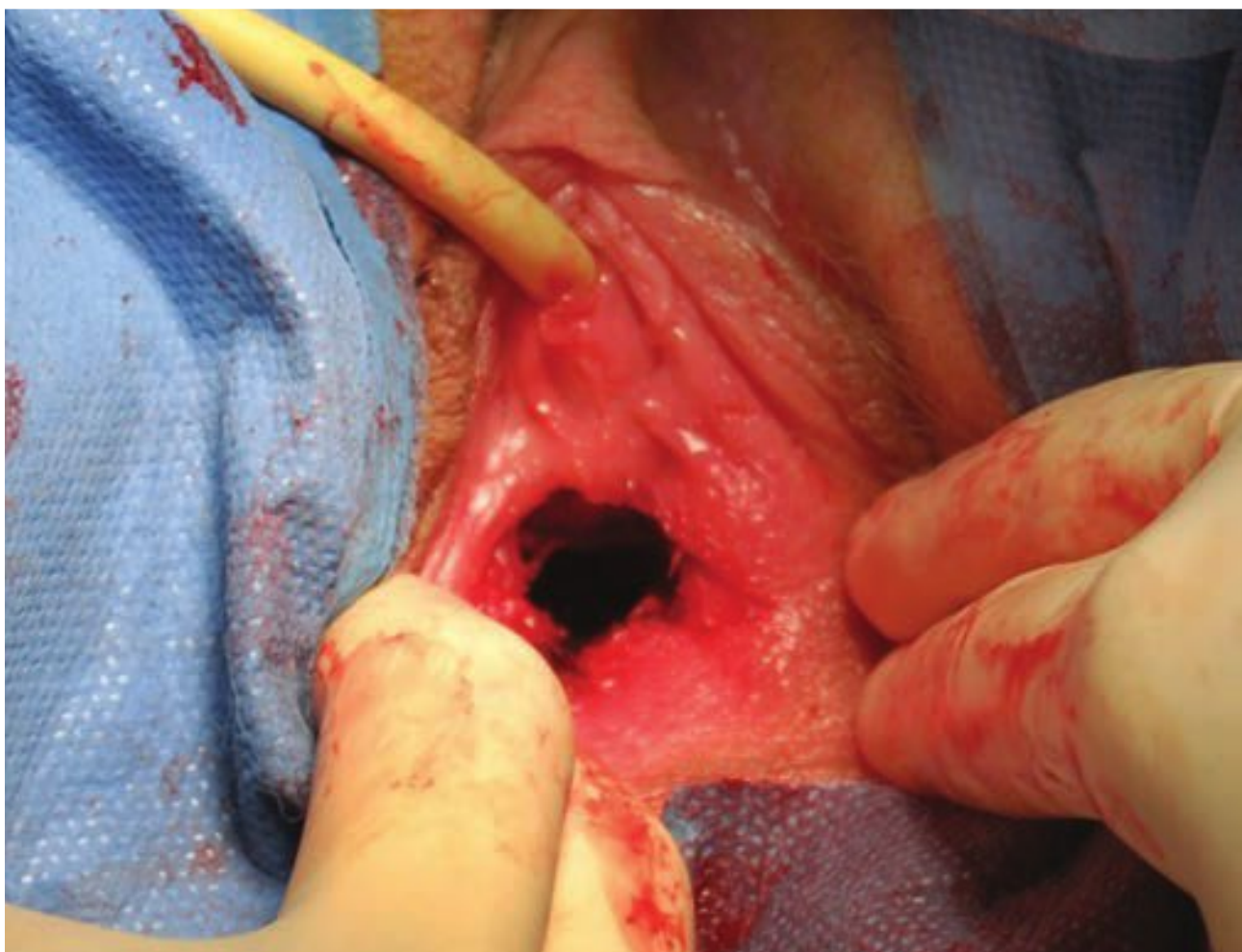
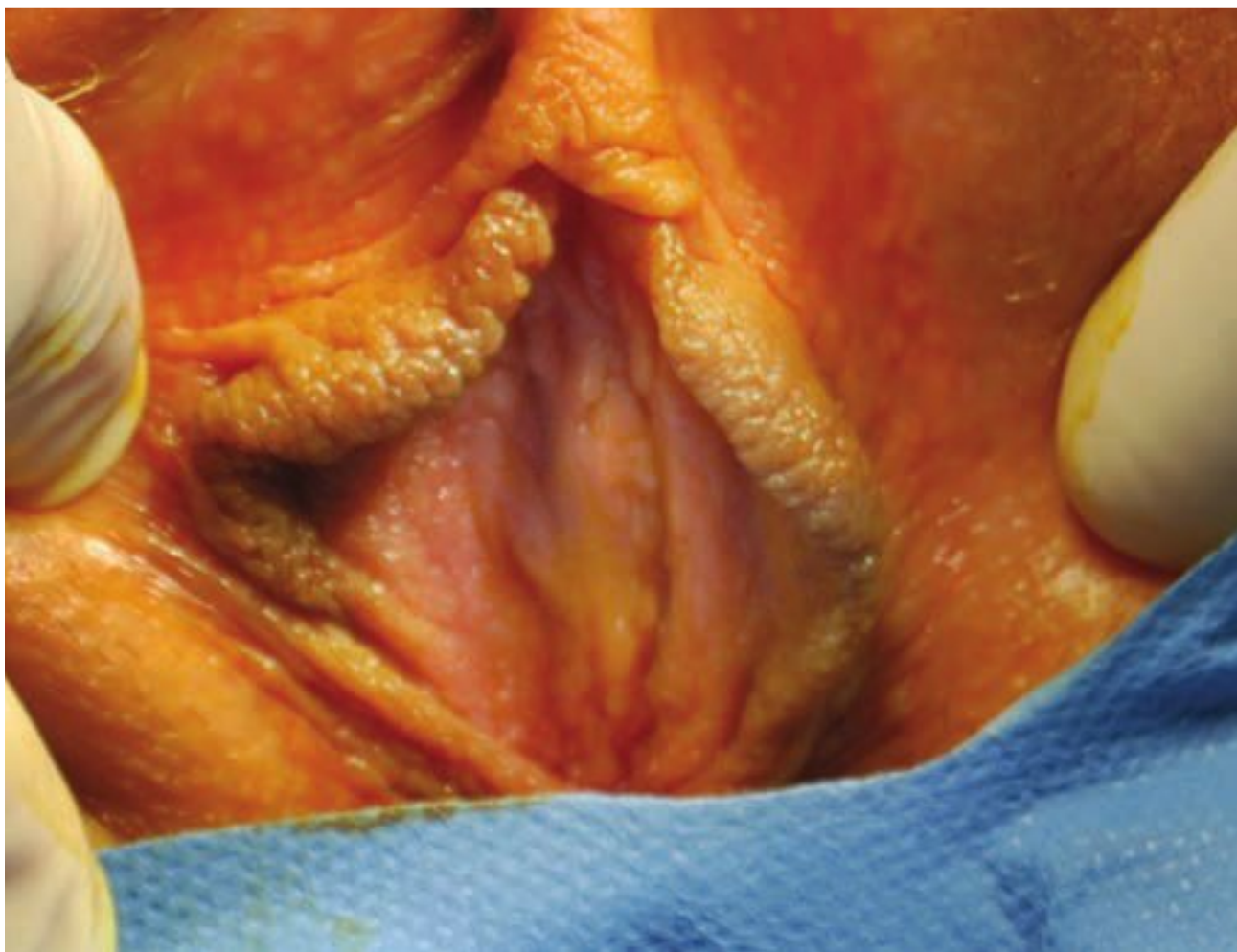
Photograph contributed by Dr. Ellen Wilson.

- a. Postoperative dyspareunia is a common complication.
- b. Wound complications including hematoma, cellulitis, and incisional dehiscence are common.
- c. Patient expectations should be realistic as to the final size, shape, and color of the labia.
- d. None of the above

43–63. A 15-year-old adolescent has a vaginal septum requiring operative management. Before surgery, you would like to delineate her anatomy because septa are often associated with other müllerian anomalies. Which of the following is the best next step?

- a. Order intravenous pyelography
- b. Complete diagnostic laparoscopy
- c. Order voiding cystourethrography
- d. Order magnetic resonance imaging

43–64. Creation of a functional vagina is the treatment goal for many women with congenital agenesis of the vagina. Which of the following surgical procedures, shown here, is commonly employed in the United States?



Photographs contributed by Dr. Karen Bradshaw.

- a. McIndoe procedure
- b. Strassman procedure
- c. Vecchietti procedure
- d. Modified Frank method

43–65. The cumulative complication rate of the McIndoe procedure was described to be 10 percent in one series. These complications include which of the following?

- a. Graft failure
- b. Vaginal stricture
- c. Fistulas involving either the bladder or rectum
- d. All of the above

43–66. Loop electrosurgical excision procedure (LEEP) uses electric current to generate energy waveforms through a metal electrode that either cuts or desiccates cervical tissue. Major complications may include bowel or bladder injury and hemorrhage. Which of the following percentages reflects the rate of such major complications?

- a. 0.5 percent
- b. 5 percent
- c. 15 percent
- d. 25 percent

43–67. If colposcopy is satisfactory, to what depth is the transformation zone excised during loop electrosurgical excision procedure (LEEP)?

- a. 2 to 3 mm
- b. 5 to 8 mm
- c. 10 to 20 mm
- d. 22 to 30 mm

- 43–68.** Cryotherapy has been used for decades to safely and effectively eliminate cervical intraepithelial neoplasia (CIN) lesions. The image below illustrates the creation of an iceball. To ensure a necessary 5-mm lethal zone for epithelial cell death, to what distance should the iceball extend beyond the outer margin of the cryoprobe?



Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr. Claudia Werner.

- a. 0.5 mm
 - b. 2 mm
 - c. 4 mm
 - d. 7 mm
- 43–69.** Which of the following statements is **FALSE** when considering carbon dioxide laser ablation of the cervix?
- a. There should be no evidence of glandular disease.
 - b. There should be no evidence of microinvasive disease.
 - c. It is appropriate regardless of whether or not cytology and histology correlate positively.
 - d. It should be used for cases in which the entire transformation zone can be seen during satisfactory colposcopy.

- 43–70.** Compared to the loop electrosurgical excision procedure (LEEP), cervical cold-knife conization has consistently been linked with greater risks for which of the following?

- a. Cervical infection
- b. Poor obstetric outcome
- c. Cervical stenosis and bleeding
- d. All of the above

- 43–71.** A 55-year-old otherwise healthy woman presents with biopsy proven vulvar intraepithelial neoplasia (VIN) 2, shown here. Which of the following is the most appropriate management?



- a. Wide local excision
 - b. Skinning vulvectomy
 - c. Continued surveillance
 - d. Combined wide local excision and laser ablation
- 43–72.** Of the following, what is the recommended postprocedural colposcopic vulvar surveillance schedule for persistent or recurrent vulvar intraepithelial neoplasia (VIN)?
- a. Annually
 - b. Every 3 months
 - c. Every 6 months for 3 years
 - d. Every 6 months for 2 years, then annually thereafter

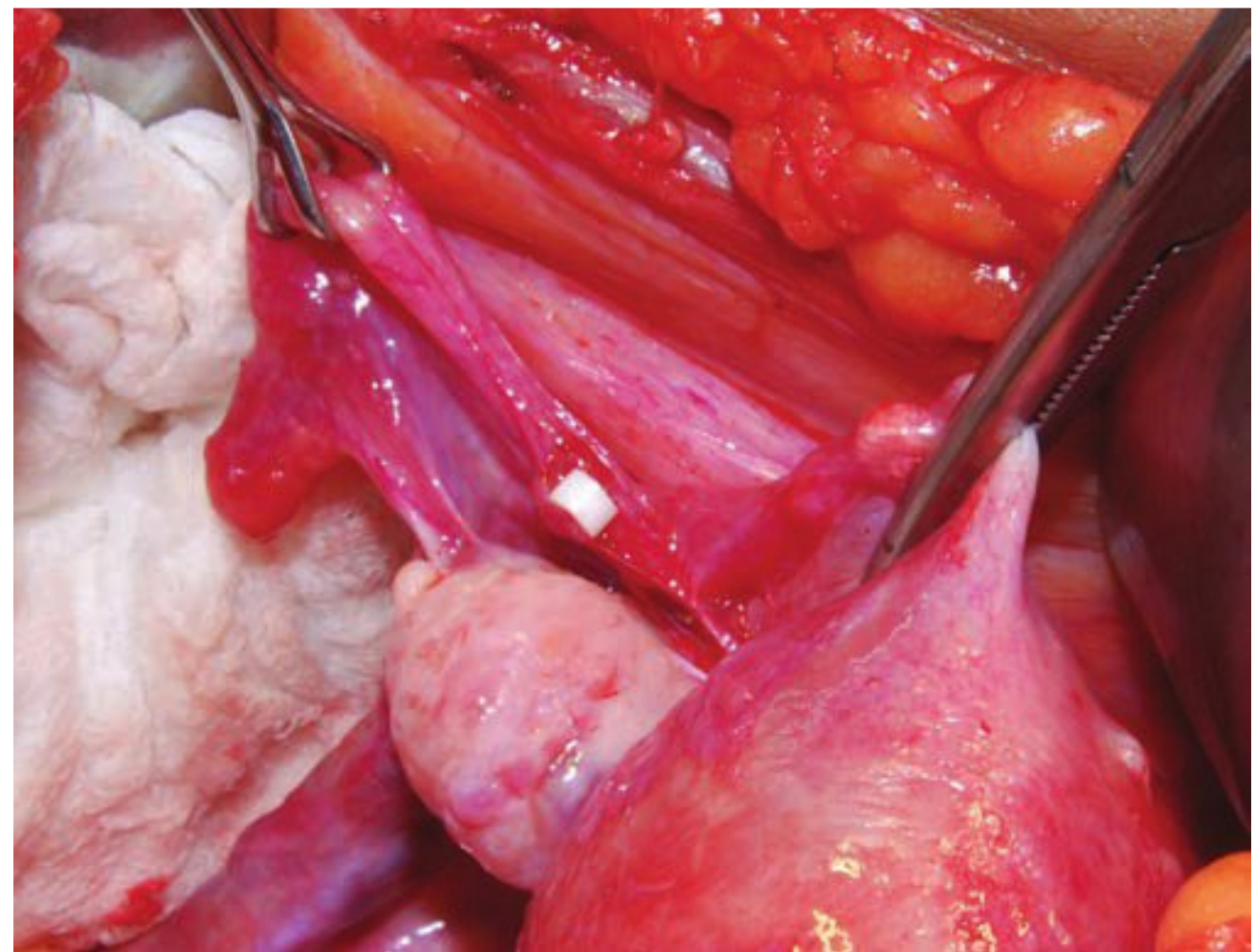
Chapter 43 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
43-1	d	p. 926	Midline Vertical Incision	43-37	c	p. 951	Concurrent Adnexal Surgery
43-2	d	p. 926	Midline Vertical Incision	43-38	d	p. 951	Concurrent Adnexal Surgery
43-3	b	p. 927	Skin and Subcutaneous Layer	43-39	b	p. 951	Concurrent Adnexal Surgery
43-4	b	p. 928	Operative Field	43-40	d	p. 954	Bladder Flap
43-5	d	p. 929	Consent	43-41	d	p. 955	Cardinal and Uterosacral Ligament Transection
43-6	c	p. 927	Skin and Subcutaneous Layer	43-42	a	p. 957	Anterior Peritoneal Entry
43-7	d	p. 931	Cherney Incision	43-43	c	p. 961	Vaginal Cuff Closure
43-8	b	p. 931	Wound Closure	43-44	d	p. 962	Trachelectomy
43-9	b	p. 932	Maylard Incision	43-45	d	p. 962	Consent
43-10	c	p. 932	Maylard Incision	43-46	b	p. 962	Incision and Extraperitoneal Dissection
43-11	a	p. 933	Ovarian Cystectomy	43-47	a	p. 962	Consent
43-12	d	p. 933	Abdominal Entry	43-48	c	p. 962	Surgical Steps
43-13	d	p. 935	Salpingo-oophorectomy	43-49	c	p. 962	Consent
43-14	a	p. 935	Ureter Location	43-50	d	p. 962	Patient Preparation
43-15	d	p. 935	Consent	43-51	d	p. 969	Hymenectomy
43-16	d	p. 937	Parkland Method	43-52	c	p. 969	Suturing
43-17	d	p. 939	Salpingectomy and Salpingostomy	43-53	a	p. 971	Bartholin Gland Duct Incision and Drainage
43-18	d	p. 939	Salpingectomy and Salpingostomy	43-54	d	p. 971	Drainage
43-19	c	p. 939	Persistent Trophoblastic Tissue	43-55	d	p. 973	Bartholin Gland Duct Marsupialization
43-20	c	p. 939	Salpingectomy	43-56	d	p. 973	Consent
43-21	c	p. 941	Cornuostomy and Cornual Wedge Resection	43-57	d	p. 975	Cyst Dissection
43-22	a	p. 944	Postoperative	43-58	c	p. 975	Patient Preparation
43-23	d	p. 945	Abdominal Myomectomy	43-59	d	p. 976	Postoperative
43-24	a	p. 945	GnRH Agonists	43-60	d	p. 979	Vestibulectomy
43-25	d	p. 946	Use of Vasopressin	43-61	b	p. 979	Patient Evaluation
43-26	b	p. 947	Serosal Closure	43-62	c	p. 979	Consent
43-27	b	p. 947	Postoperative	43-63	d	p. 979	Patient Evaluation
43-28	d	p. 948	Consent	43-64	a	p. 985	McIndoe Procedure
43-29	b	p. 948	Leiomyoma Stalk Ligation	43-65	d	p. 985	Consent
43-30	d	p. 950	Abdominal Hysterectomy	43-66	a	p. 985	Consent
43-31	d	p. 950	Abdominal Hysterectomy	43-67	b	p. 989	Single-Pass Excision
43-32	d	p. 950	Abdominal Hysterectomy	43-68	d	p. 989	Cervical Cryotherapy
43-33	c	p. 950	Laparoscopic Hysterectomy	43-69	c	p. 991	Carbon Dioxide Laser Cervical Ablation
43-34	a	p. 950	Approach Selection	43-70	c	p. 991	Consent
43-35	d	p. 950	Total versus Supracervical Hysterectomy	43-71	d	p. 997	Carbon Dioxide Laser Vaporization of VN
43-36	d	p. 950	Total versus Supracervical Hysterectomy	43-72	d	p. 998	Postoperative

CHAPTER 44

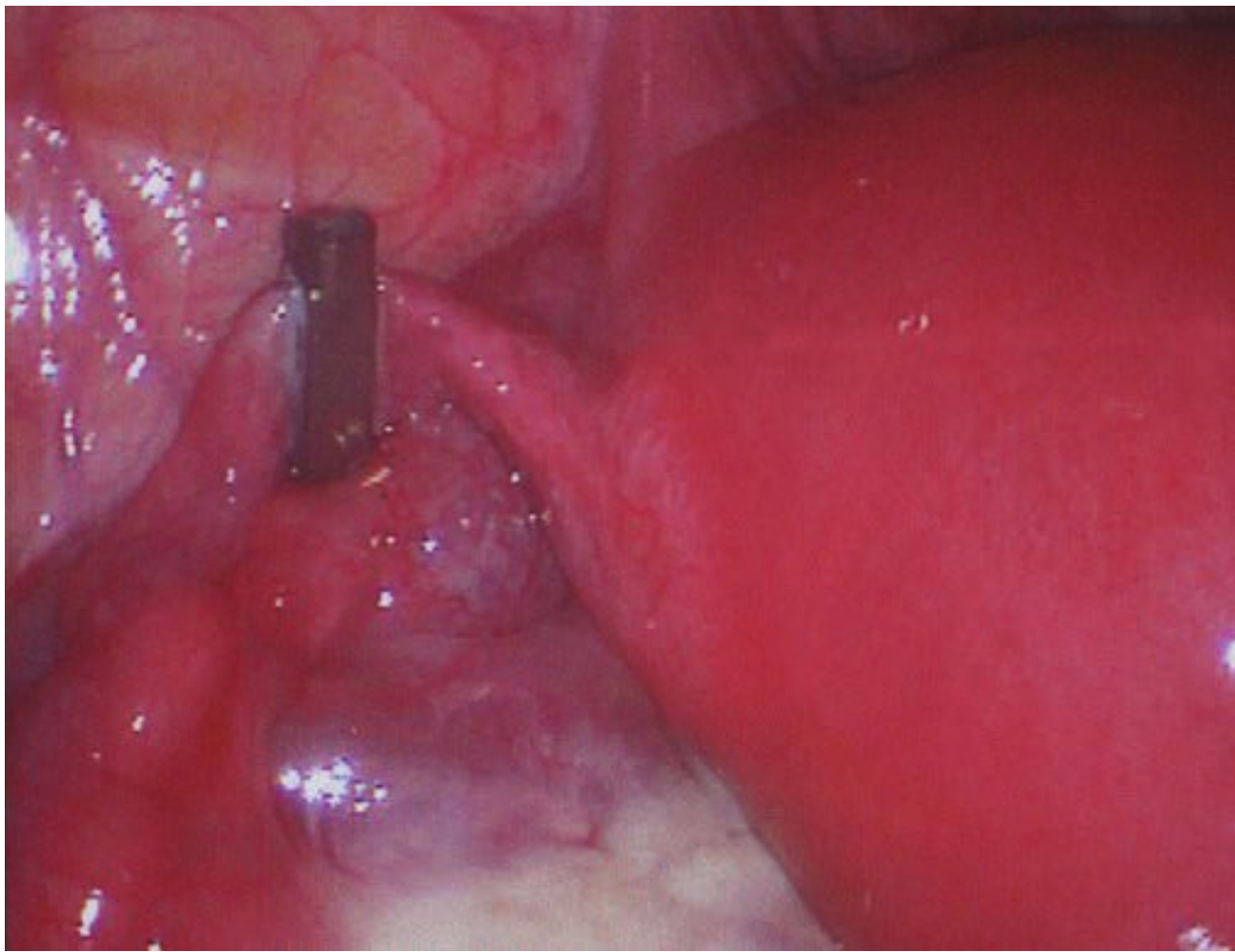
Minimally Invasive Surgery

- 44-1.** What are common indications for diagnostic laparoscopy?
- Pelvic pain evaluation
 - Pelvic mass assessment
 - Diagnosis and staging of endometriosis
 - All of the above
- 44-2.** Which of the following is the threshold above which the abdomen typically is **NOT** insufflated during laparoscopy?
- 8 mm Hg
 - 15 mm Hg
 - 20 mm Hg
 - 25 mm Hg
- 44-3.** During laparoscopy, what operative step is performed first after safe initial abdominal entry is confirmed?
- Identify the appendix
 - Examine the upper abdomen
 - Place the patient in Trendelenburg position
 - Examine the area directly below the primary trocar entry site for evidence of bleeding or trauma
- 44-4.** Preoperative methods to prevent conception prior to laparoscopic sterilization include which of the following?
- Perform surgery in the luteal phase of the menstrual cycle
 - Provide effective contraception well in advance of surgery
 - Provide mifepristone 600 mg in a single dose prior to the surgical procedure
 - All of the above
- 44-5.** What counseling points should be discussed in the consenting process for laparoscopic sterilization?
- The possibility of future regret
 - Other reversible methods of contraception
 - The effective yet permanent nature of tubal sterilization
 - All of the above
- 44-6.** At the time of hysterectomy, a Falope ring is seen loosely adhered to the fallopian tube. Which of the following statements is true regarding this method of sterilization?



- Sterilization is achieved by necrosis and fibrosis of the tubal ends.
- A ring must remain around a midsegment loop of fallopian tube to sustain efficacy.
- These silicone-based rings are no longer used due to their link with autoimmune disease.
- In most cases, a Fallope ring found in the cul-de-sac should be considered a dangerous foreign body.

