ANSWERS: CHAPTER 6

MATCHING

1. i 5. l 9. k 13. h
2. e 6. j 10. g
3. m 7. f 11. c
4. d 8. a 12. b

IMAGE LABELING

1. distended urinary bladder
2. uterine fundus
3. uterine body
4. intestine
5. vagina
6. cervix
7. symphysis pubis
8. urinary bladder
9. uterus
10. fallopian tube
11. ovary
12. spine
13. rectum
14. vagina
15. EV transducer
16. uterine tube
17. ovarian artery and vein
18. ampulla
19. tubal branches
20. ovarian branches
21. infundibulum
22. fimbriae
23. ovary
24. ureter
25. uterine plexus and vein
26. uterine artery
27. vaginal artery and vein
28. vaginal plexus
29. vagina
30. pampiniform plexus of vein
31. isthmus
32. uterus
33. ligament of ovary
34. internal artery
35. internal pudendal artery
36. radial arteries
37. peripheral arteries
38. uterine artery
39. arcuate arteries
40. peripheral arteries
41. uterine artery

FILL-IN-THE-BLANK

1. history
2. antimicrobial
3a. TVS
3b. EVS
4a. latex
4b. bladder
5. uterine
6. quantitative
7. resistance
8. pulsed Doppler
9a. above
9b. away
10a. centimeters/second (cm/sec)
10b. meters/second (m/sec)
11a. overlay
11b. frequency
11c. direction
12a. velocity
12b. vascular
13a. power
13b. location
14. uterine
15. postmenopausal
16a. ovarian
16b. psoas
16c. ligament
17a. left
17b. superiorly
17c. renal
17d. inferior vena cava (IVC)
18a. venography
18b. multicystic
18c. dilated or tortuous
19a. enlarge
19b. volume
20. 5 to 9

SHORT ANSWER

1. Color Doppler can be used to demonstrate and interrogate the uterine arteries coursing along the lateral aspects of the body of the uterus; however, the most readily identifiable location for sampling the uterine artery with sonography is at the level of the cervix. Both transabdominal and transvaginal technique will view the uterine artery at the cornua where it anastomoses with the ovarian artery.

2. Periuterine veins should not distend to measure over 5 mm in the nongravid uterus and should remain in close proximity with the uterine arterial vessels. If they measure over 5 mm, pelvic congestion syndrome may be diagnosed.

3. Visualization of intraovarian flow is observed more frequently in the luteal phase than in the early follicular or periovulatory phases.
4. Arterial flow demonstrates an alternating quick uptake (systolic peak) with a reduced diastolic flow. A venous waveform shows continuous flow during systole and diastole. These patterns provide useful information when determining the type of vessel, the normalcy of an organ or vessel, and the structure or organ location identification.

5. The uterine artery branches into the arcuate and then radial arteries (myometrium). The radial arteries then branch into the spiral arteries. It is the spiral and radial arteries that supply blood to the functional layer of the endometrium. During menses, blood from the spiral arteries is shed as part of the functional layer or zona functionalis of the endometrium.

IMAGE EVALUATION/PATHOLOGY

1. Ovary with well-demarcated simple cyst.

2. Iliac vessels. Imaging with either the transabdominal or endovaginal techniques should allow for visualization of the internal iliac vessels on the lateral aspect of the pelvis and often can be used as a landmark for the more anterior ovaries.

3. Transabdominal midline image of the pelvic cavity. The cornua of the uterus is shown with ovarian arteries anastomosing (arrow) with the uterine arteries. UT, uterus; Ov, ovary; Bl, urinary bladder.

4. Transverse.

5. Endovaginal, sagittal view.

6. Doppler, most likely CPA or Energy Doppler.

7. Arterial.

8. Follicular phase.

9. Low resistance. (The lower resistance waveform flow is demonstrated by a sometimes biphasic systolic peak and a relatively high level of diastolic flow, thus demonstrating that a low resistance bed will allow for more blood flow to lapse.)

10. High resistance. (A high resistance flow pattern demonstrates a high systolic peak and a low diastolic flow.)

CASE STUDY

1. A fundal myometrial mass is noted as heterogenous. Minimal amounts of free fluid are seen in both the anterior and posterior cul-de-sac. This study is suspicious for an AV malformation (AVM). Because the uterus was subject to trauma previously caused by the uterine perforation during a D&C and now presents with a heterogenous mass appearance with low resistance flow, there is strong likelihood of a vascular plexus of arteries and veins without an intervening capillary network.

2. The multiple anechoic tubular structures seen in the left dual image are probably vascular structures. The right dual image clearly depicts the tubular structures as vessels. Once measured at over 5 mm, a probable diagnosis is pelvic congestion. The gold standard to diagnosing pelvic congestion is by venography.