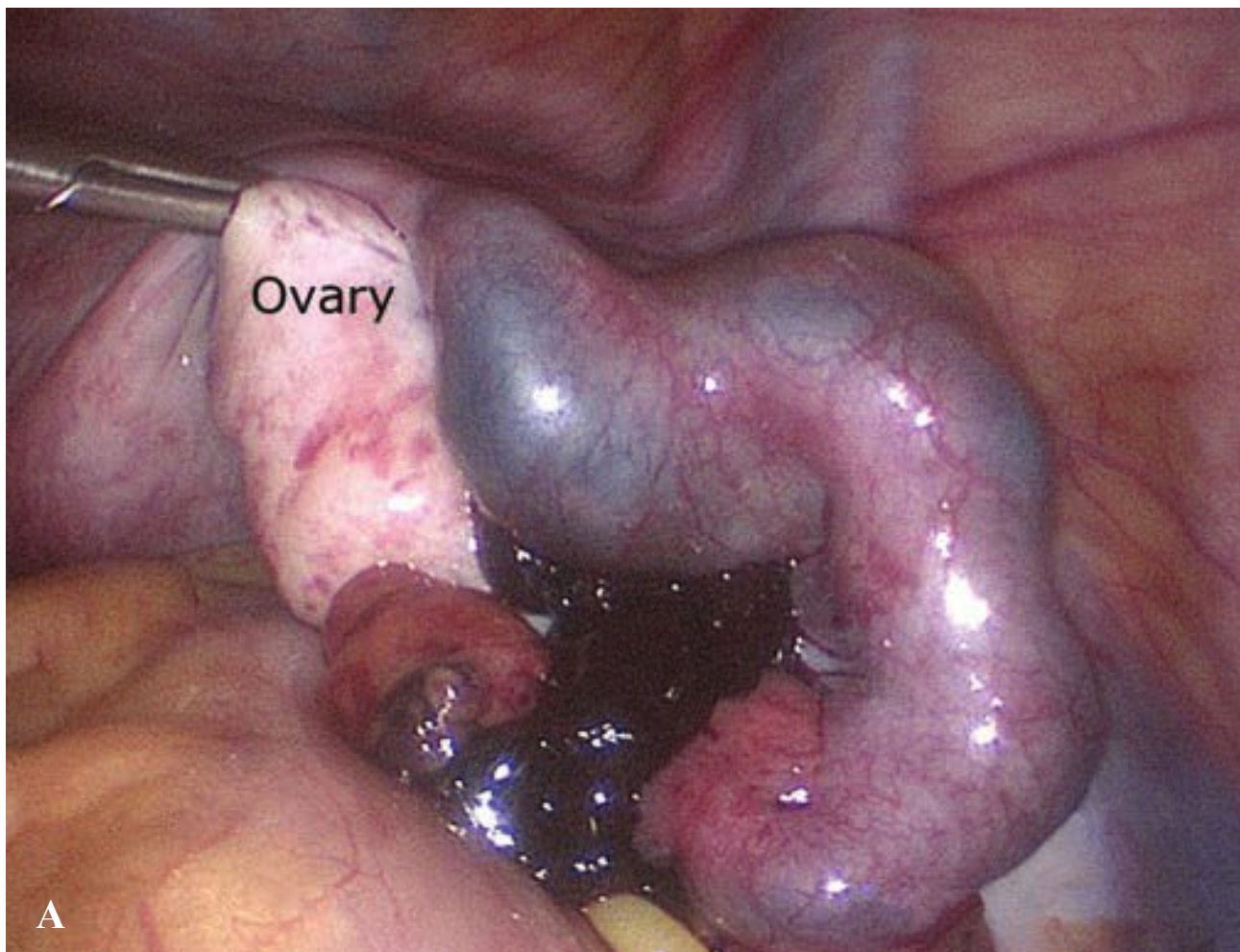
- 44–7.** To ensure Filshie clip efficacy, which of the following is true?



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- a.** The clip must remain permanently around the tubal midsegment.
- b.** Following clip placement, chromotubation should be performed to document tubal occlusion.
- c.** Three months following clip placement, hysterosalpingography should be performed to document tubal occlusion.
- d.** Prior to clip application across the fallopian tube diameter, the tip of the lower jaw should be seen through the mesosalpinx.
- 44–8.** A patient is undergoing laparoscopic sterilization with Filshie clips. After placing a clip on an enlarged tube, you realize that the tube has been transected. What should you do now?
- a.** Abort the procedure
- b.** Place an intrauterine contraceptive device
- c.** Place a clip on both ends of the transected tube
- d.** Advise the patient to have hysterosalpingography performed in a few months
- 44–9.** What purpose does an ammeter serve during bipolar coagulation of the fallopian tube during laparoscopic sterilization?
- a.** Ensures that the tube is completely desiccated
- b.** Helps prevent thermal injury to adjacent organs
- c.** Serves no purpose in contemporaneous laparoscopy
- d.** Helps free tissue that is adhered to the bipolar paddles
- 44–10.** How far away from the cornu is the fallopian tube ideally grasped during Falope ring placement?
- a.** 1 cm
- b.** 3 cm
- c.** 5 cm
- d.** 9 cm
- 44–11.** Which laparoscopic sterilization device is generically known as a spring clip?
- a.** The Hulka clip
- b.** The Falope ring
- c.** The Filshie clip
- d.** None of the above
- 44–12.** Laparoscopic salpingectomy is a surgical treatment for ectopic pregnancy. For what other indications is this procedure performed?
- a.** Sterilization
- b.** Removal of hydrosalpinges prior to in vitro fertilization
- c.** As part of a strategy to lower epithelial ovarian cancer risk in patients with the *BRCA* gene yet provide extended estrogen benefit
- d.** All of the above
- 44–13.** What modalities may be used to accomplish the mesosalpingeal incision during laparoscopic salpingectomy?
- a.** Harmonic scalpel
- b.** Monopolar scissors
- c.** Kleppinger bipolar forceps followed by scissors
- d.** All of the above
- 44–14.** You are counseling a patient who has just undergone laparoscopic salpingectomy for an ectopic pregnancy. She is wondering if she should initiate contraception. How early after a first-trimester pregnancy ends may ovulation resume?
- a.** 2 weeks
- b.** 6 weeks
- c.** 8 weeks
- d.** 12 weeks
- 44–15.** Who is a suitable candidate for a laparoscopic salpingostomy?
- a.** A patient who does not want future childbearing
- b.** A patient whose tubal ligation has failed and who now has an ectopic pregnancy
- c.** A patient with a bleeding, ruptured, ectopic pregnancy who desires future fertility
- d.** A patient with an unruptured, ampullary ectopic pregnancy who desires future fertility

44–16. A 24-year-old nullipara undergoes laparoscopy for a suspected ectopic pregnancy, which is confirmed in Figure A. You are able to remove the conceptus, as shown in Figure B, and render the fallopian tube hemostatic. After salpingostomy, important postoperative care points include which of the following?



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- a. Administer Rh [D] immunoglobulin to all patients to prevent Rh sensitization
- b. Obtain serial serum human chorionic gonadotropin levels to exclude persistent trophoblastic tissue
- c. Perform hysterosalpingography on postoperative day 10 to document tubal patency on the affected side
- d. Administer a single methotrexate dose of 50 mg/m² on postoperative day 1 to prevent persistent trophoblastic tissue

44–17. During laparoscopic ovarian cystectomy, what is the next surgical step once ports have been placed?

- a. Identify the ureter
- b. Perform the cystectomy
- c. Rupture the cyst to evaluate the contents
- d. Survey the abdomen and pelvis to identify signs of malignancy such as ascites and peritoneal implants

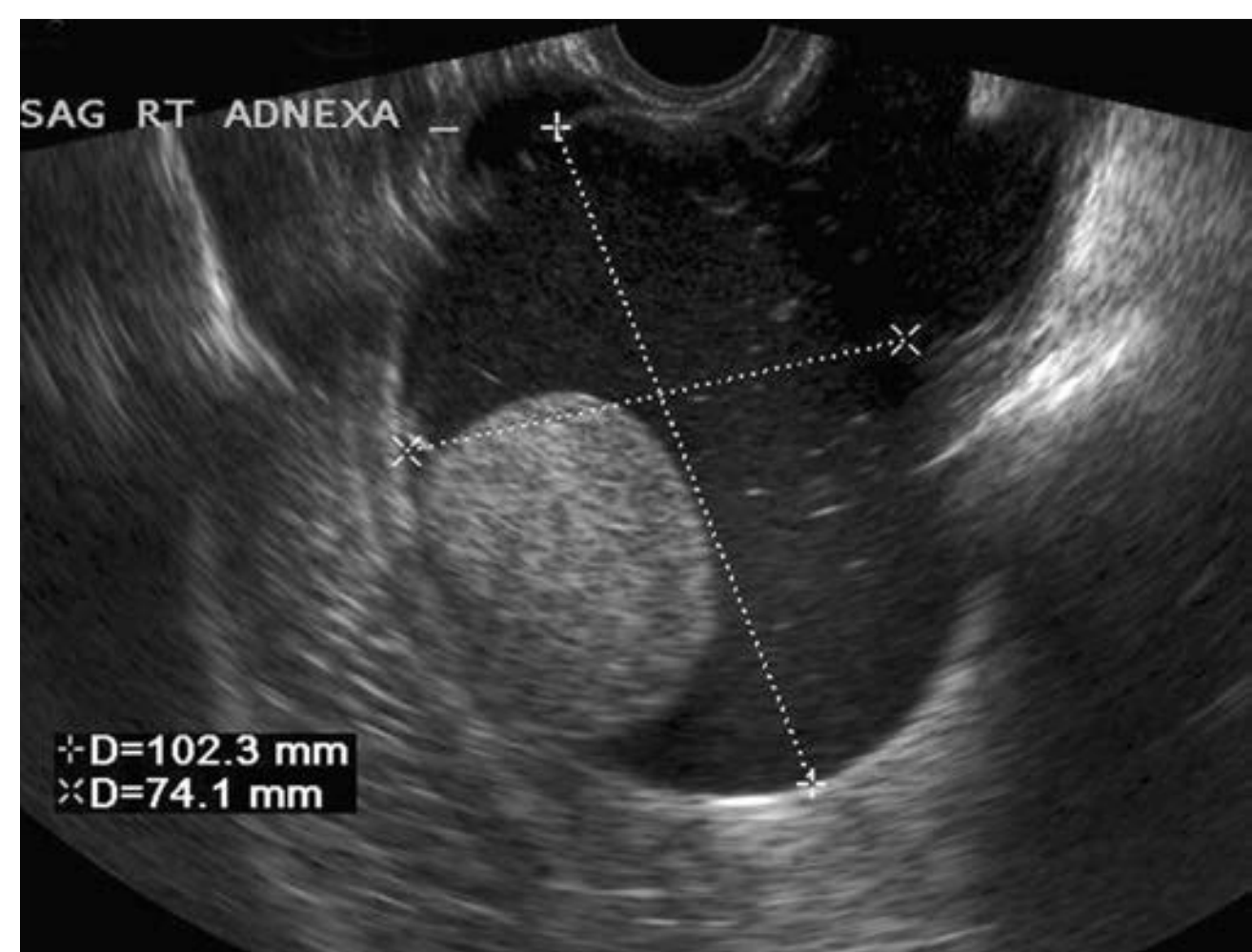
44–18. During laparoscopic ovarian cystectomy, signs of malignancy are not seen during survey of the abdomen. Pelvic washings are obtained, and cystectomy begins. At which of the following sites is the ovarian incision best placed?

- a. At the hilum
- b. At the fimbria ovarica attachment site
- c. The antimesenteric portion of the ovarian capsule
- d. None of the above

44–19. What instrument is **NOT** used to ligate the ovarian vessels within the infundibulopelvic ligament?

- a. Monopolar scissors
- b. Endoscopic stapler
- c. Endoscopic loop ligature
- d. Electrosurgical coagulating device

44–20. A 30-year-old woman complains of chronic right lower abdominal pain. Sonography reveals a 10-cm ovarian mass, shown here, that contains both cystic and solid components. During laparoscopic salpingo-oophorectomy, which of the following methods may be used to remove this ovary once placed in an endoscopic sac to avoid spilling its contents into the abdomen?



- a. Perform a minilaparotomy
- b. Perform a posterior colpotomy
- c. Aspirate fluid with a needle to decompress the ovary
- d. All of the above

- 44–21.** For which of the following patients with polycystic ovarian syndrome (PCOS) may ovarian drilling be indicated?
- Those who choose to lower their risk of twins
 - Those who fail to ovulate with clomiphene citrate
 - Those with risk factors for ovarian hyperstimulation syndrome
 - All of the above
- 44–22.** Which of the following complications is relatively common after ovarian drilling?
- Hemorrhage
 - Ovarian atrophy
 - Adhesion formation
 - Terminal bowel injury
- 44–23.** In addition to an intraligamentous location, which of the following characteristics increase the risk of complications during laparoscopic myomectomy?
- Nulliparity
 - Pedunculated leiomyoma
 - More than three tumors requiring excision
 - All of the above
- 44–24.** To attain a global view for laparoscopic myomectomy, the primary port is ideally inserted into the abdomen at a point that lies how far cephalad from the uterine fundus?
- At least 1 cm
 - At least 4 cm
 - At least 8 cm
 - At least 12 cm
- 44–25.** How many clinical trials address the route of delivery of pregnancies occurring after myomectomy?
- 0
 - 13
 - 33
 - 53
- 44–26.** What is the definition of a laparoscopic hysterectomy?
- Any hysterectomy in which a laparoscope is introduced into the peritoneal cavity
 - A hysterectomy during which laparoscopic dissection proceeds to uterine arteries but does not include their transection
 - A hysterectomy during which laparoscopic dissection includes uterine artery transection followed by completion of the hysterectomy vaginally
 - None of the above
- 44–27.** Women with which of the following characteristics are considered poor candidates for vaginal hysterectomy?
- Contracted pelvis
 - Large adnexal pathology
 - Suspected dense pelvic adhesions
 - All of the above
- 44–28.** Which hysterectomy approach poses the greatest risk to the ureters?
- Vaginal hysterectomy
 - Abdominal hysterectomy
 - Laparoscopic hysterectomy
 - No difference in approaches
- 44–29.** During laparoscopic hysterectomy for a patient with three prior cesarean deliveries, you notice a cystotomy. Which part of the bladder is most likely affected?
- Dome
 - Trigone
 - Bladder neck
 - All parts are equally at risk.
- 44–30.** Which of the following women are considered poor candidates for supracervical hysterectomy?
- Those with high-grade endocervical dysplasia
 - Those unable to maintain routine Pap testing
 - Those with endometrial hyperplasia with atypia
 - All of the above
- 44–31.** You are counseling a patient regarding laparoscopic supracervical hysterectomy. What are the rates of long-term cyclic bleeding with this procedure?
- 0.5 to 0.1 percent
 - 5 to 10 percent
 - 15 to 20 percent
 - 35 to 40 percent
- 44–32.** What are the options for extracting the amputated uterine corpus during laparoscopic supracervical hysterectomy?
- Colpotomy
 - Minilaparotomy
 - Enclosed power morcellation
 - All of the above

- 44–33.** Uterine manipulators designed specifically for total laparoscopic hysterectomy may help with which of the following?
- Displacing the ureters laterally
 - Maintaining pneumoperitoneum during colpotomy
 - Delineating the cervicovaginal junction for colpotomy
 - All of the above
- 44–34.** To avert postoperative vaginal cuff dehiscence after total laparoscopic hysterectomy, what practices during cuff closure are ideally avoided?
- Perform a two-layer closure
 - Ensure full-thickness closure
 - Completely desiccate the vaginal cuff prior to suturing
 - Include an adequate amount of viable tissue that is free of thermal-effect damage
- 44–35.** Which of the following lenses is suitable for diagnostic hysteroscopy?
- 0-degree lens
 - 12-degree lens
 - 30-degree lens
 - All of the above
- 44–36.** Prior to diagnostic hysteroscopy, images from transvaginal sonography suggested an endometrial polyp. Intraoperatively, you find no evidence of one. Which of the following is the best next step to ensure that you have not missed it?
- Resect the endometrium
 - Order magnetic resonance imaging
 - Reevaluate the cavity while reducing the fluid medium distention pressure
 - Evacuate and exchange the distention medium and have a new tray of instruments brought to the operating room

- 44–37.** Your patient complains of persistent heavy menstrual bleeding that prompts transvaginal sonography. As seen in Figure A, imaging shows multiple polyps, one of which is marked here by calipers. During hysteroscopy, you see the three distinct polyps shown in Figure B. What instruments could be used to assist with hysteroscopic excision of these polyps?

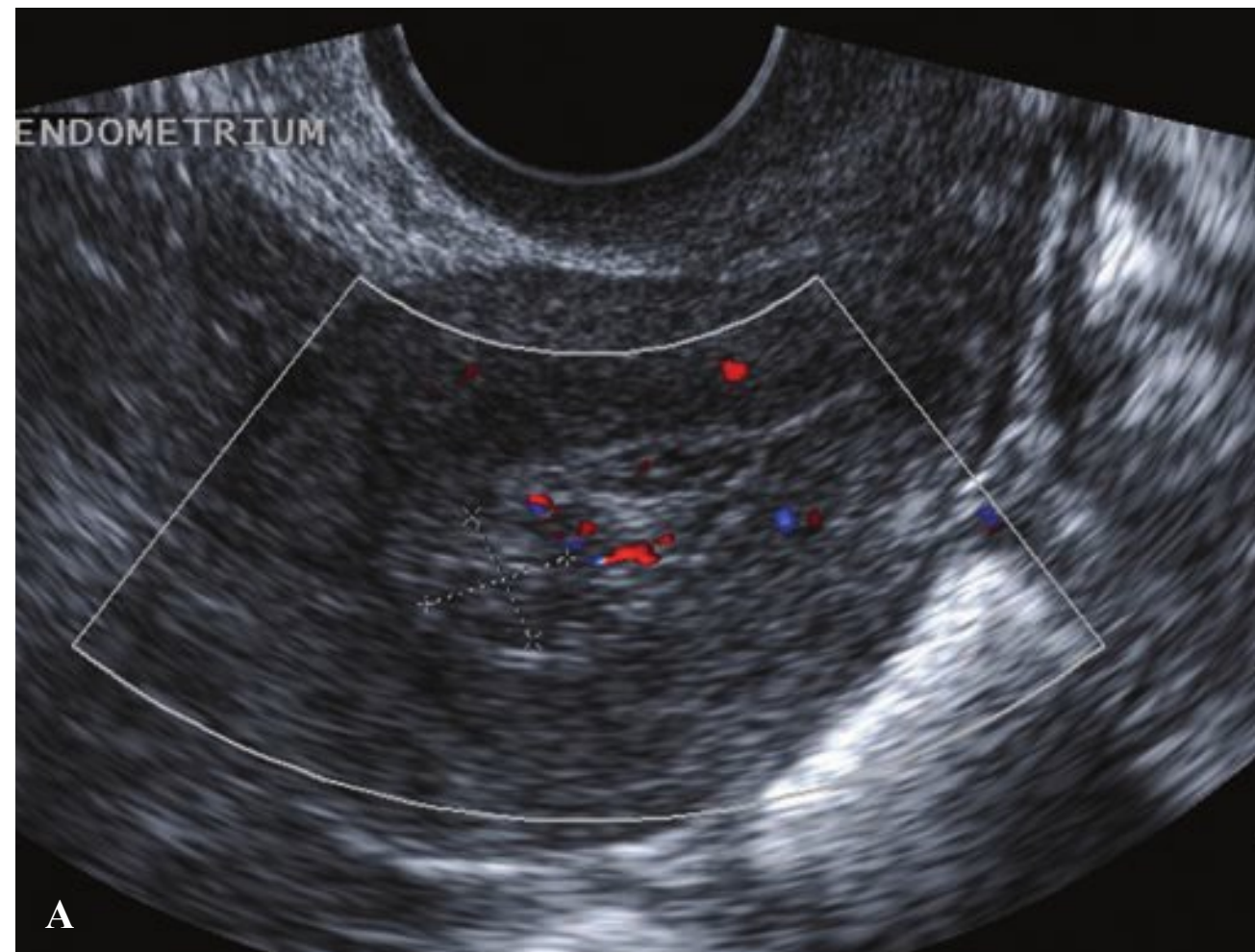


Figure B: Reproduced with permission from Sharma M, Hoffman BL: Abnormal uterine bleeding. In Williams Gynecology, 2nd edition. New York, McGraw-Hill, 2012. Photo contributor: Dr. Catherine Chappell.

- Morcellator
 - Resectoscope
 - Hysteroscopic scissors
 - All of the above
- 44–38.** During hysteroscopic polypectomy, which of the following distention media is suitable for a monopolar resectoscope and allows you to decrease the risk of hyponatremia?
- Saline
 - Glycine
 - Sorbitol
 - 5-percent mannitol

44–39. Saline infusion sonography (Figure A) or hysteroscopy (Figure B) can help evaluate leiomyoma characteristics prior to hysteroscopic myomectomy. In the sonogram, arrowheads mark the myoma, and the infusion balloon is labeled (B). Leiomyomas may be grouped according to criteria from the European Society of Gynaecological Endoscopy. Shown here in both images, which of the following classes is associated with the highest clinical success rate, lowest surgical risk, and an infrequent need for more than one surgical session to complete resection?

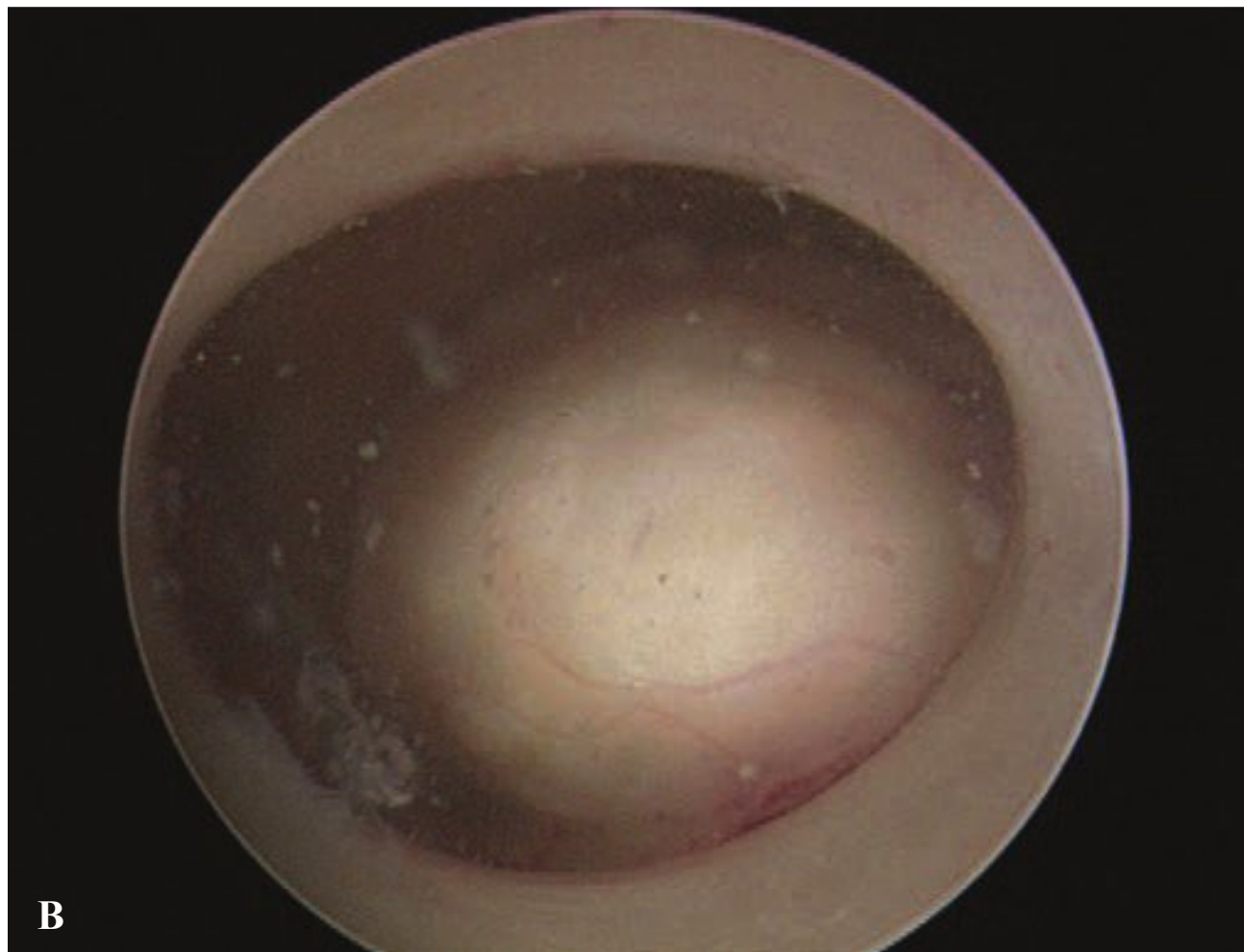
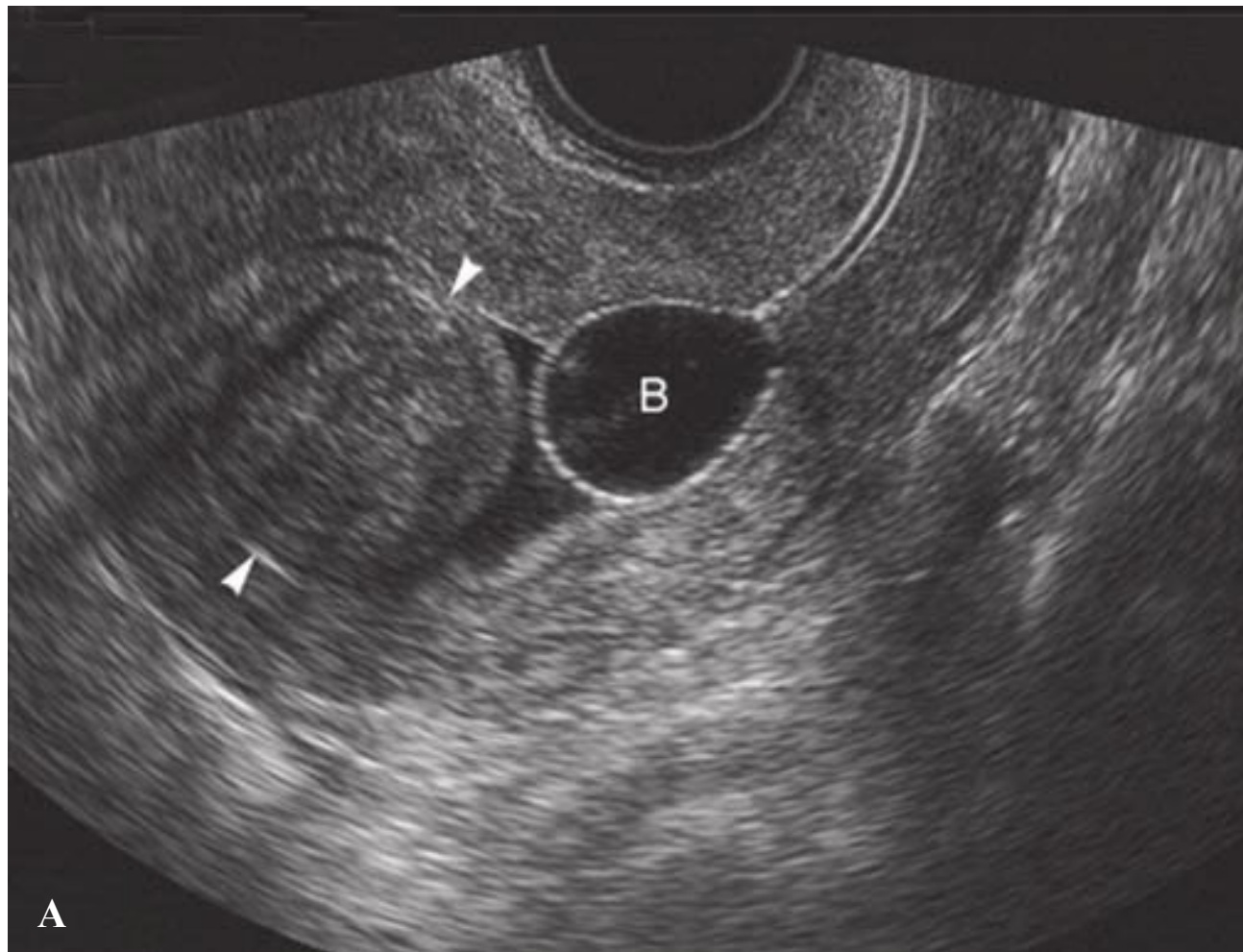
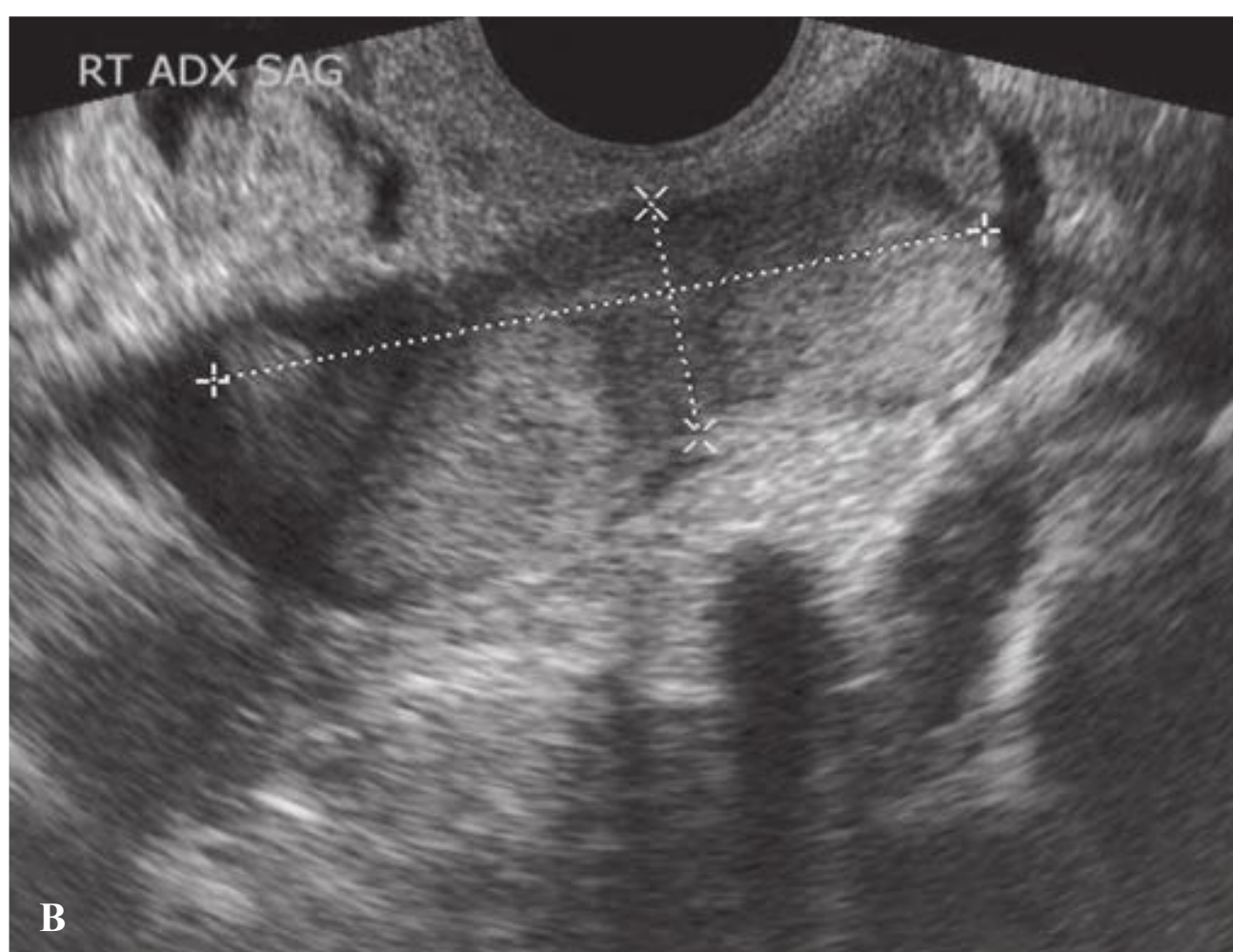
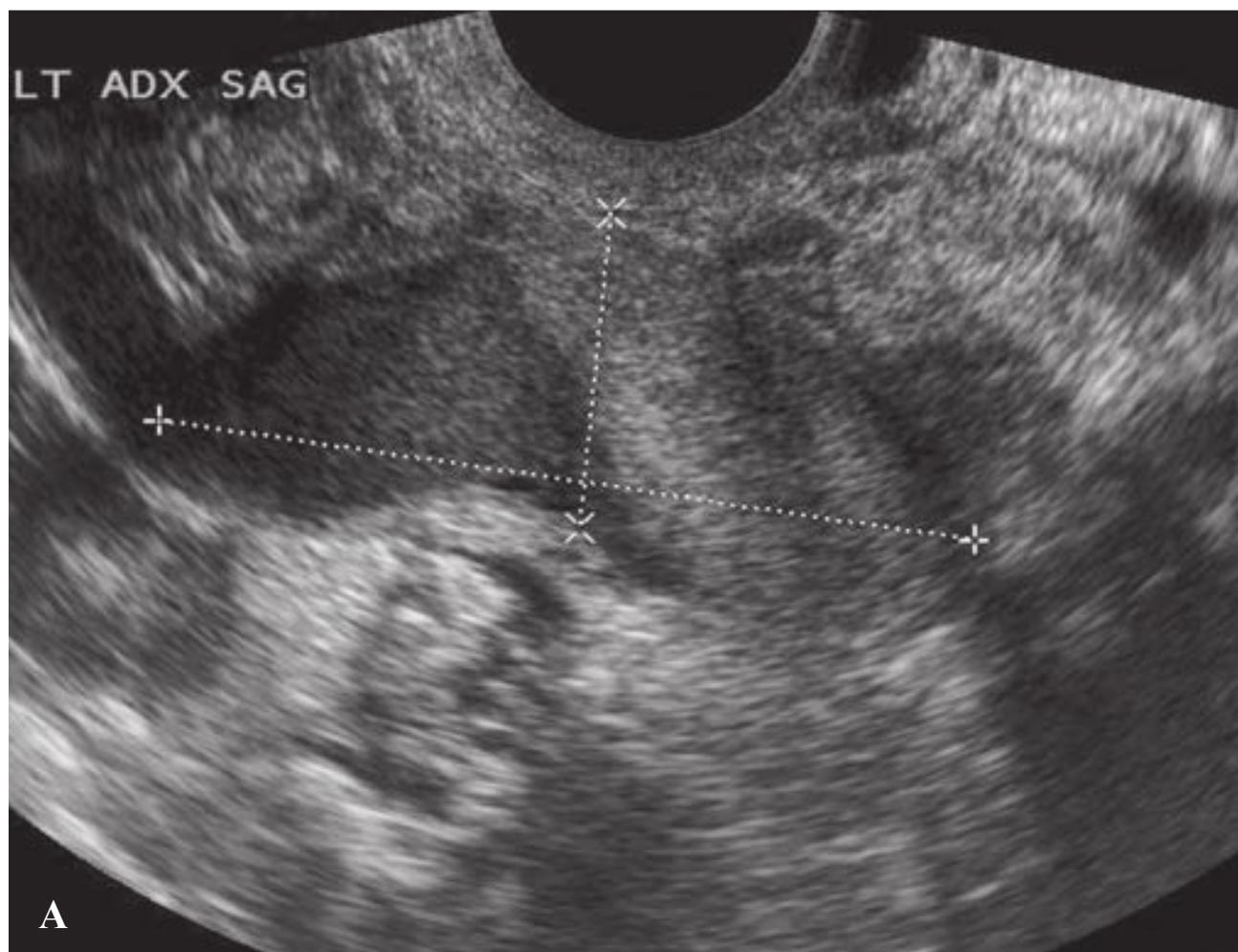


Figure A: Reproduced with permission from Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill, 2016. Photo contributor: Dr. Elysia Moschos. Figure B: Used with permission from Dr. David Rogers.

- a. Class 0
- b. Class I
- c. Class II
- d. Class III

- 44–40.** Misoprostol can aid in cervical softening. What are some common side effects of this medication?
 - a. Nausea
 - b. Cramping
 - c. Uterine bleeding
 - d. All of the above
- 44–41.** After undergoing hysteroscopic resection of a broad-based leiomyoma, patients are encouraged to delay conception attempts for what length of time?
 - a. 1 year
 - b. 6 months
 - c. Three menstrual cycles
 - d. Menstrual cycle after the resection
- 44–42.** Which of the following would be considered a first-generation hysteroscopic ablation method?
 - a. Endometrial resection by resectoscope
 - b. Rollerball electrosurgical desiccation
 - c. Neodymium:yttrium-aluminum-garnet (Nd-YAG) laser
 - d. All of the above
- 44–43.** Which of the following practices may increase the risk of damage to surrounding viscera during endometrial ablation?
 - a. Steep Trendelenburg positioning
 - b. Myometrial thinning from prior uterine surgery
 - c. Preoperative medications given to thin the endometrium
 - d. None of the above
- 44–44.** Patients undergoing endometrial ablation for a bleeding abnormality should not be *guaranteed* amenorrhea as a treatment goal. In general, which of the following ranges of amenorrhea rates is expected?
 - a. 5 to 10 percent
 - b. 15 to 35 percent
 - c. 50 to 65 percent
 - d. 75 to 80 percent
- 44–45.** Which of the following obstetric problems is associated with pregnancy after endometrial ablation?
 - a. Prematurity
 - b. Malpresentation
 - c. Abnormal adherent placenta
 - d. All of the above

44–46. A 47-year-old multipara complains of chronic lower abdominal ache that seems to worsen with menses. Her past surgical history is notable for prior puerperal tubal ligation 10 years ago and for endometrial ablation completed 1 year ago for heavy menstrual bleeding. Transvaginal sonography revealed bilateral hematosalpinges, shown in Figures A and B. Focal hematometra involves both the cornua. What is commonly required to resolve the cyclic pain associated with this syndrome?



- a. Narcotics
- b. Hysterectomy
- c. Psychiatry consultation
- d. Fallopian tube reanastomosis

44–47. A 42-year-old multipara complains of intermenstrual and heavy menstrual bleeding. She has read about endometrial ablation and is wondering if this procedure would be a good choice for her. Her past surgical history is notable for three prior cesarean deliveries. During her evaluation, transvaginal sonography highlights a cesarean scar defect in the anterior isthmus of her uterus, shown here and marked by arrows. Endometrial ablation may be a poor choice for her due to possible higher rates of which of the following complications?



Used with permission from Dr. David Rogers.

- a. Uterine perforation
 - b. Cervical stenosis
 - c. Thermal injury to adjacent organs
 - d. Hyponatremia from distension media absorption
- 44–48.** Compared with other second-generation ablation methods, which of the following are advantages of the HydroThermAblator (HTA) system?
- a. Permits direct hysteroscopic visualization
 - b. Allows treatment of abnormal uterine anatomy
 - c. Allows treatment of endometrium concurrently with submucous leiomyomas and polyps
 - d. All of the above
- 44–49.** Which procedural risk is higher with the HydroThermAblator than with other second-generation technologies?
- a. Bowel burns
 - b. Uterine perforation
 - c. Bladder burns
 - d. External burns due to circulating hot water

44–50. Endometrial ablation using this device is achieved by which of the following mechanisms?



- a. Cryonecrosis
- b. Microwave energy
- c. Monopolar electrosurgical coagulation
- d. Radiofrequency bipolar electrosurgical coagulation

44–51. Which of the following is an advantage of the NovaSure endometrial ablation system?

- a. Permits direct hysteroscopic visualization
- b. Provides a specimen for histologic analysis
- c. Does not require preoperative endometrial preparation
- d. None of the above

44–52. Which second-generation ablation technology listed below uses cryoablation?

- a. NovaSure
- b. Her Option
- c. TermaChoice III
- d. HydroTermAblator

44–53. The Her Option cryoablation system uses which of the following methods to ensure accurate cryotip placement during ablation?

- a. Transabdominal sonography guidance
- b. Magnetic resonance imaging surveillance
- c. Continuous intrauterine temperature monitoring
- d. None of the above

44–54. What is the recommended myometrial thickness for safe use of the microwave endometrial ablation device?

- a. 2 mm
- b. 10 mm
- c. 20 mm
- d. 30 mm

44–55. Which of the following would be expected during postoperative recovery from endometrial ablation?

- a. A few days of light bleeding or spotting
- b. Serosanguineous discharge for about 1 week
- c. Profuse and watery discharge for 1 to 2 weeks
- d. All of the above

44–56. This device achieves sterilization by which of the following methods?



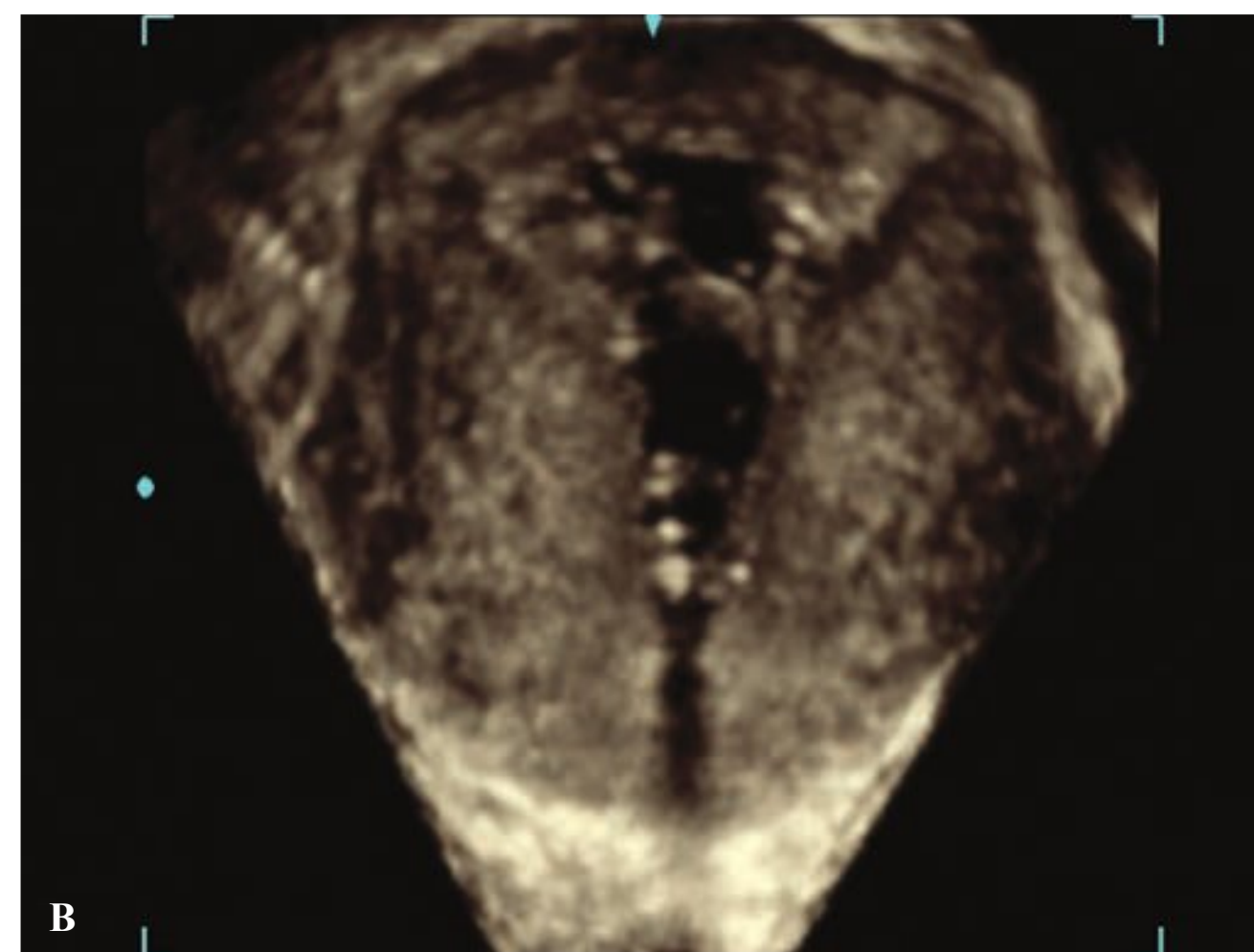
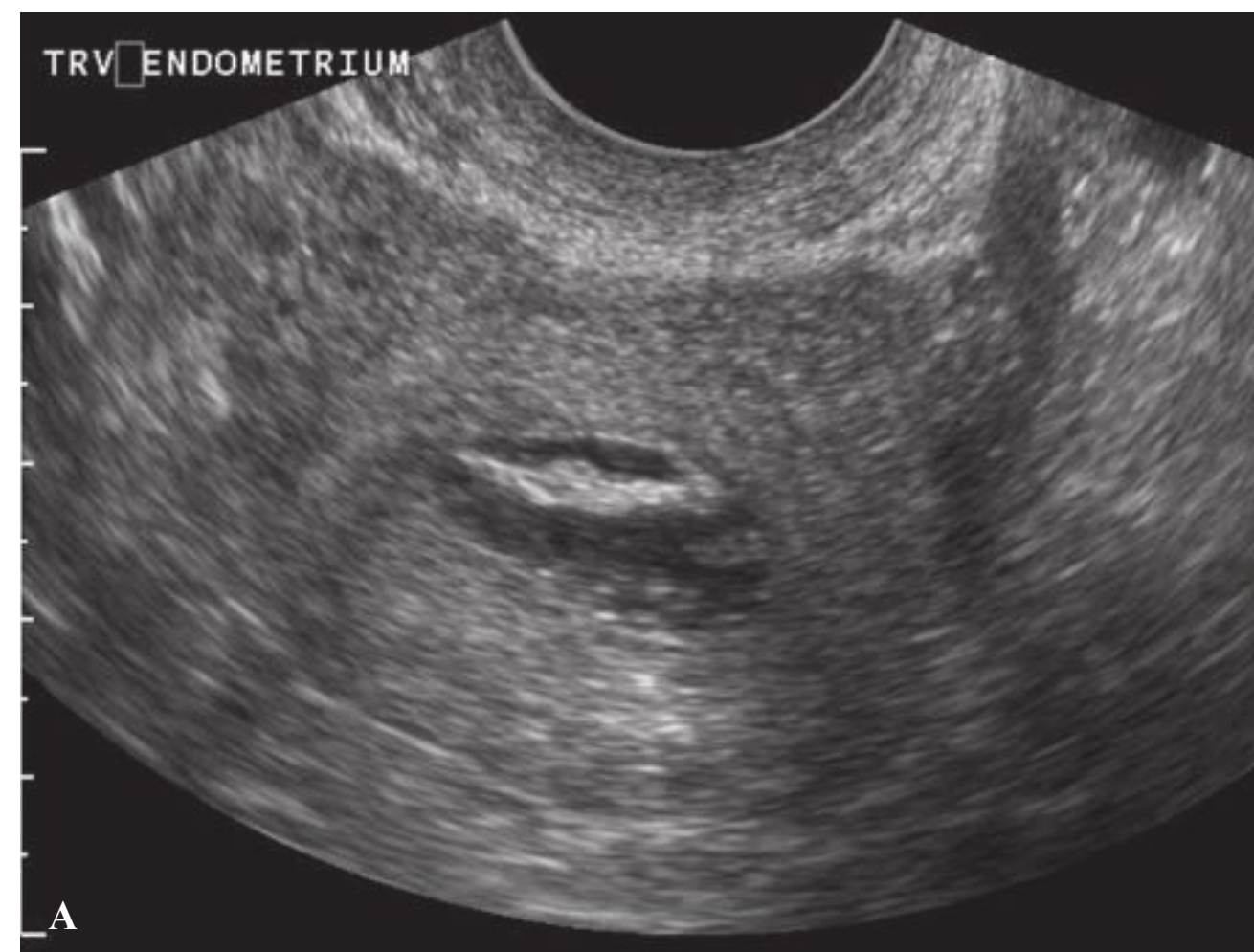
- a. Lies within the cervical canal to secrete spermicide
- b. Wraps around the fallopian tube to occlude the lumen
- c. Is placed within the tubal ostia to promote occlusive tissue ingrowth
- d. Is placed within the endometrial canal to agglutinate the endometrium

44–57. Essure inserts are successfully placed in what percentage of cases?

- a. 28 to 35 percent
- b. 48 to 55 percent
- c. 68 to 75 percent
- d. 88 to 95 percent

- 44–58.** Which of the following statement is true of women following Essure insert placement?
- Sterilization is immediate.
 - Hysterosalpingography is ideally first performed at 6 months following placement.
 - Radiofrequency endometrial ablation can be used safely in Essure patients at a later date if needed.
 - None of the above
- 44–59.** Hysteroscopic septoplasty is planned for a patient with recurrent pregnancy loss and uterine septum. What measures can be taken to decrease the risk of uterine perforation?
- Perform chromopertubation
 - Perform concurrent sonography
 - Perform diagnostic laparoscopy
 - Plan on leaving part of the septum intact
- 44–60.** What instruments can be used to hysteroscopically incise a uterine septum?
- Resectoscope loop
 - Hysteroscopic scissors
 - Mechanical morcellator
 - All of the above
- 44–61.** What are therapeutic options for proximal fallopian tube obstruction?
- In vitro fertilization
 - Tubocornual anastomosis
 - Fallopian tube cannulation
 - All of the above
- 44–62.** With which modality is proximal tubal occlusion usually identified?
- Hysteroscopy
 - Hysterosalpingography
 - Diagnostic laparoscopy
 - Transvaginal sonography
- 44–63.** Intrauterine adhesions called synechiae may develop following uterine curettage and less commonly from pelvic irradiation or tuberculous endometritis. The presence of these adhesions, also termed Asherman syndrome, may lead to increased rates of which of the following?
- Menorrhagia
 - Infertility
 - Pelvic inflammatory disease
 - All of the above

- 44–64.** A 24-year-old woman complains of lighter, regular menses and intermenstrual spotting for 6 months. This pattern began following a first-trimester pregnancy loss that required dilatation and curettage (D&C). This was her third D&C for early pregnancy loss, and she is anxious to conceive again. Her 2-dimensional and 3-dimensional transvaginal sonograms, shown here, reveal intrauterine synechiae. Following hysteroscopic lysis of these adhesions, which of the following may best help prevent synechiae from re-forming?



- Perform second-look hysteroscopy
- Treat with high-dose progestational agents
- Counsel the patient to attempt conception soon after the procedure
- Treat with oral estrogens to stimulate endometrial proliferation

Chapter 44 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
44-1	d	p. 1003	Diagnostic Laparoscopy	44-34	c	p. 1035	Postoperative
44-2	b	p. 1004	Primary Trocar Entry	44-35	d	p. 1037	Hysteroscope Introduction
44-3	d	p. 1004	Upper Abdomen Evaluation	44-36	c	p. 1037	Hysteroscopic Evaluation
44-4	b	p. 1006	Patient Evaluation	44-37	d	p. 1038	Hysteroscopic Polypectomy
44-5	d	p. 1006	Consent	44-38	d	p. 1038	Media Selection
44-6	a	p. 1006	Consent	44-39	a	p. 1038	Patient Evaluation
44-7	d	p. 1007	Filshie Clip Placement	44-40	d	p. 1038	Patient Preparation
44-8	c	p. 1007	Filshie Clip Application	44-41	c	p. 1039	Postoperative
44-9	a	p. 1007	Electrocoagulation	44-42	d	p. 1043	Endometrial Ablation Procedures
44-10	b	p. 1008	Ring Placement	44-43	b	p. 1043	Patient Evaluation
44-11	a	p. 1009	Hulka Clip Application	44-44	b	p. 1043	Consent
44-12	d	p. 1011	Laparoscopic Salpingectomy	44-45	d	p. 1043	Consent
44-13	d	p. 1011	Mesosalpingeal Incision	44-46	b	p. 1043	Consent
44-14	a	p. 1012	Postoperative	44-47	c	p. 1044	Thermal Balloon Ablation
44-15	d	p. 1013	Laparoscopic Salpingostomy	44-48	d	p. 1044	Hysteroscopic Thermal Ablation
44-16	b	p. 1014	Postoperative	44-49	d	p. 1044	Hysteroscopic Thermal Ablation
44-17	d	p. 1015	Abdominal Entry	44-50	d	p. 1045	Impedance-Controlled Electrocoagulation
44-18	c	p. 1015	Ovarian Incision	44-51	c	p. 1045	Impedance-Controlled Electrocoagulation
44-19	a	p. 1019	Infundibulopelvic Ligament Coagulation	44-52	b	p. 1045	Cryoablation
44-20	d	p. 1019	Adnexum Removal	44-53	a	p. 1045	Cryoablation
44-21	d	p. 1021	Ovarian Drilling	44-54	b	p. 1045	Microwave Ablation
44-22	c	p. 1021	Consent	44-55	d	p. 1045	Postoperative
44-23	c	p. 1022	Patient Evaluation	44-56	c	p. 1046	Transcervical Sterilization
44-24	b	p. 1023	Trocar and Laparoscope Insertion	44-57	d	p. 1046	Consent
44-25	a	p. 1025	Subsequent Pregnancy	44-58	c	p. 1047	Postoperative
44-26	c	p. 1025	Laparoscopic Hysterectomy	44-59	c	p. 1046	Consent
44-27	d	p. 1026	Patient Evaluation	44-60	d	p. 1046	Instruments
44-28	c	p. 1026	Consent	44-61	d	p. 1050	Proximal Fallopian Tube Cannulation
44-29	a	p. 1028	Bladder Flap Development	44-62	b	p. 1050	Preoperative
44-30	d	p. 1030	Laparoscopic Supracervical Hysterectomy	44-63	b	p. 1052	Lysis of Intrauterine Adhesions
44-31	b	p. 1030	Consent	44-64	d	p. 1053	Postoperative
44-32	d	p. 1031	Tissue Extraction				
44-33	d	p. 1033	Uterine Manipulator				

CHAPTER 45

Surgeries for Pelvic Floor Disorders

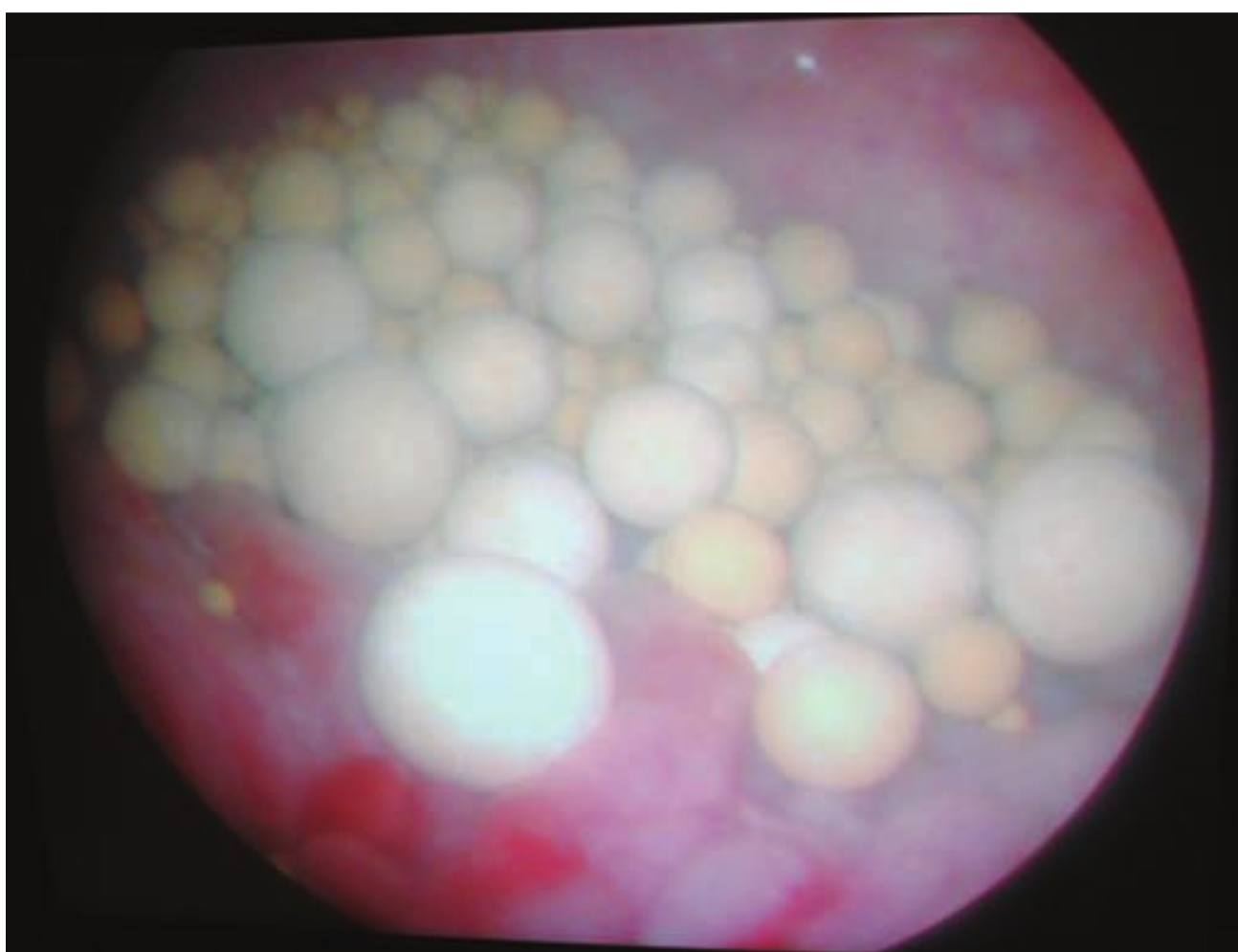
45-1. Mandatory components of a rigid cystoscope include all of the following **EXCEPT**:

- a. Bridge
- b. Camera
- c. Sheath
- d. Endoscope and light source

45-2. Which rigid endoscope most easily permits visualization of the urethra?

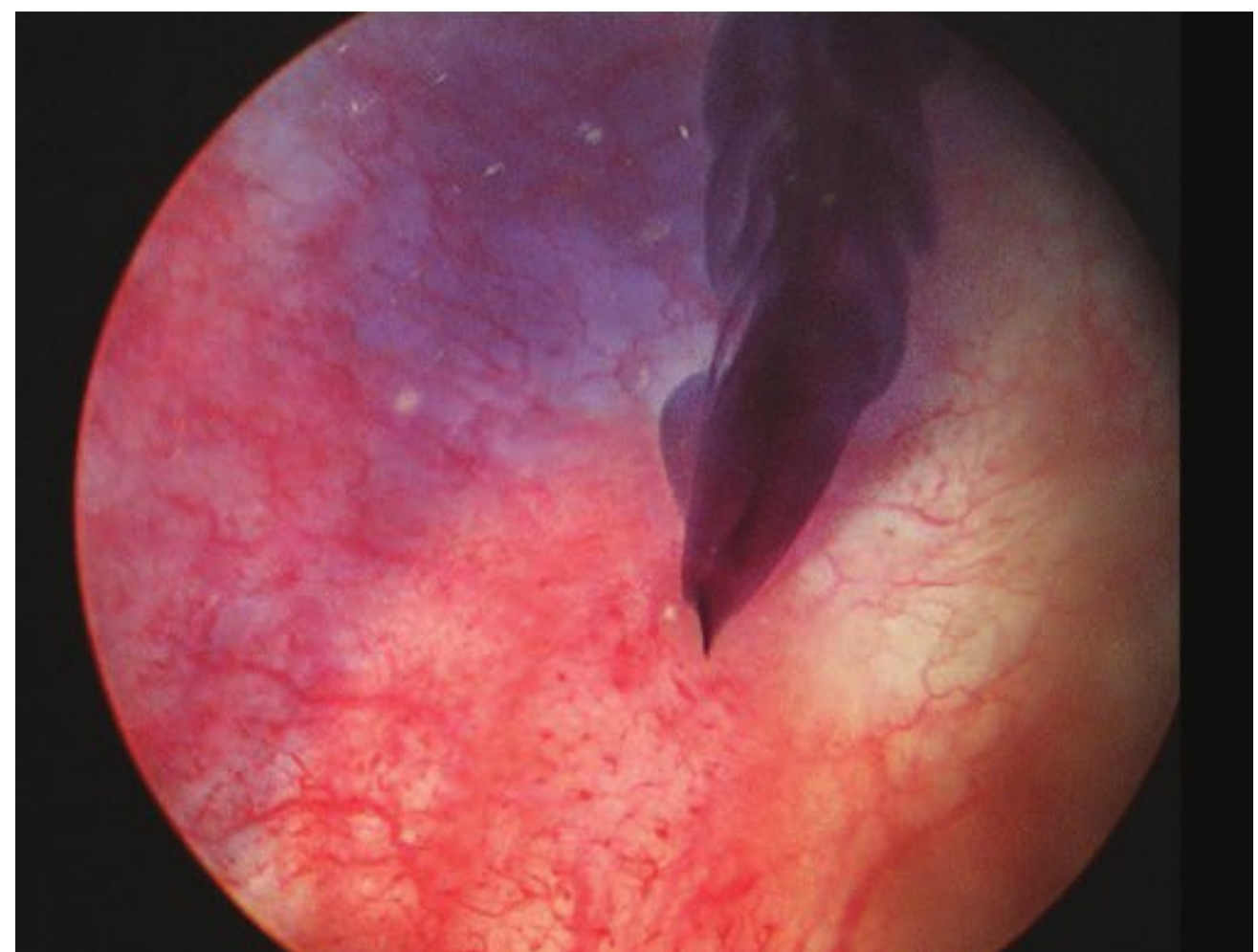
- a. 0-degree lens
- b. 30-degree lens
- c. 70-degree lens
- d. 120-degree lens

45-3. As shown in this image of multiple bladder stones, which rigid endoscope most easily permits visualization of the lateral, anterior, and posterior bladder walls during diagnostic cystoscopy?



- a. 0-degree lens
- b. 30-degree lens
- c. 70-degree lens
- d. 120-degree lens

45-4. You have just completed a bilateral uterosacral ligament suspension for your 58-year-old patient with apical prolapse. During cystoscopy, the left ureteral orifice repeatedly is seen to briskly efflux urine, as shown here, but the right orifice does not. You have waited 20 minutes. What is the most appropriate next step?



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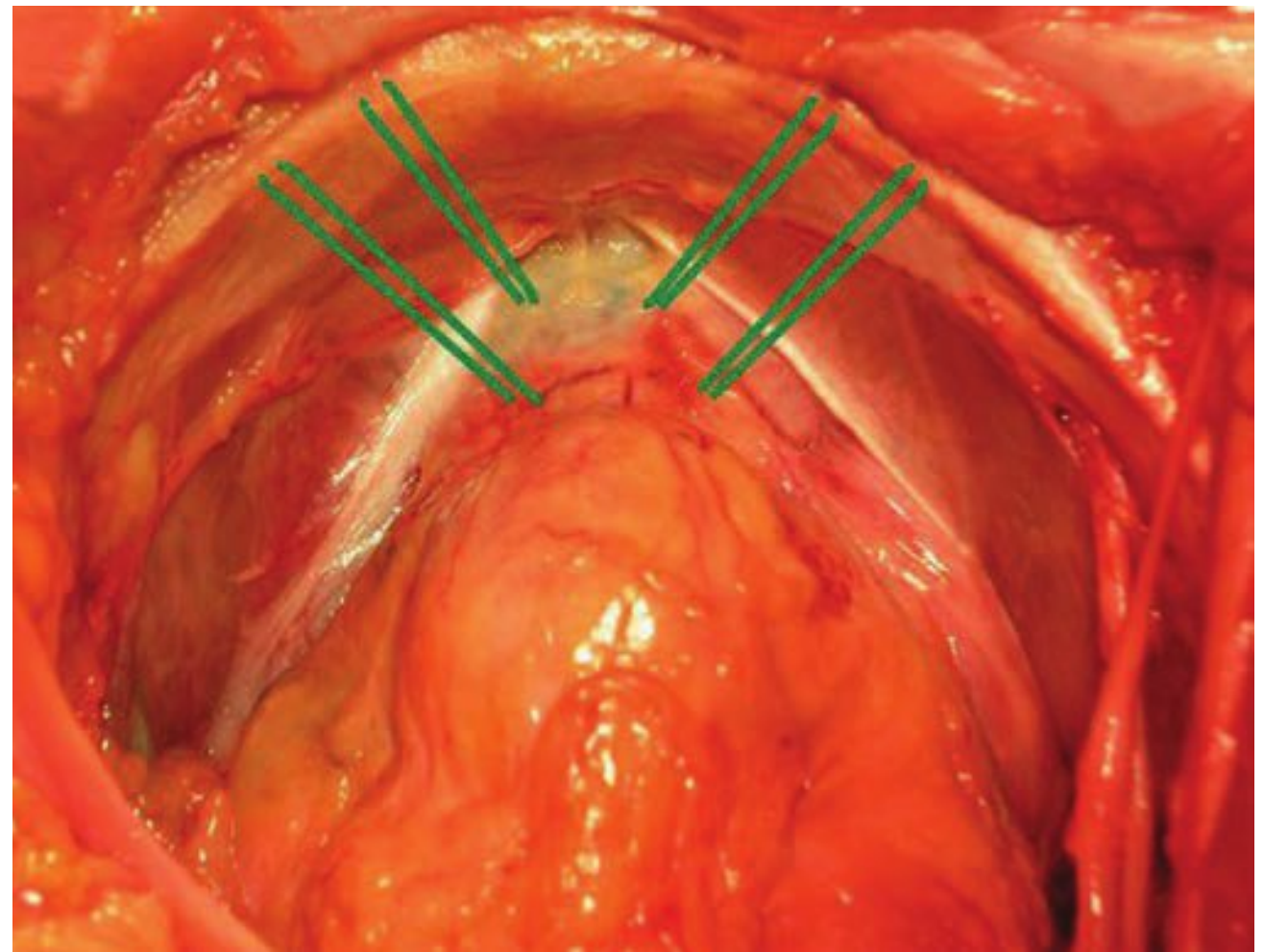
- a. Request an intravenous fluid bolus
- b. Request an intravenous 10-mg dose of furosemide
- c. Proceed to procedure completion because peristalsis was observed
- d. Attempt passage of a ureteral stent or catheter on the right

45-5. Regarding the passage of a ureteral stent to exclude ureteral obstruction, which of the following statements is correct?

- a. Use a 10F to 12F open-ended stent
- b. Select a 70-degree cystoscope, which is best suited for passage of the ureteral stent
- c. Consider an Albarrán bridge, which may ease deflection of a stent into the ureteral orifice
- d. T read the stent approximately 8 cm cephalad from the ureteral orifice to exclude obstruction

- 45–6.** Which action or conclusion below is **NOT** appropriate if partial transection of the ureter is suspected?
- Insert and maintain a cone-tip ureteral catheter for 4 weeks
 - Insert a cone-tip ureteral catheter and inject dye into the distal ureter using fluoroscopic guidance
 - Order a renal sonogram or computed-tomography urogram to be performed 4 to 12 weeks after stent removal to exclude stricture
 - Consider ureteral injury to be unlikely, if dye injected during fluoroscopy flows to the renal pelvis without extravasation
- 45–7.** A 25-year-old woman just underwent emergent cesarean delivery. You repaired a right lateral extension of the hysterotomy incision but are concerned about possible obstruction of the ipsilateral ureter. During laparotomy, where is the ideal location to introduce an endoscope into the bladder to evaluate ureteral patency?
- Anywhere on the bladder dome
 - Close to the ureter's point of entry on the involved side
 - In the retropubic (extraperitoneal) portion of the bladder dome
 - On the posterior bladder wall, close to the "bladder flap" and hysterotomy incision

- 45–8.** In this figure, the retropubic space is shown, and two sutures lie on each side of the urethra. The more cephalad pair of sutures is positioned at the level of the urethrovesical junction. The more caudal pair of sutures is placed near the proximal third of the urethra. These are tied to the ipsilateral iliopectineal ligament (Cooper ligament). Regarding this procedure, all of the following are true **EXCEPT**:

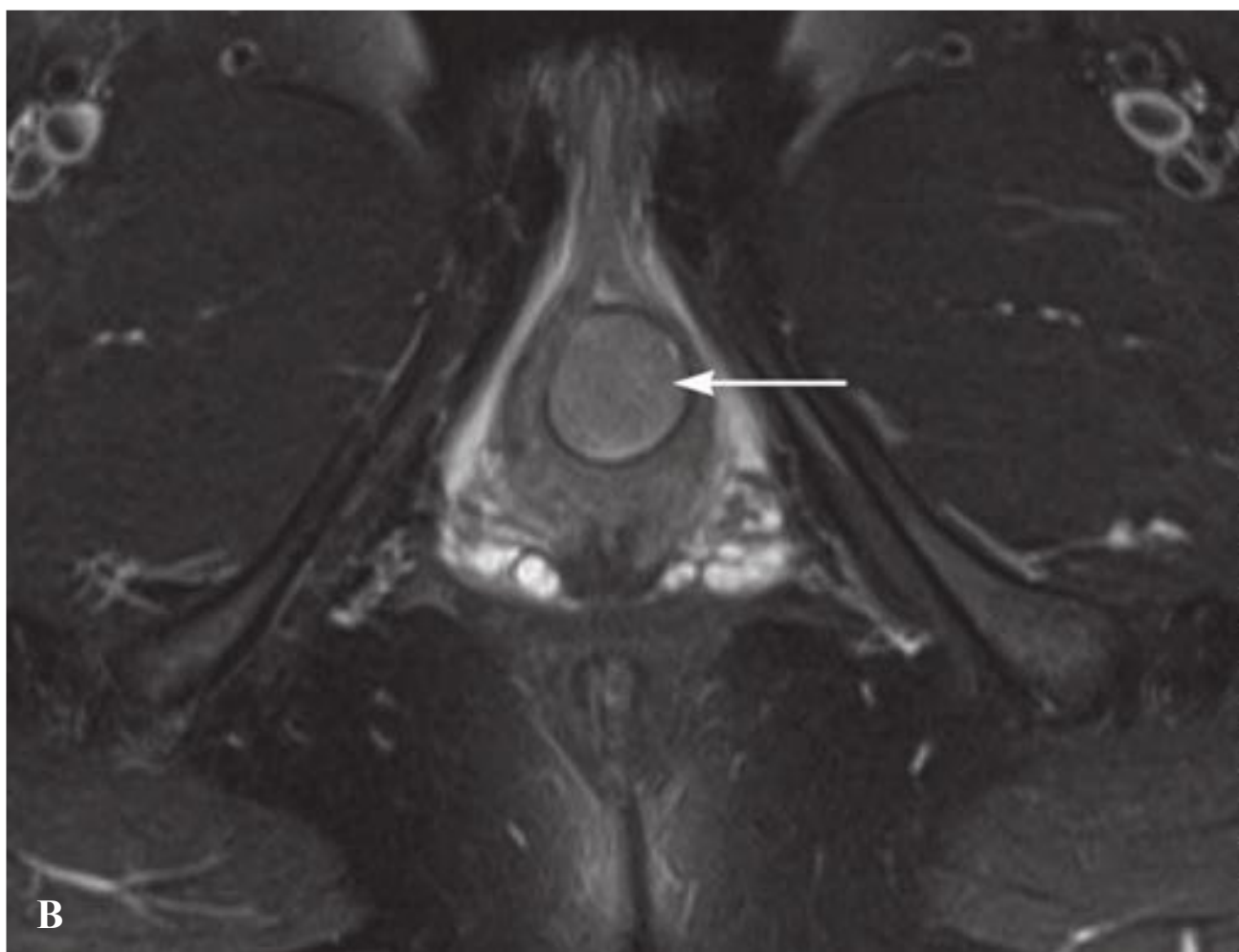


- The patient is placed in candy-cane stirrups in high-lithotomy position for this procedure.
 - Overcorrection of the urethrovesical angle has been suggested as a cause of postoperative voiding dysfunction.
 - Symptomatic success or cure of stress urinary incontinence is achieved in approximately 85 percent of patients.
 - Brisk bleeding in this operative space is likely due to laceration of vessels within the plexus of Santorini.
- 45–9.** In the figure from Question 45–8, what structure is visible on the right, approximately 2 cm below the upper border of the iliopectineal ligament and generally 5 to 7 cm from the midline symphysis pubis?
- Cooper ligament
 - Plexus of Santorini
 - Obturator neurovascular bundle
 - Deep inferior epigastric vessels

- 45–10.** Regarding suture placement for Burch colposuspension, each of these statements is correct **EXCEPT**:
- Double-armed suture of 2-0 nonabsorbable material is commonly recommended.
 - Sutures are placed at the level of the proximal third of the urethra and the urethrovesical junction.
 - A figure-of-eight stitch is recommended on the vaginal wall, incorporating all but the vaginal epithelium.
 - The knots are secured above the iliopectineal ligament such that the anterior vaginal wall is elevated and abuts the pubic symphysis directly.
- 45–11.** Which of these statements is correct regarding transurethral or suprapubic catheterization following Burch colposuspension?
- Suprapubic catheterization causes less patient discomfort.
 - Infection rates are lower with transurethral catheterization.
 - Length of hospitalization is longer with suprapubic catheterization.
 - Transurethral catheterization results in a longer duration of catheterization.
- 45–12.** Indications for the tension-free vaginal tape procedure include all of the following **EXCEPT**:
- Urgency urinary incontinence
 - Prior failed antiincontinence procedure
 - Stress urinary incontinence related to urethral hypermobility
 - Stress urinary incontinence related to intrinsic sphincteric deficiency
- 45–13.** Which of these statements regarding the tension-free vaginal tape procedure is correct?
- Barbs at the tape's ends hold the mesh in place.
 - The mesh sling is made of delayed-absorbable material.
 - During placement, the insertion needle passes through the space of Retzius.
 - A thin plastic sheath is left in place after mesh positioning to lower mesh infection risks.
- 45–14.** A 47-year-old multipara complains of stress urinary incontinence. Stress leakage is confirmed during urodynamic testing. However, her pressure flow study indicates that she uses the Valsalva maneuver to void. What outcome might this patient expect if a tension-free vaginal tape procedure is elected?
- Lower than average cure rate
 - Postoperative voiding dysfunction
 - Higher than average risk of bowel injury
 - All of the above
- 45–15.** Which statement correctly describes the initial surgical steps and patient recovery for the tension-free vaginal tape (TVT) procedure?
- High lithotomy positioning is preferred.
 - The TVT may be performed under local, regional, or general anesthesia.
 - A 14F Foley catheter is used to permit passage of a rigid catheter guide.
 - When this is performed as an isolated procedure, most patients are discharged on postoperative day 1 or 2.
- 45–16.** Which statement is true regarding intraoperative identification of an iatrogenic trocar bladder injury during a tension-free vaginal tape procedure?
- Continence outcomes are poorer than average.
 - This is best identified with a 70-degree cystoscope.
 - Postoperative voiding dysfunction is greater than average.
 - The procedure is best aborted and postponed until several months later.
- 45–17.** Risks associated with the transobturator tape sling include all of the following **EXCEPT**:
- Groin pain
 - Postoperative urinary retention
 - Bleeding in the space of Retzius
 - Postoperative urgency incontinence
- 45–18.** The thigh incision for a transobturator tape sling is made in the genitocrural fold at the point where which muscle's insertion is palpable?
- Gracilis
 - Adductor brevis
 - Adductor longus
 - Adductor magnus
- 45–19.** Which of the following statements regarding the pubovaginal sling procedure is correct?
- The sling is positioned at the level of the midurethra.
 - Cadaveric fascia allograft is the preferred sling material.
 - Final sling tension ideally creates an upward angulation of the urethra and bladder neck.
 - Classic indications include intrinsic sphincteric deficiency or prior failed antiincontinence operation.

- 45–20.** A 46-year-old woman has recurrent stress urinary incontinence following Burch colposuspension. You are performing a pubovaginal sling with autologous rectus fascia. During upward dissection through the periurethral connective tissue and into the space of Retzius, brisk bleeding is encountered. What is the likely source?
- Obturator artery
 - Plexus of Santorini
 - External iliac vein
 - Aberrant obturator vein
- 45–21.** Which of the following statements regarding urethral bulking injection is correct?
- It requires general anesthesia.
 - Autologous fat is the most commonly used bulking agent.
 - Its success and cure rates for stress urinary incontinence are equivalent to those seen using midurethral slings.
 - None of the above
- 45–22.** A 74-year-old woman with a history of congestive heart failure, myocardial infarction, hypertension, and hyperlipidemia complains of bothersome stress urinary incontinence. She is deemed a poor candidate for elective surgery under general anesthesia, and she elects an office urethral bulking injection. She is counseled that all of the following are possible adverse events **EXCEPT**:
- Vaginitis
 - Acute cystitis
 - De novo urgency
 - Long-term urinary retention
- 45–23.** Which statement accurately describes transurethral needle placement and injection of a urethral bulking agent?
- A 14-gauge needle is used for bulking agent injection.
 - The bulking agent is injected at the level of the distal urethra.
 - The needle is initially directed at a 45-degree angle to the urethral lumen.
 - Generally, 7.5 to 10 mL of agent is used per procedure to satisfactorily coapt the mucosa.
- 45–24.** All of the following statements regarding urethrolysis are true **EXCEPT**:
- The usual indication is bladder hypotonia.
 - Antibiotic prophylaxis is generally given.
 - Performing preoperative urodynamic studies is appropriate.
 - It may be performed transvaginally or abdominally depending on the route of the original antiincontinence surgery.
- 45–25.** Symptoms of voiding dysfunction are prolonged and significant enough to require surgical release in what percentage of patients after a midurethral sling procedure?
- 0.1 to 0.3 percent
 - 1 to 3 percent
 - 10 to 13 percent
 - 20 to 23 percent
- 45–26.** Before midurethral sling release to improve voiding dysfunction, preoperative preparations and evaluations are usually completed. All of the following are appropriate measures **EXCEPT**:
- Urodynamic testing
 - Office cystourethroscopy
 - Trial of cholinergic agonist medication
 - Counseling regarding risk of incontinence recurrence
- 45–27.** Which of the following is **NOT** an approach to urethral diverticulum repair?
- Latzko vaginal repair
 - Spence marsupialization
 - Complete diverticulectomy
 - Partial diverticular ablation
- 45–28.** Which of the following modalities is preferred to delineate the configuration of complex urethral diverticula?
- Transvaginal sonography
 - Office cystourethroscopy
 - Magnetic resonance imaging
 - Voiding cystourethrography

45–29. A 33-year-old woman complains of bothersome postvoid dribble and dysuria. During examination, the mass shown in Figure A is found, and with its compression, pus extrudes from the urethra. Subsequent imaging is shown in Figure B. During a discussion of surgical repair, all of the following are appropriate risks to list **EXCEPT**:



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- a. Urethrovaginal fistula formation
- b. Postoperative urinary incontinence
- c. Recurrence rate of 30 to 50 percent
- d. Urethral stricture with urinary retention

45–30. All of the following are true regarding urethral diverticulectomy **EXCEPT**:

- a. During dissection, entry into the diverticular sac jeopardizes repair success.
- b. A urethral defect is best closed with interrupted, 4-0 gauge, delayed-absorbable sutures.
- c. The fibromuscular layer of the vagina and urethra overlying the diverticular sac may be incised either longitudinally or transversely.
- d. After the sac's excision and urethral defect closure, fibromuscular layers are reapproximated without tension in two or more layers.

45–31. In the United States, most vesicovaginal fistulas are associated with which of the following?

- a. Obstetric trauma
- b. Pelvic radiation therapy
- c. Prior hysterectomy for benign causes
- d. Hysterectomy related to gynecologic malignancy

45–32. Which statement accurately describes a characteristic unique to the Latzko technique of vesicovaginal fistula repair?

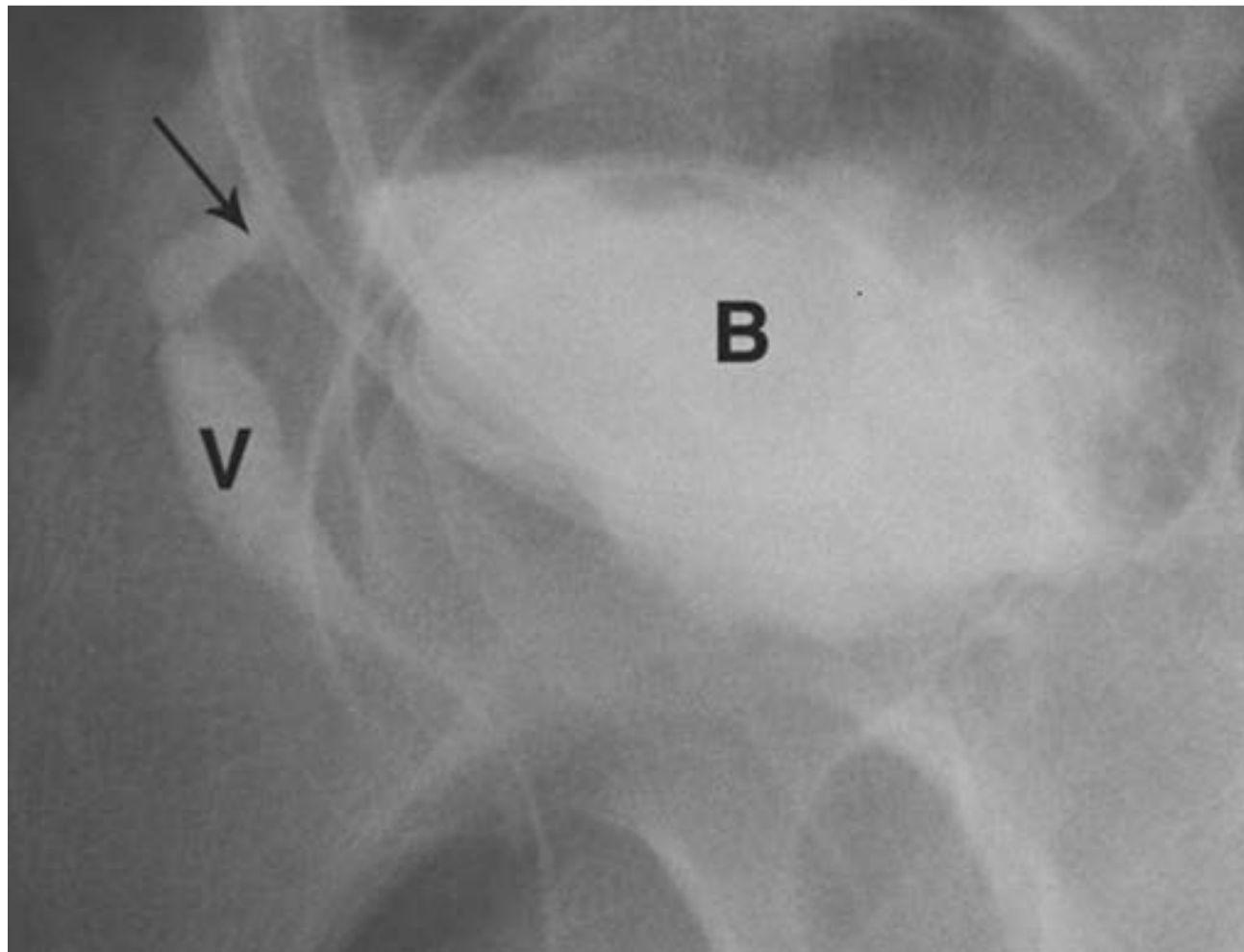
- a. Requires bisection of the bladder wall to enter the fistulous tract
- b. Provides excellent visualization of the fistula by nature of its transabdominal approach
- c. Avoids a larger bladder defect by not excising the fistulous tract into the bladder
- d. Is enhanced by mobilizing either the omentum or peritoneum to interpose between the bladder and the vagina

45–33. Which of the following findings may raise concern for possible ureter involvement with a vesicovaginal fistula?

- a. Fistula is located in the middle third of the anterior vagina.
- b. Fistula is located in the lateral portion of the anterior vagina.
- c. Hydroureteronephrosis is identified during computed-tomography urography.
- d. All of the above

- 45–34.** Regarding the timing of vesicovaginal fistula repair identified after hysterectomy, which statement is correct?
- Surrounding tissue infection or inflammation must be absent.
 - Repair may be completed within the first few days after surgery.
 - Repair may be delayed 4 to 6 weeks after the initial surgery.
 - All of the above

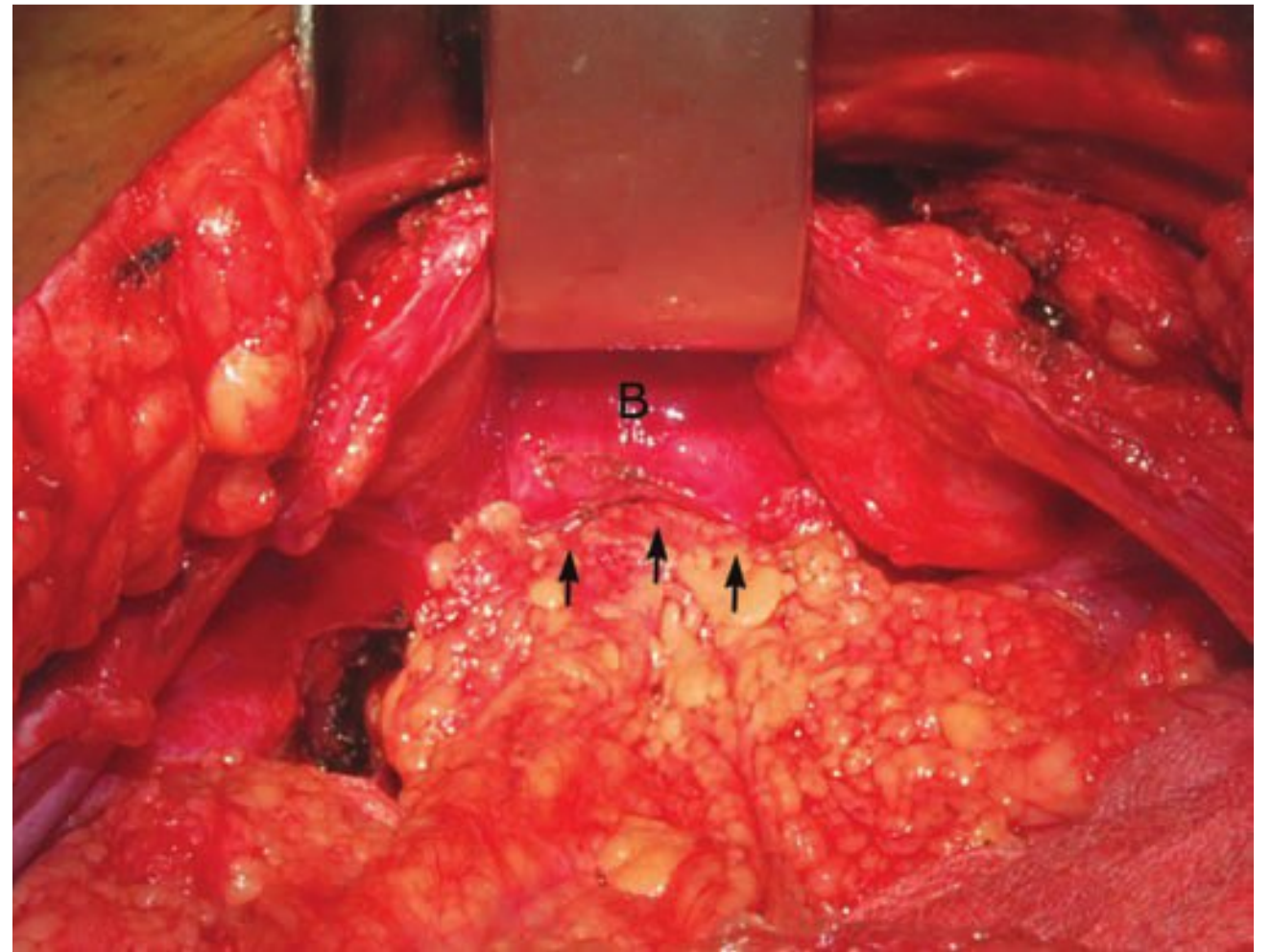
- 45–35.** Which of the following surgical steps are recommended during transvaginal repair of the fistula demonstrated here?



Arrow = fistula; B = bladder; V = vagina. Used with permission from Dr. Clifford Wai.

- Perform cystoscopy to demonstrate ureteral patency
- Place ureteral stents if ureters are adjacent to the fistula
- Place a pediatric urethral catheter through the fistulous opening
- All of the above

- 45–36.** A 58-year-old woman complains of urinary leakage from a large vesicovaginal fistula remote from hysterectomy and adjuvant radiotherapy for gynecologic cancer. Interposition of omentum between the bladder and vagina is shown here by the arrows and was performed at the time of laparotomy following fistula repair. Which of the following is the main goal of this interposition?

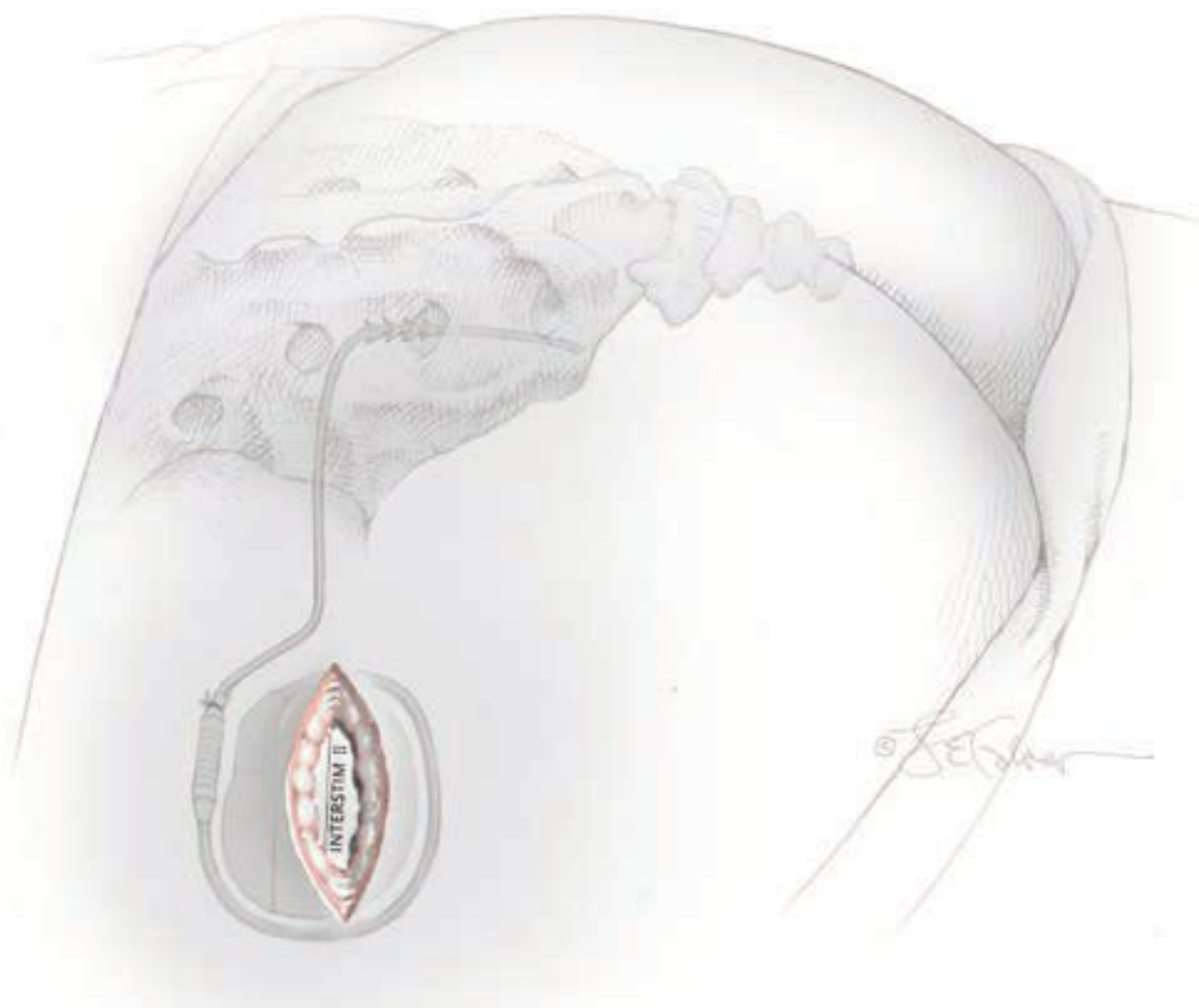


B = bladder. Used with permission from Dr. Todd Boren.

- Augment bladder detrusor contractility
 - Provide supplemental blood supply to aid tissue healing
 - Provide physical barrier to lower cancer reinvasion risk
 - Improve vaginal mobility for postoperative coitus
- 45–37.** Your patient has a vesicovaginal fistula that resulted from prior radiation therapy, and vaginal tissues are fibrotic. During its transvaginal repair, which of the following techniques is the most appropriate to consider?
- Inject a fibrin sealant via the cystoscope
 - Use a vascular graft such as the bulbocavernosus fat pad
 - Minimize approximation of the vaginal fibromuscular layer
 - Create a suture line with increased tension along its length using absorbable suture

- 45–38.** Which of the following surgical steps for a Martius bulbocavernosus fat pad flap creation is correct?
- For urethrovaginal fistula repair augmentation, the base of the pad is maintained superiorly.
 - In most cases, a 2- to 3-cm skin incision along the labium majus length is sufficient to raise the flap.
 - The tunnel through which the graft travels should be relatively tight to avoid potential space for hematoma formation.
 - For vesicovaginal fistula repair augmentation, the graft is secured to the vaginal muscularis over the fistula repair with one or two stitches of permanent suture.
- 45–39.** With initial needle placement during sacral neuromodulation, which foramina is targeted?
- S1
 - S2
 - S3
 - S4
- 45–40.** This implantable device is appropriate for all of the following indications **EXCEPT**:

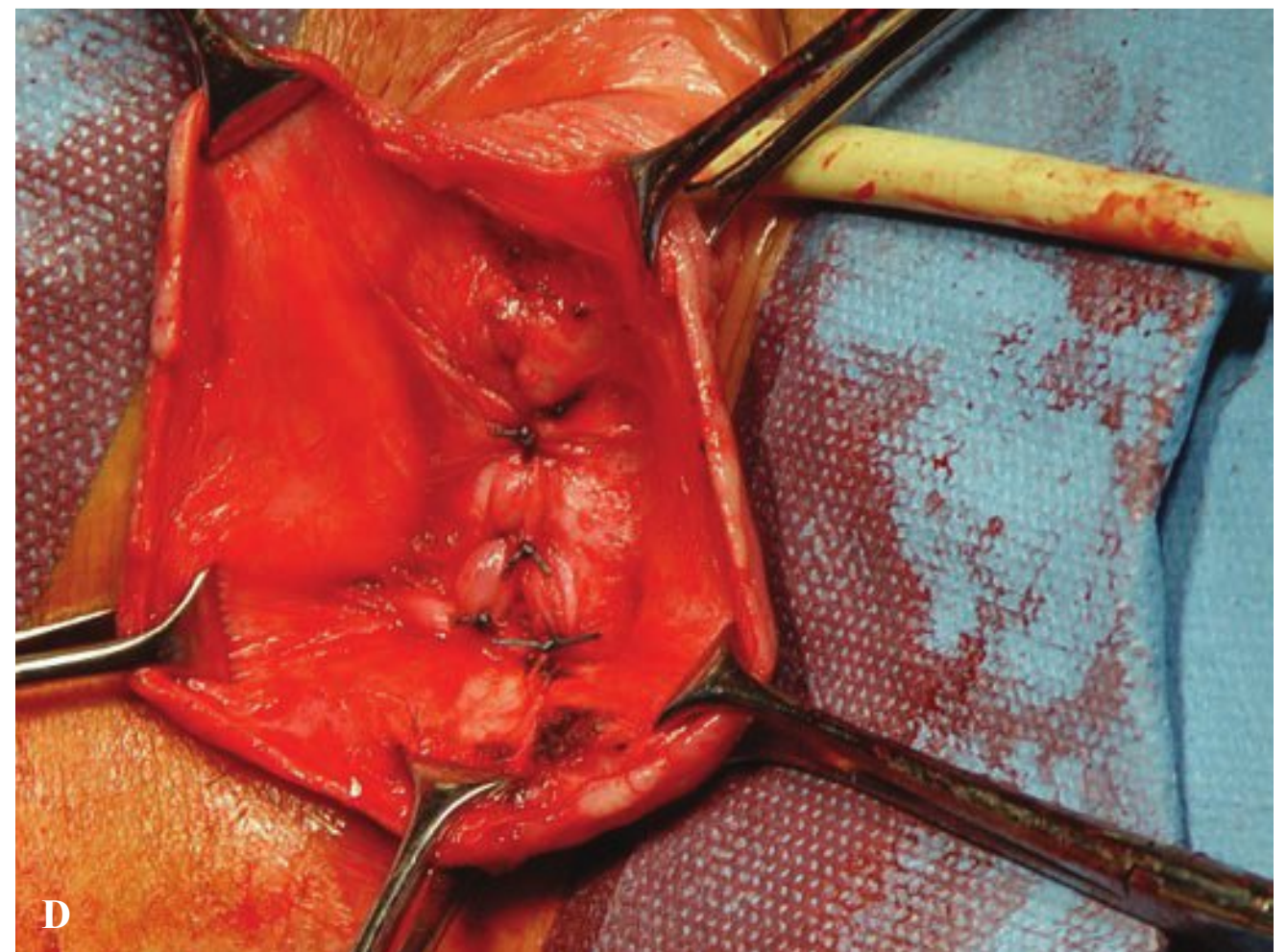
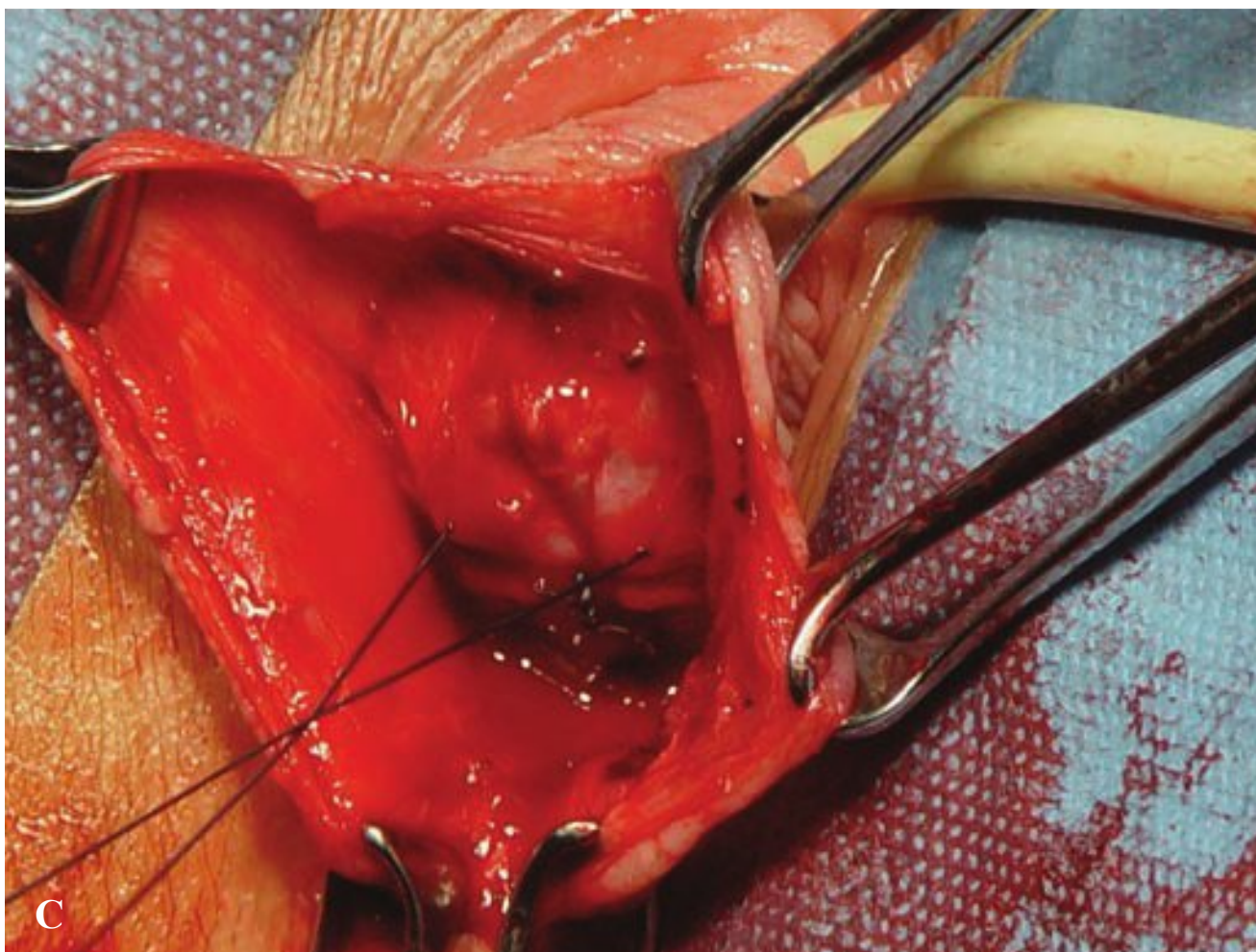
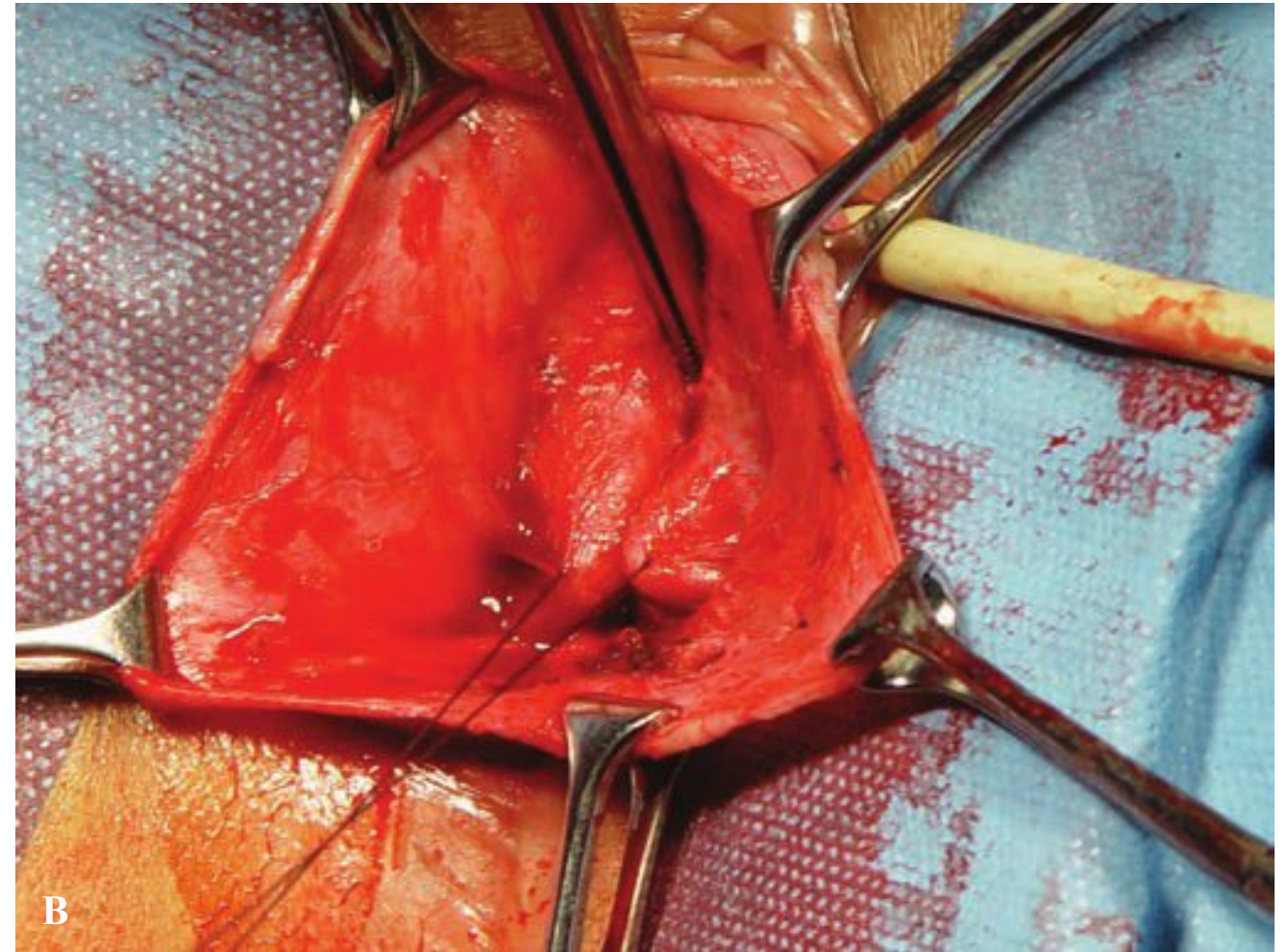
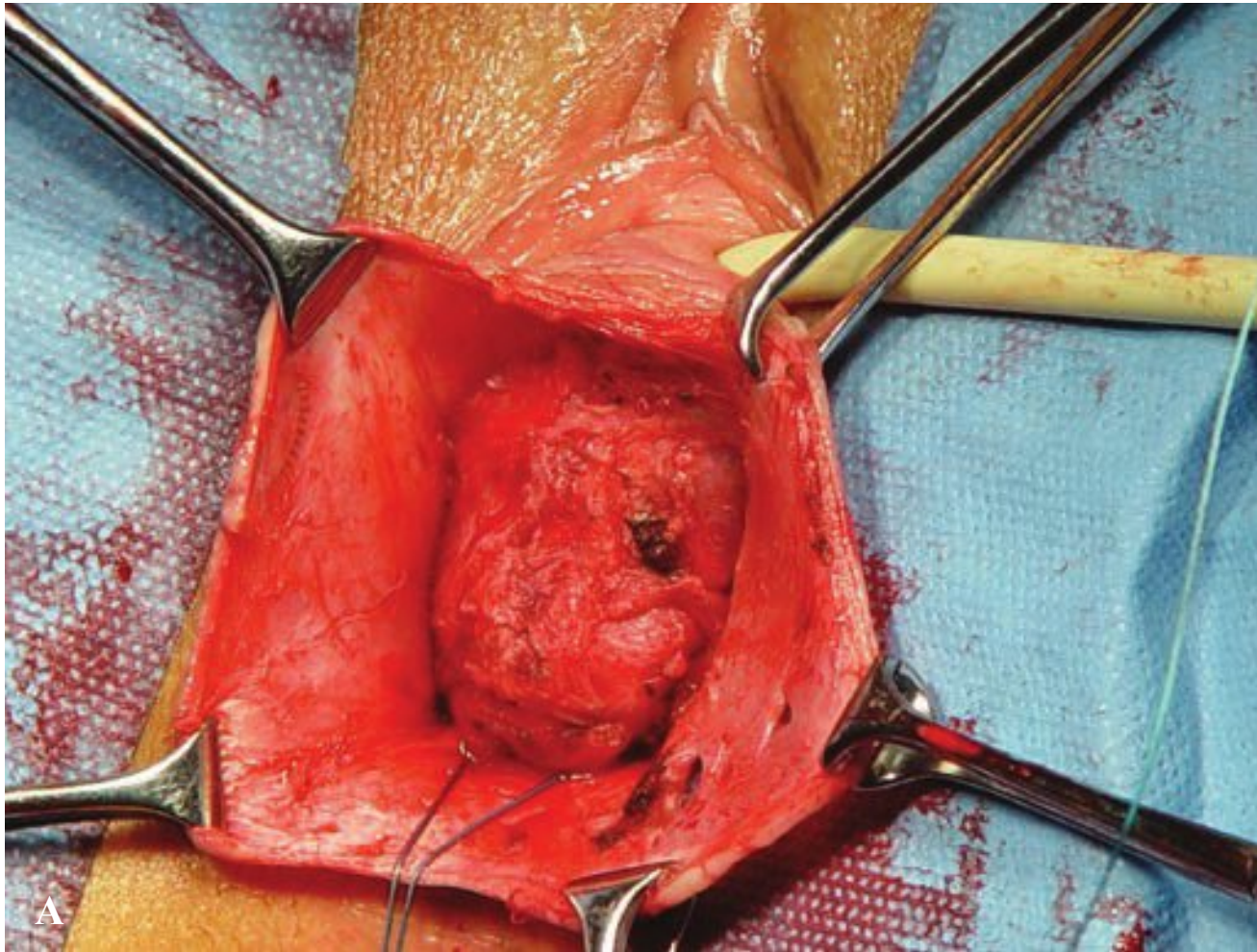
- 45–41.** A 45-year-old woman complains of urgency urinary incontinence that is refractory to numerous anticholinergic medications and elects sacral neuromodulation. Which of the following procedural techniques is correct?
- To pass through the sacral foramina, the foramen needle is oriented perpendicular to the skin.
 - The foramen needle enters the skin about 3 cm cephalad to the coccyx and 5 cm lateral to the midline.
 - The foramen needle is passed through the foramina so that its tip lies less than 1 cm beneath the sacral bone.
 - With electrical test impulses, correct needle positioning will be indicated by a “bellows” movement of the levator ani muscles and by plantar flexion of the great toe.



Reproduced with permission from Schaffer JI, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 45-12.5.

- Urinary urgency
- Fecal incontinence
- Urge urinary incontinence
- Obstructive urinary retention

45–42. What is the key reason to consider preoperative urodynamic testing for a continent woman planning the anterior vaginal wall surgery pictured here?



- a. To predict those at highest risk for prolapse recurrence
- b. To minimize the high risk of ureteral entrapment, which is associated with this procedure
- c. To identify women with “occult” incontinence to permit consideration of a concomitant antiincontinence procedure
- d. None of the above

45–43. During vaginal paravaginal defect repair, lateral dissection is taken to the arcus tendineus fascia pelvis (ATFP). If the ATFP is attenuated or indistinct, sutures are instead anchored in the fascia of which of the following muscles?

- a. Iliococcygeus
- b. Pubococcygeus
- c. Obturator internus
- d. Obturator externus

45–44. Which of the following statements regarding the abdominal paravaginal defect repair is true?

- a. It provides support to the distal anterior vagina.
- b. It is an effective treatment for stress urinary incontinence.
- c. It is useful for correction of midline defects in the anterior vaginal wall.
- d. It is commonly performed in conjunction with Burch colposuspension or other retro pubic urethropexy.

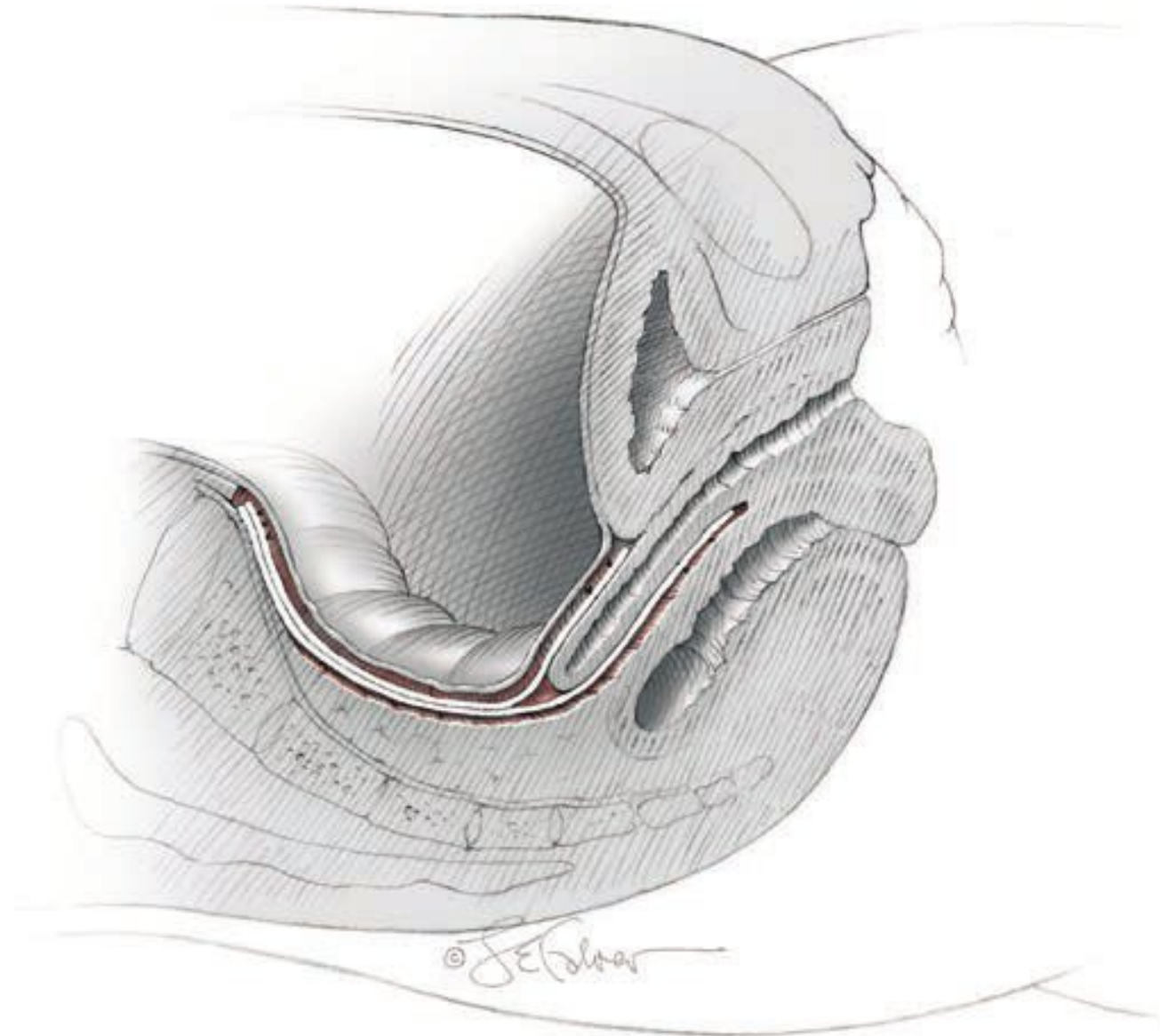
- 45–45.** To defecate, especially when constipated, this woman must manually reduce the bulge seen here. She does this by inserting fingers into her vagina. Which of the following statements regarding the procedure used to correct this defect is correct?



Used with permission from Dr. Marlene Corton.

- a.** Concomitant perineorrhaphy is rarely necessary.
 - b.** The risk of ureteral entrapment or injury is great.
 - c.** Correction of the bulge should reliably improve her constipation.
 - d.** Plication sutures placed too far laterally can lead to dyspareunia.
- 45–46.** During posterior colporrhaphy, which of the following techniques, compared with traditional midline plication, provides superior objective outcomes?
- a.** Levator myorrhaphy
 - b.** Site-specific repair
 - c.** Augmentation with biologic or synthetic graft
 - d.** None of the above
- 45–47.** Which two muscles are targeted for midline reapproximation during perineorrhaphy?
- a.** Bulbospongiosus and pubococcygeus
 - b.** Ischiocavernosus and pubococcygeus
 - c.** Bulbospongiosus and superficial transverse perineal
 - d.** Ischiocavernosus and superficial transverse perineal

- 45–48.** Compared with traditional restorative transvaginal procedures to correct apical vaginal prolapse, which of the following is true regarding the abdominal route pictured here?



Reproduced with permission from Schaffer JJ, Corton MM, Hoffman BL: Surgeries for female pelvic reconstruction. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 45-17-7.

- a.** Has a higher risk of failure
 - b.** Tends to shorten the vaginal length
 - c.** Creates a mobile vaginal apex, thereby possibly decreasing the risk of dyspareunia
 - d.** Should only be used for recurrent prolapse after other failed prolapse surgeries
- 45–49.** Which of the following describes the best graft material for most women undergoing abdominal sacrocolpopexy?
- a.** Cadaveric fascia
 - b.** Monofilament synthetic mesh with large pore size
 - c.** Multifilament synthetic mesh with small pore size
 - d.** Autologous fascia such as fascia lata or rectus fascia
- 45–50.** During abdominal sacrocolpopexy, which three nearby structures are at greatest risk for injury during midline dissection at the sacral promontory within the presacral space?
- a.** Aortic bifurcation, right internal iliac artery, right ureter
 - b.** Left ureter, right common iliac artery, left common iliac vein
 - c.** Right ureter, right common iliac artery, left common iliac vein
 - d.** Right ureter, right common iliac artery, right common iliac vein

- 45–51.** During laparoscopic sacrocolpopexy, an endoscope with which degree of lens generally provides optimal viewing of the anterior surface of S1?
- 0 degree
 - 30 degree
 - 70 degree
 - 90 degree
- 45–52.** Risks associated with vaginal uterosacral ligament suspension may include which of the following?
- Ureteral kinking and injury
 - Nerve injury and subsequent neuropathy
 - Shortening and fixation of the upper vagina leading to postoperative dyspareunia
 - All of the above
- 45–53.** A 64-year-old woman presents with uterovaginal prolapse and a cystocele. You perform a vaginal hysterectomy and a transvaginal uterosacral ligament suspension. After you tie down the six vault suspension sutures (three on each side), cystoscopic evaluation reveals normal ureteral efflux from the right orifice but no efflux from the left orifice. Which suture most likely is to blame for the ureteral obstruction?
- Left-sided, distal suspension suture
 - Left-sided, middle suspension suture
 - Left-sided, proximal suspension suture
 - None of these. A stitch from the hysterectomy is more likely.
- 45–54.** Which of the following is true of the sacrospinous ligament fixation procedure?
- May ultimately result in recurrent or de novo anterior compartment prolapse
 - May lead to hemorrhage due to laceration of vessels within the plexus of Santorini
 - Has a substantially higher anatomic success rate compared with uterosacral ligament suspension
 - Has a longer operating time and more prolonged recovery compared with abdominal sacrocolpopexy
- 45–55.** Which three arteries most likely could be the cause of extensive bleeding during sacrospinous ligament fixation?
- Middle rectal, internal pudendal, inferior gluteal
 - Middle rectal, internal pudendal, superior gluteal
 - Superior rectal, external pudendal, inferior gluteal
 - Superior rectal, external pudendal, superior gluteal
- 45–56.** Which of these statements regarding obliteration of the cul-de-sac of Douglas is correct?
- These procedures are used to address cystoceles.
 - Both the Moschcowitz and Halban approaches may be associated with ureteral kinking and injury.
 - These transabdominal procedures are increasing in popularity due to their effective correction of apical prolapse.
 - McCall culdoplasty is preferred to uterosacral or sacrospinous ligament fixation for addressing significant vaginal apical prolapse.
- 45–57.** All of the following procedures are commonly performed concomitantly with Lefort partial colpocleisis **EXCEPT**:
- Cystoscopy
 - Perineorrhaphy
 - Vaginal hysterectomy
 - Antiincontinence procedure
- 45–58.** Lefort colpocleisis is contraindicated in which of the following patients?
- Those with unexplained vaginal bleeding
 - Those without a normal, recent Pap smear
 - Those desiring future vaginal intercourse
 - All of the above
- 45–59.** Which of the following statements regarding anal sphincteroplasty is correct?
- Wound complications are rare.
 - Muscle fibers may be identified using a nerve stimulator.
 - Long-term continence rates to solid and liquid stool are excellent and approximate 80 percent.
 - A primary goal is repair of the external anal sphincter muscle to reestablish anal canal resting tone.

- 45–60.** The woman with the defect shown here complains of passing flatus and stool from her vagina. All of the following are appropriate perioperative interventions **EXCEPT**:



Used with permission from Dr. Clifford Wai.

- a.** Preoperative bowel preparation
- b.** Delaying defecation for several days postprocedure
- c.** Avoiding constipation with liberal use of stool softeners postprocedure
- d.** Antibiotic prophylaxis beginning 3 days before the reparative procedure

Chapter 45 ANSWER KEY

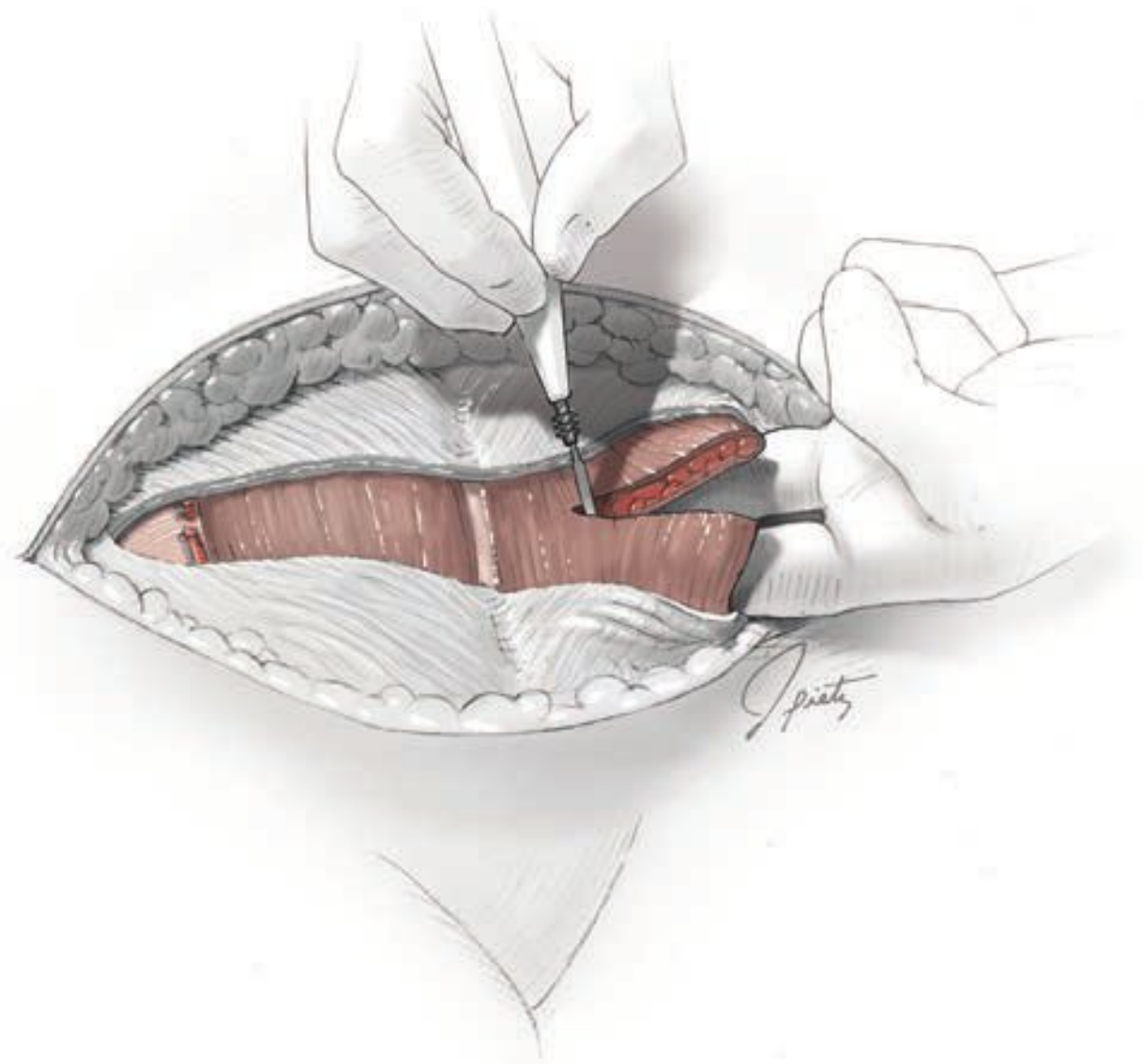
Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
45-1	b	p. 1057	Diagnostic and Operative Cystoscopy and Urethroscopy	45-30	a	p. 1075	Surgical Steps-Diverticulectomy
45-2	a	p. 1057	Diagnostic and Operative Cystoscopy and Urethroscopy	45-31	c	p. 1078	Vesicovaginal Fistula Repair
45-3	c	p. 1057	Diagnostic and Operative Cystoscopy and Urethroscopy	45-32	c	p. 1078	Vesicovaginal Fistula Repair
45-4	d	p. 1058	Bladder Inspection	45-33	d	p. 1078	Patient Evaluation
45-5	c	p. 1059	To Exclude Ureteral Obstruction	45-34	d	p. 1078	Patient Evaluation
45-6	a	p. 1059	To Exclude Ureteral Obstruction	45-35	d	p. 1078	Surgical Steps-Vaginal Repair
45-7	c	p. 1060	Suprapubic Teloscopy	45-36	b	p. 1079	Surgical Steps-Abdominal Repair
45-8	a	p. 1061	Burch Colposuspension	45-37	b	p. 1083	Martius Bulbocavernosus Fat Pad Flap
45-9	c	p. 1061	Entry into the Space of Retzius	45-38	a	p. 1083	Patient Evaluation
45-10	d	p. 1062	Suture Placement	45-39	c	p. 1085	Sacral Neuromodulation
45-11	a	p. 1062	Catheterization	45-40	d	p. 1085	Sacral Neuromodulation
45-12	a	p. 1063	Tension-Free Vaginal Tape	45-41	d	p. 1085	Identification of S3 Foramina
45-13	c	p. 1063	Tension-Free Vaginal Tape	45-42	c	p. 1085	Patient Evaluation
45-14	b	p. 1063	Patient Evaluation	45-43	c	p. 1089	Vaginal Paravaginal Defect Repair
45-15	b	p. 1063	Anesthesia and Patient Positioning	45-44	d	p. 1091	Abdominal Paravaginal Defect Repair
45-16	b	p. 1064	Cystourethroscopy	45-45	d	p. 1093	Posterior Colporrhaphy
45-17	c	p. 1066	Transobturator Tape Sling	45-46	d	p. 1093	Posterior Colporrhaphy
45-18	c	p. 1066	Thigh Incisions	45-47	c	p. 1096	Suture Placement
45-19	d	p. 1068	Pubovaginal Sling	45-48	c	p. 1098	Abdominal Sacrocolpopexy
45-20	b	p. 1068	Vaginal Incision	45-49	b	p. 1098	Instruments and Materials
45-21	d	p. 1070	Urethral Bulking Injections	45-50	c	p. 1099	Identification of Pelvic Anatomy
45-22	d	p. 1070	Consent	45-51	b	p. 1099	Sacral Suture Site Selection
45-23	c	p. 1070	Transurethral Approach to Needle Placement	45-52	d	p. 1107	Vaginal Uterosacral Ligament Suspension
45-24	a	p. 1072	Urethrolisis	45-53	a	p. 1108	Cystoscopy
45-25	b	p. 1074	Midurethral Sling Release	45-54	a	p. 1112	Sacrospinous Ligament Fixation
45-26	c	p. 1074	Patient Evaluation and Preparation	45-55	a	p. 1112	Consent
45-27	a	p. 1075	Urethral Diverticulum Repair	45-56	b	p. 1116	McCall Culdoplasty and Abdominal Culdoplasty
45-28	c	p. 1075	Patient Evaluation	1118			Procedures
45-29	c	p. 1075	Consent	45-57	c	p. 1120	Colpocleisis
				45-58	d	p. 1120	Colpocleisis
				45-59	b	p. 1125	Anal Sphincteroplasty
				45-60	d	p. 1125	Patient Preparation

CHAPTER 46

Surgeries for Gynecologic Malignancies

- 46-1.** What is the most common complication of a radical abdominal hysterectomy and pelvic lymph node dissection?
- Lymphocele
 - Constipation
 - Ureterovaginal fistula
 - Intraoperative hemorrhage
- 46-2.** Which of the following is not a boundary of the para-rectal space?
- Sacrum
 - Cardinal ligament
 - External iliac artery
 - Internal iliac artery
- 46-3.** All of the following statements regarding ovarian transposition are correct **EXCEPT**:
- The ovary is transposed to the pelvic brim.
 - It is only performed in premenopausal women.
 - It is performed to move the ovary out of the radiation field.
 - The ovary is marked with a clip for future identification on radiographic studies.
- 46-4.** All of the following statements regarding type II radical hysterectomy are correct **EXCEPT**:
- Postoperative bladder dysfunction is uncommon.
 - The uterine vessels are ligated at their origin.
 - The most common indication is stage IA2 cervical cancer.
 - Less vaginal tissue is removed compared with a type III radical hysterectomy.
- 46-5.** Which of the following does **NOT** differ between a radical abdominal hysterectomy and a modified radical hysterectomy?
- Location at which the uterine artery is divided
 - Location at which the round ligament is divided
 - Location at which the cardinal ligament is divided
 - Location at which the uterosacral ligament is divided
- 46-6.** For radical hysterectomy, which of the following is **NOT** an advantage of laparoscopy compared with laparotomy?
- Less blood loss
 - Shorter procedure
 - Shorter hospital stay
 - Less postoperative pain
- 46-7.** What steps can be taken during laparoscopic entry to minimize trocar puncture injuries?
- Place a Foley catheter
 - Avoid Trendelenburg position
 - Place a nasogastric or orogastric tube
 - All of the above
- 46-8.** What is the first step of radical hysterectomy?
- Open the paravesical and para-rectal spaces
 - Divide the uteroovarian ligaments if ovarian preservation is planned
 - Dissect the ureters from the peritoneum to the level of the uterine arteries
 - Open the rectovaginal septum and dissect the rectum off the posterior aspect of the vagina
- 46-9.** What is the most common indication for performing total pelvic exenteration?
- Recurrent vulvar cancer
 - Stage IVA cervical cancer
 - Recurrent endometrial cancer
 - Centrally recurrent cervical cancer
- 46-10.** What is the approximate risk of cancer recurrence after total pelvic exenteration?
- 0.5 percent
 - 5 percent
 - 25 percent
 - 50 percent

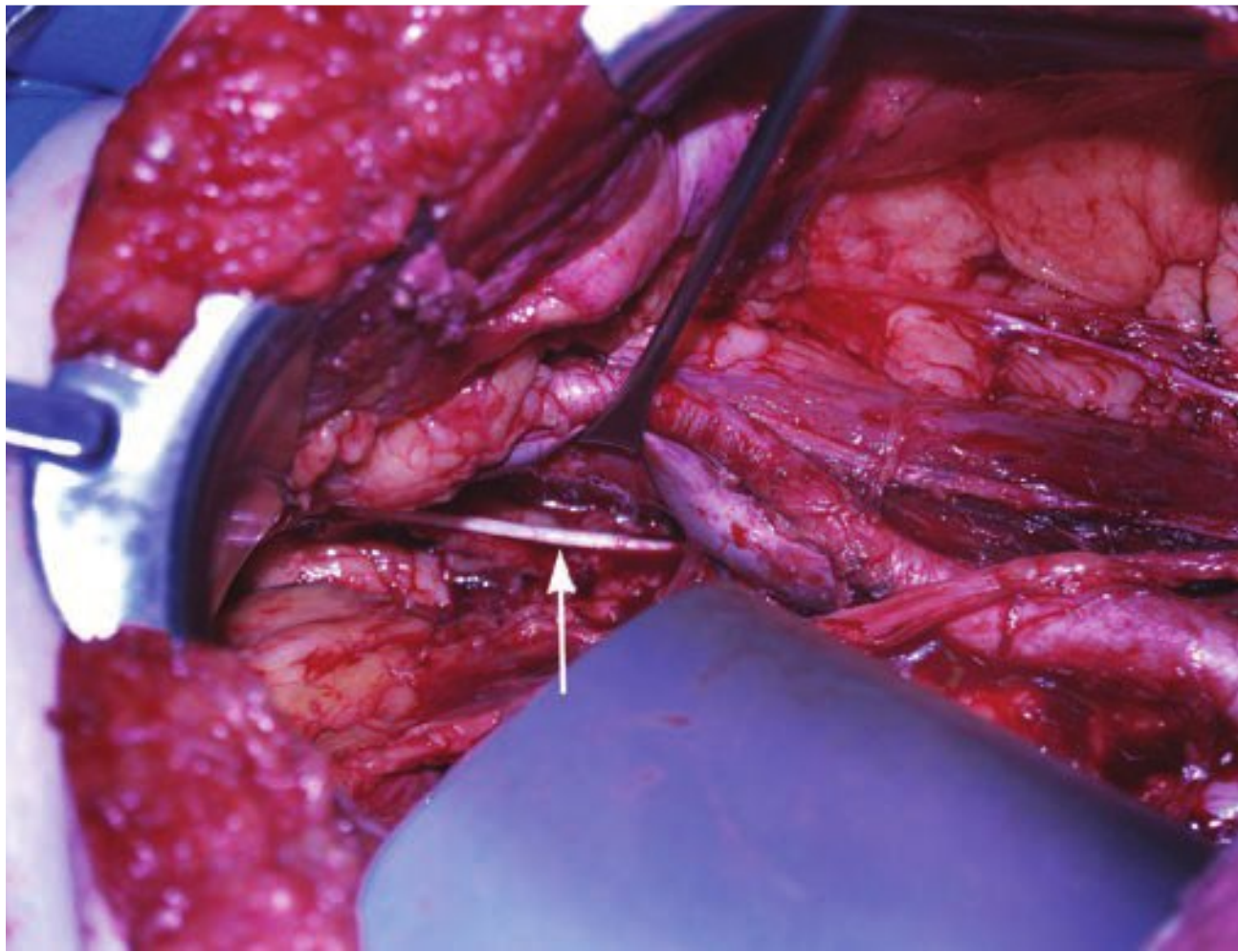
- 46–11.** What is the most common reason for aborting an exenteration operation?
- Peritoneal metastases
 - Paraaortic lymph node metastases
 - Sidewall involvement with cancer
 - Parametrial involvement with cancer
- 46–12.** In women who have had prior chemoradiation to the pelvis, which of the following would not be an appropriate candidate for anterior exenteration?
- A 42-year-old woman with biopsy-confirmed recurrent squamous cell carcinoma involving the bladder
 - A 55-year-old woman with recurrent squamous cell carcinoma involving the anterior vagina wall
 - A 53-year-old woman with recurrent adenocarcinoma of the cervix involving the anterior vaginal wall
 - A 47-year-old woman who previously underwent radical hysterectomy and now has centrally recurrent squamous cell carcinoma of the cervix
- 46–13.** Approximately what percentage of exenterations in gynecologic oncology are posterior exenterations?
- < 10 percent
 - < 30 percent
 - < 55 percent
 - < 70 percent
- 46–14.** In addition to the typical complications seen with pelvic exenteration, which complication has an increased rate following posterior pelvic exenteration?
- Vesicovaginal fistula
 - Enterovaginal fistula
 - Urinary tract infection
 - Intractable urinary incontinence
- 46–15.** Which of the following is a possible complication of an incontinent urinary conduit?
- Anastomotic leak
 - Small bowel obstruction
 - Urinary tract infection
 - All of the above
- 46–16.** Which of the following may be the preferred segment of bowel to use for an incontinent conduit in a previously irradiated patient?
- Ileum
 - Jejunum
 - Sigmoid colon
 - Transverse colon
- 46–17.** Which of the following is the most common indication for a continent conduit among gynecologic oncology patients?
- Vesicovaginal fistula
 - Total pelvic exenteration
 - Intractable urinary incontinence
 - Stage IVA cervical cancer with bladder involvement
- 46–18.** All of the following statements regarding continent urinary conduits are correct **EXCEPT**:
- Young, motivated women are ideal candidates for this surgery.
 - Approximately 10 percent of patients will require surgical revision.
 - A Miami pouch is constructed from the cecum and the ascending colon.
 - Complications are common and include pyelonephritis, urinary strictures, and difficulty with catheterization.
- 46–19.** Which of the following faps cannot be performed in a patient with a history of a prior Maylard incision, which is shown here?



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- Rhomboid f ap
- Gracilis myocutaneous f ap
- Rectus abdominis myocutaneous f ap
- Pudendal thigh fasciocutaneous f ap

46–20. What is the structure identified by the arrow? It is the dorsal border of pelvic lymph node dissection.



- a. Obturator vein
- b. Obturator nerve
- c. Obturator artery
- d. Genitofemoral nerve

46–21. If the obturator nerve is transected, how should it be repaired?

- a. Epineural repair
- b. Perineural repair
- c. Fascicular repair
- d. None of the above

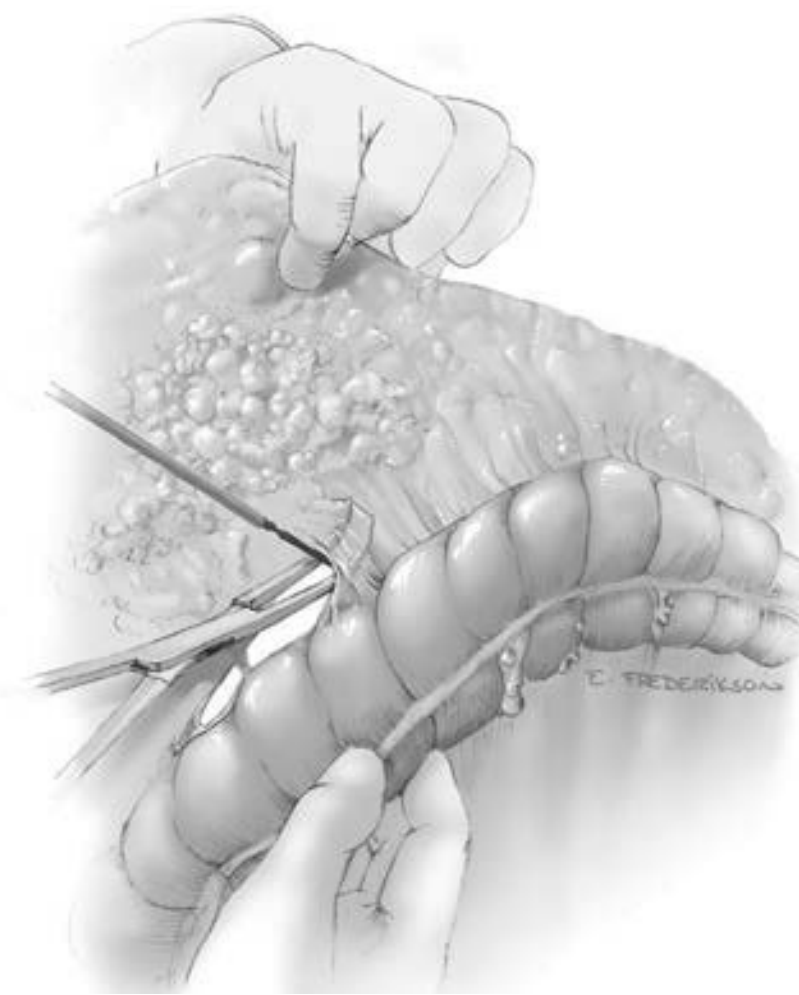
46–22. Which of the following is the superior border in a high paraaortic lymphadenectomy?

- a. Duodenum
- b. Renal vein
- c. Bifurcation of aorta
- d. Inferior mesenteric artery

46–23. Which of the following is the most common complication from minimally invasive cancer staging?

- a. Ileus
- b. Ureteral injury
- c. Port-site metastasis
- d. Intraoperative hemorrhage

46–24. Which of the following is **NOT** an indication for omentectomy?



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- a. Clinical stage I ovarian cancer
- b. Advanced ovarian cancer with omental involvement
- c. Papillary serous endometrial cancer clinically confined to the uterus
- d. Grade I endometrioid adenocarcinoma of the uterus clinically confined to the uterus

46–25. Which of the following is a major but uncommon complication after en bloc resection with rectosigmoid anastomosis?

- a. Ileus
- b. Wound cellulitis
- c. Anastomotic leak
- d. Urinary tract infection

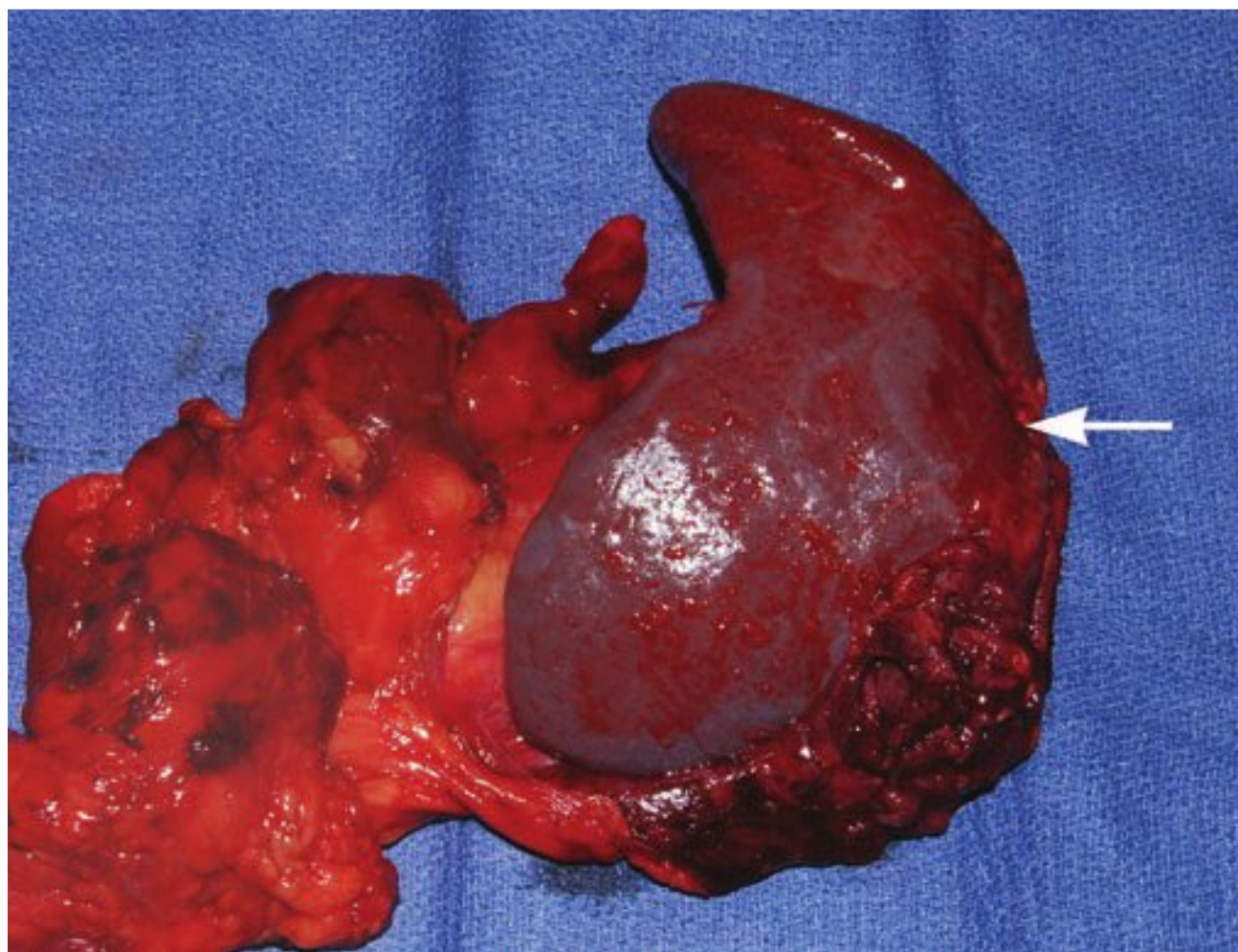
46–26. The purpose of a postoperative nasogastric tube after complete omentectomy is to reduce rates of which of the following?

- a. Ileus
- b. Postoperative wound dehiscence
- c. Postoperative nausea and vomiting
- d. Bleeding from the gastric vessels

46–27. In patients who undergo distal pancreatectomy concurrently with splenectomy during tumor debulking, approximately what percentage develops a postoperative pancreatic leak?

- a. 0.05 percent
- b. 1 percent
- c. 15 percent
- d. 25 percent

46–28. This organ (*arrow*) was removed with the omentum during cancer debulking surgery. Which of the following vaccines does not need to be administered postoperatively?



Used with permission from Dr. Jennifer Prats.

- a. Pneumococcal
- b. Meningococcal
- c. Varicella zoster
- d. *Haemophilus influenzae* type B

46–29. A 55-year-old woman undergoes exploratory laparotomy for advanced ovarian cancer. A thick diaphragmatic plaque on the right side is noted. Her cancer is deemed resectable. What is the best method for managing her diaphragmatic disease?

- a. Perform peritoneal stripping
- b. Ablate the diaphragm using an argon beam coagulator
- c. Ablate the diaphragm using a cavitron ultrasonic surgical aspirator (CUSA)
- d. All are equally advantageous.

46–30. All of the following statements regarding diaphragm resection for ovarian cancer are correct **EXCEPT**:

- a. Chest tubes are typically required.
- b. The use of grafts for repair is uncommon.
- c. Pleural effusion is a common complication.
- d. In the setting of optimal debulking, it improves survival rates.

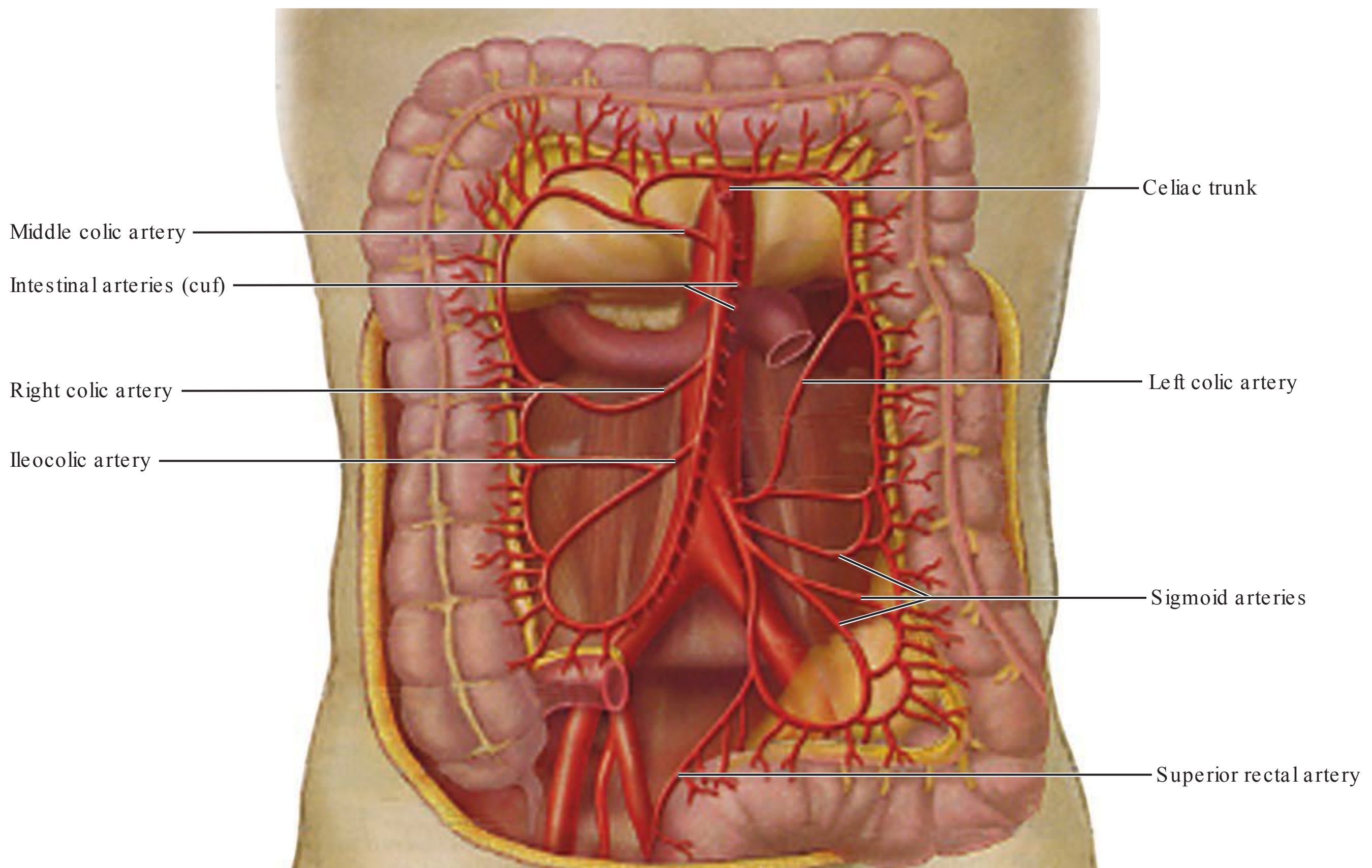
46–31. You are performing an end colostomy for severe radiation proctitis and have mobilized the splenic flexure. You recognize that the bowel is under tension when you bring it through your ostomy incision. What is the most appropriate management at this point?

- a. Trim the mesentery
- b. Perform an ileostomy
- c. Choose another ostomy site
- d. Resect additional bowel and use this more proximal bowel for the ostomy

46–32. When is a loop colostomy **NOT** recommended?

- a. To protect a low rectal anastomosis after ovarian cancer debulking
- b. To treat a colonic perforation during chemotherapy for ovarian cancer
- c. To treat a large-bowel obstruction in the setting of recurrent cervical cancer
- d. To treat a rectovaginal fistula after chemoradiation for cervical cancer in a woman with no evidence of disease

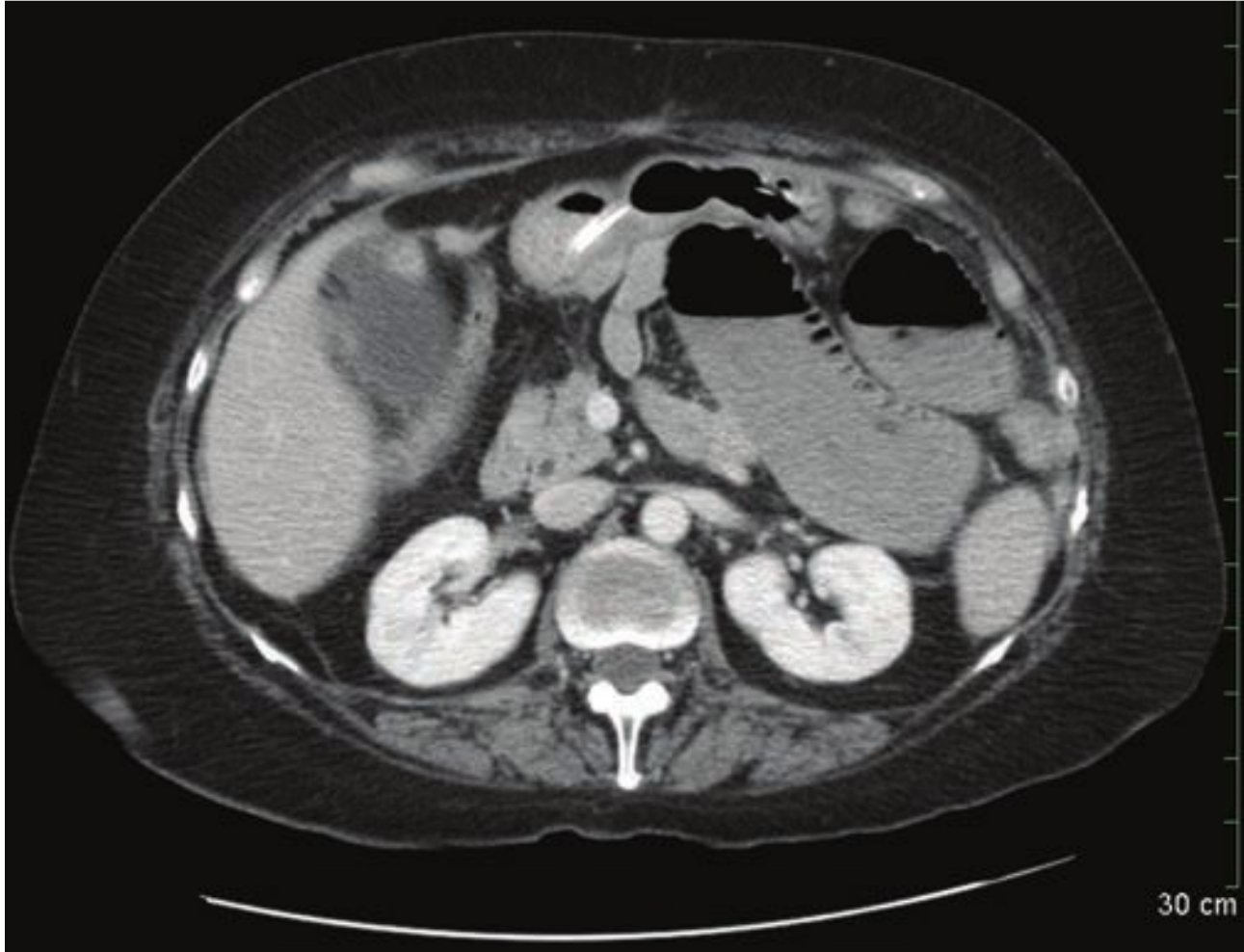
- 46–33.** Which of the following bowel segments is **NOT** directly supplied by a branch of the superior mesenteric artery?



Modified with permission from McKinley M, O'Loughlin VD (eds): Vessels and circulation. In Human Anatomy. New York, McGraw-Hill, 2006, Figure 23-15.

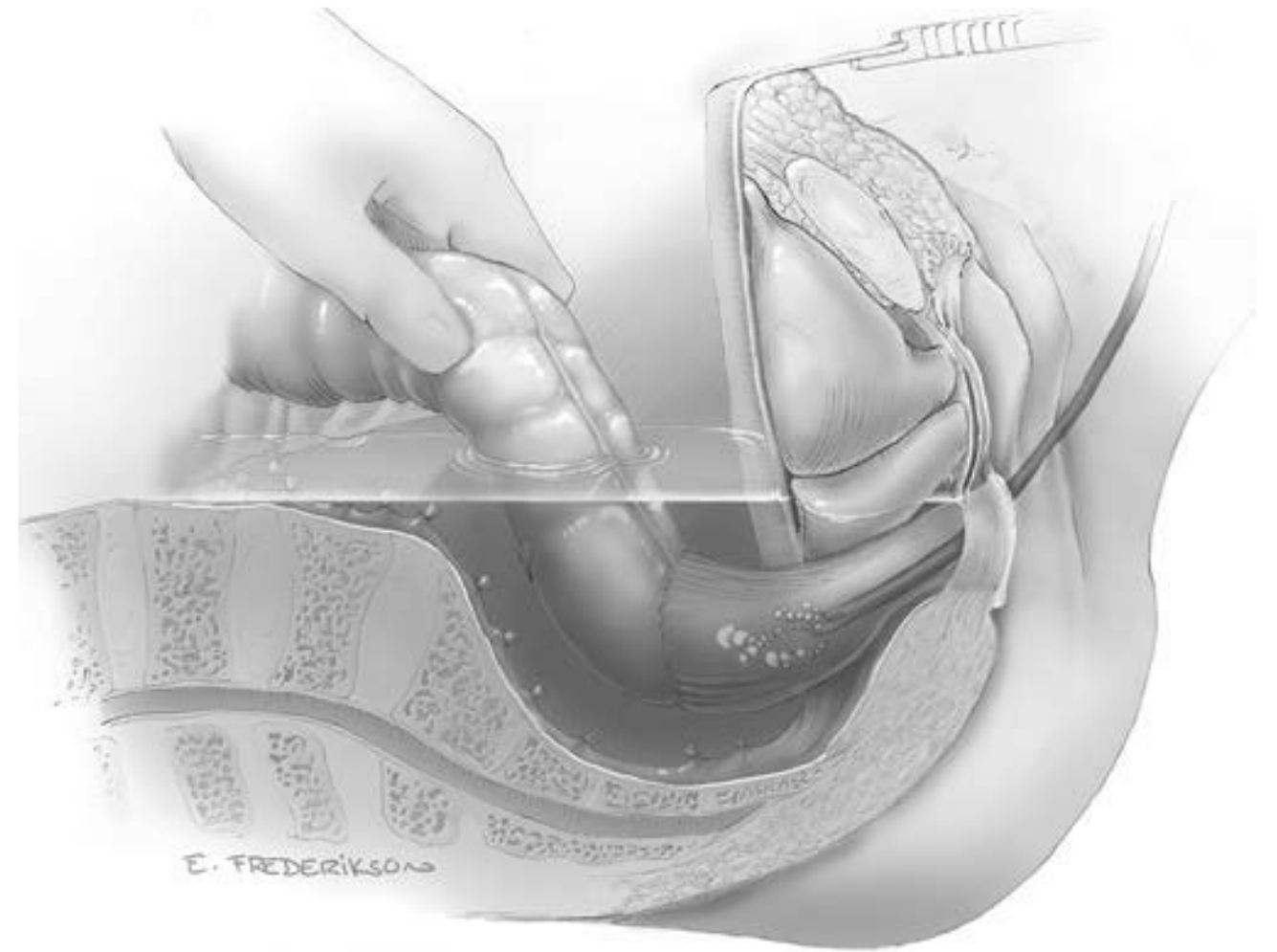
- a.** Cecum
b. Ascending colon
c. Transverse colon
d. Descending colon
- 46–34.** Why is the mesenteric defect repaired after large-bowel resection?
- a.** To maintain hemostasis
b. To prevent an internal hernia
c. To protect the blood supply to the bowel
d. All of the above
- 46–35.** A 60-year-old woman is postoperative day 7 from an ovarian cancer debulking surgery that included a right hemicolectomy. She is febrile, has an elevated white blood cell count, and has abdominal tenderness. Computed tomography images show an anastomotic leak. What is the most appropriate management?
- a.** Antibiotics alone
b. Antibiotics and drain placement
c. Exploratory laparotomy and repair of the leak
d. Exploratory laparotomy and creation of an ostomy using a more proximal bowel segment
- 46–36.** Which of the following is the most common acute complication after an ileostomy?
- a.** Abscess
b. Parastomal hernia
c. Small-bowel obstruction
d. Electrolyte abnormalities

46–37. A 45-year-old woman has a history of stage IIB cervical cancer for which she completed chemoradiation therapy 12 months ago. She is admitted with a diagnosis of recurrent small bowel obstruction. Her computed tomography scan is shown here. Based on this clinical history, what is the most likely site of obstruction?



- a. Jejunum
 - b. Distal ileum
 - c. Gastric outlet
 - d. Proximal ileum
- 46–38.** Vitamin B₁₂ and bile salts are absorbed in which of the following bowel segments?
- a. Cecum
 - b. Distal ileum
 - c. Distal jejunum
 - d. Proximal duodenum
- 46–39.** What is the most common bowel resection performed for ovarian cancer debulking?
- a. Right hemicolectomy
 - b. Small-bowel resection
 - c. Low anterior resection
 - d. Transverse colon resection

46–40. A woman undergoes a rectosigmoid resection with end-to-end anastomosis as part of an ovarian cancer debulking procedure. After the anastomosis is performed, the bubble test is performed as shown here. In this case, bubbles are seen in the pelvic pool of saline. What is the most appropriate management?



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- a. Recreate the anastomosis
 - b. Perform a diverting colostomy
 - c. Oversew the defect to reinforce the anastomosis
 - d. None of the above
- 46–41.** Which of these is a risk factor for an anastomotic leak following rectosigmoid anastomosis?
- a. Albumin level < 3 g/dL
 - b. History of pelvic radiation
 - c. Anastomosis that involves more distal portions of bowel
 - d. All of the above
- 46–42.** Which of the following is **NOT** an indication to perform intestinal bypass?
- a. Dense adhesions
 - b. Unresectable tumor
 - c. Large-bowel obstruction
 - d. Extensive radiation damage

46–43. A 55-year-old woman with a history of cervical cancer and chemoradiation treatment undergoes intestinal bypass for an unresectable small-bowel obstruction. She initially does well but then develops recurrent nausea, vomiting, and diarrhea. She continues to pass fatus. Which of the following is **NOT** part of this condition?

- a. Steatorrhea
- b. Bacterial overgrowth
- c. Small-bowel obstruction
- d. Vitamin B₁₂ malabsorption

46–44. In which of the following patients is an appendectomy during gynecologic surgery **NOT** indicated?

- a. A 25-year-old woman who undergoes right salpingo-oophorectomy for a serous cystadenoma
- b. A 25-year-old woman who undergoes right salpingo-oophorectomy for a mucinous tumor, with noted mucin in her abdomen
- c. A 60-year-old woman with stage IIIC ovarian cancer undergoing cytoreductive surgery with tumor involving the appendix
- d. A 40-year-old woman who is found to have extensive mucin in her abdomen and bilateral mucinous tumors of the ovaries

46–45. Which of the following is **NOT** an indication for skinning vulvectomy?

- a. Paget disease
- b. Extensive vulvar intraepithelial neoplasia (VIN) III
- c. Stage IA vulvar cancer
- d. Vulvar dystrophy that has failed standard treatment

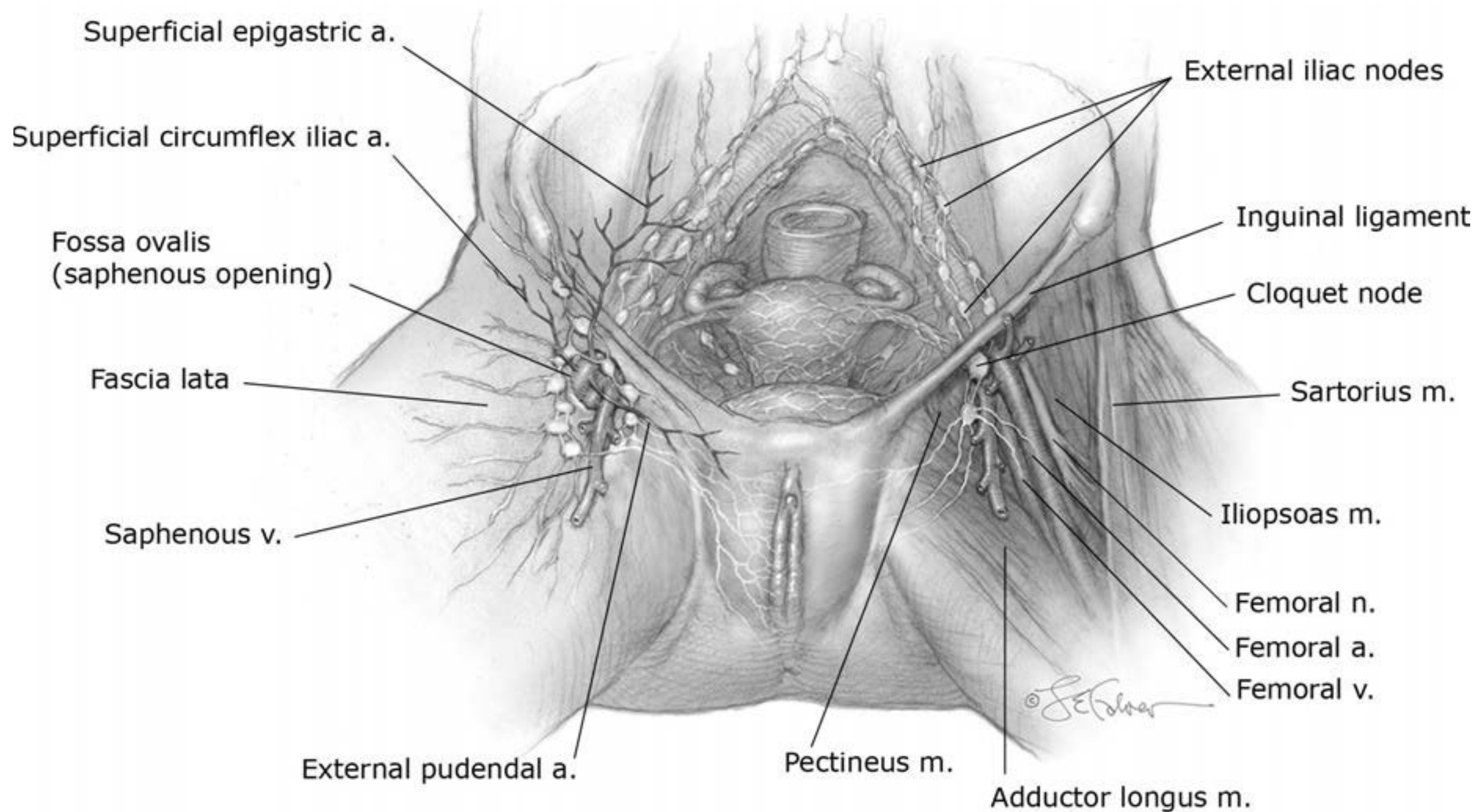
46–46. One example of radical partial vulvectomy is shown here. All of the following statements regarding this procedure, in general, are correct **EXCEPT**:



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- a. The local cancer recurrence rate approximates 10 percent.
- b. It is ideal for women with unilateral well-circumscribed lesions.
- c. The distal urethra may be removed without an increased risk of urinary incontinence.
- d. The survival rate is lower than that for patients undergoing complete radical vulvectomy, even if negative margins are achieved.

- 46–47.** During inguinofemoral lymphadenectomy, if the lymph nodes in the groin are grossly positive below the cribriform fascia, what is the most appropriate management?



Reproduced with permission from Corton MM: Anatomy. In Hoffman BL, Schorge JO, Bradshaw KD, et al (eds): Williams Gynecology, 3rd ed. New York, McGraw-Hill Education, 2016, Figure 38-29.

- a.** Do not resect them, and give postoperative chemoradiation
- b.** Incise the cribriform fascia, and remove the lymph nodes
- c.** Incise the cribriform fascia, remove the involved lymph nodes, repair the defect in the cribriform fascia, and consider a transposition of the sartorius muscle
- d.** Incise the cribriform fascia, remove the involved lymph nodes, repair the defect in the cribriform fascia, transpose the sartorius muscle, and give postoperative chemoradiation
- 46–48.** During inguinofemoral lymphadenectomy, which of the following steps may lower postoperative rates of chronic lymphedema?
- a.** Spare the saphenous vein
- b.** Spare the cribriform fascia
- c.** Place a Jackson-Pratt drain prior to incision closure
- d.** Transpose the sartorius muscle over the dissection site
- 46–49.** A 72-year-old woman has previously received chemo-radiation to the vulva, and now she has recurrent vulvar cancer. For this, you are performing a right radical hemivulvectomy. She has had a hysterectomy in the past through a Maylard incision. What is the most appropriate reconstructive f ap to complete her current surgery?
- a.** Rhomboid skin f ap
- b.** Lateral skin transposition
- c.** Gracilis myocutaneous f ap
- d.** Split-thickness skin graft
- 46–50.** All of the following statements regarding rhomboid f aps are correct **EXCEPT**:
- a.** Excess f ap tissue should not be trimmed.
- b.** A drain should be placed at the donor site.
- c.** All sides of the f ap should be equal to the short axis of the defect.
- d.** The f ap includes underlying fatty tissue and is mobilized medially to cover the surgical defect.

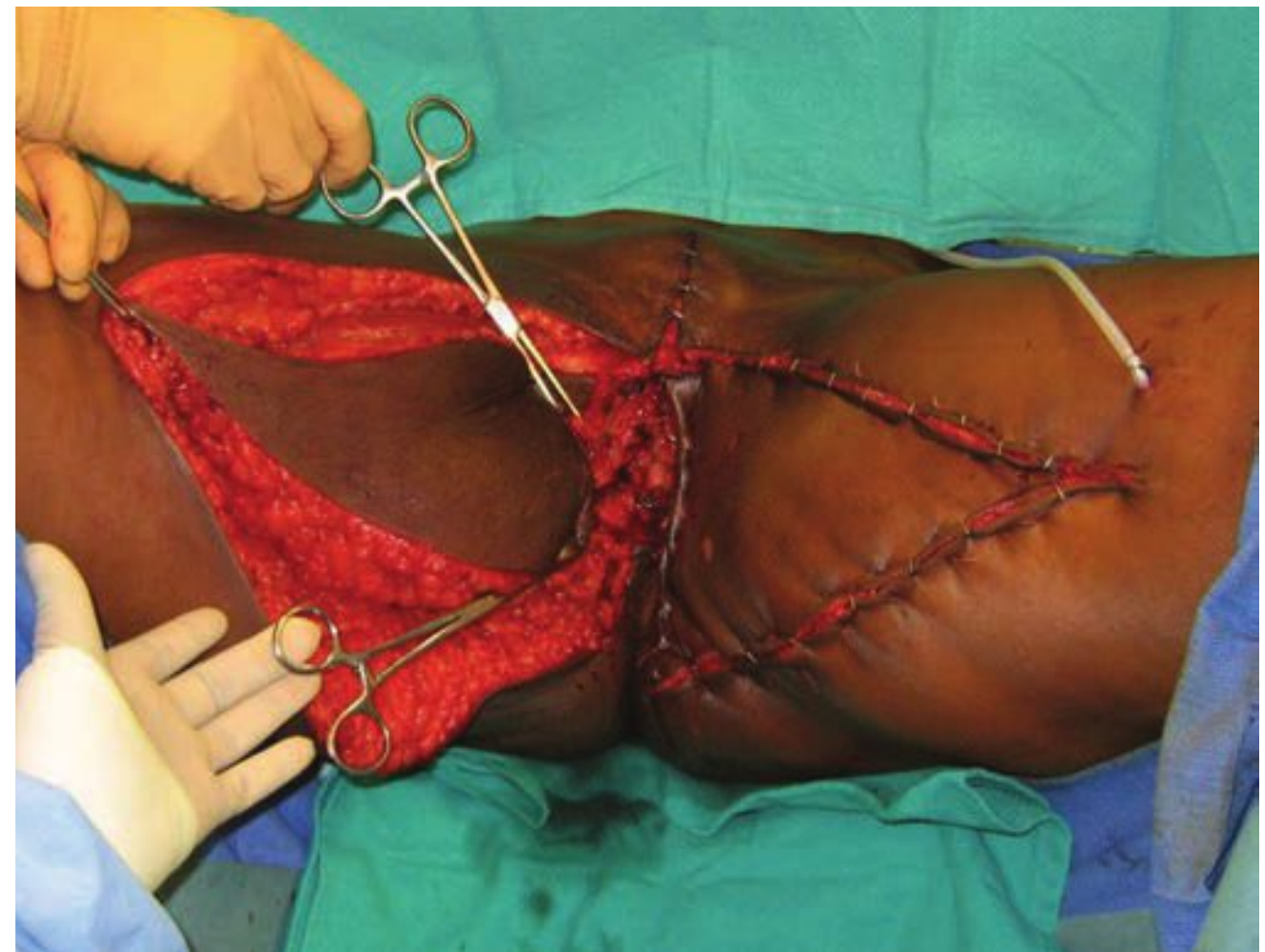
46–51. This photograph illustrates a necessary step in which type of flap?



Used with permission from Dr. Karen Bradshaw.

- a. Rhomboid skin flap
- b. Lateral skin transposition
- c. Gracilis myocutaneous flap
- d. Split-thickness skin graft

46–52. The photographs below illustrate which type of flap?



Used with permission from Dr. David L. Tait.

- a. Rhomboid skin flap
- b. Lateral skin transposition
- c. Gracilis myocutaneous flap
- d. Split-thickness skin graft

Chapter 46 ANSWER KEY

Question number	Letter answer	Page cited	Header cited	Question number	Letter answer	Page cited	Header cited
46-1	d	p. 1134	Radical Abdominal Hysterectomy	46-25	c	p. 1182	En Bloc Pelvic Resection
46-2	c	p. 1034	Radical Abdominal Hysterectomy	46-26	d	p. 1186	Omentectomy
46-3	a	p. 1138	Ovarian Transposition, Radical Abdominal Hysterectomy	46-27	d	p. 1189	Splenectomy, Postoperative
46-4	b	p. 1140	Modified Radical Abdominal Hysterectomy	46-28	c	p. 1189	Splenectomy, Postoperative
46-5	b	p. 1140	Modified Radical Abdominal Hysterectomy	46-29	a	p. 1190	Diaphragmatic Surgery
46-6	b	p. 1142	Minimally Invasive Radical Hysterectomy	46-30	a	p. 1190	Diaphragmatic Surgery
46-7	d	p. 1142	Minimally Invasive Radical Hysterectomy	46-31	c	p. 1192	Colostomy
46-8	a	p. 1142	Minimally Invasive Radical Hysterectomy	46-32	d	p. 1192	Colostomy
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46-10	d	p. 1149	Total Pelvic Exenteration	46-34	b	p. 1195	Large Bowel Resection
46-11	a	p. 1149	Total Pelvic Exenteration	46-35	d	p. 1195	Large Bowel Resection
46-12	d	p. 1155	Anterior Pelvic Exenteration	46-36	d	p. 1197	Ileostomy
46-13	a	p. 1156	Posterior Pelvic Exenteration	46-37	b	p. 1198	Small Bowel Resection
46-14	d	p. 1156	Posterior Pelvic Exenteration	46-38	b	p. 1198	Small Bowel Resection
46-15	d	p. 1157	Incontinent Urinary Conduit	46-39	c	p. 1200	Low Anterior Resection
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46-17	b	p. 1161	Continent Urinary Conduit	46-41	d	p. 1200	Low Anterior Resection
46-18	c	p. 1161	Continent Urinary Conduit	46-42	c	p. 1204	Intestinal Bypass
46-19	c	p. 1165	Vaginal Reconstruction	46-43	c	p. 1204	Intestinal Bypass
46-20	b	p. 1169	Pelvic Lymphadenectomy	46-44	a	p. 1206	Appendectomy
46-21	a	p. 1169	Pelvic Lymphadenectomy	46-45	c	p. 1208	Skinning Vulvectomy
46-22	b	p. 1172	Paraortic Lymphadenectomy	46-46	d	p. 1210	Radical Partial Vulvectomy
46-23	d	p. 1176	Minimally Invasive Staging for Gynecologic Malignancies	46-47	d	p. 1216	Inguinofemoral Lymphadenectomy
46-24	d	p. 1180	Completion of Laparoscopic Staging and Omentectomy.	46-48	a	p. 1216	Inguinofemoral Lymphadenectomy
				46-49	c	p. 1219	Reconstructive Grafts and Flaps
				46-50	a	p. 1219	Reconstructive Grafts and Flaps
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