ANSWERS: CHAPTER 18

MATCHING
1. c 4. d 7. a 10. e
2. b 5. g 8. i
3. f 6. j 9. h

IMAGE LABELING
1. Tendon
2. Nerve
3A. Humeral head
3B. Supraspinatus tendon
3C. Biceps tendon
4A. Median nerve
4B. Flexor retinaculum
4C. Flexor tendons
5A. Medial collateral ligament
5B. Medial femoral condyle

MULTIPLE CHOICE
1. d 6. b 11. c 16. a
2. c 7. d 12. b 17. c
3. b 8. a 13. d 18. a
4. c 9. c 14. b 19. c
5. d 10. b 15. c 20. d

FILL-IN-THE-BLANK
1. Anisotropy
2. Floating the transducer
3. Paratenon
4. Bursa
5. Honeycomb; hypoechoic; hyperechoic
6. Fibrocartilage; articular; hyaline
7. Supinator; flexor
8. Abductor; humeral head
9. Anteriorly
10. Extension
11. Superficial flexor; pronator teres; Golfer’s elbow
12. Superficial fibers of the extensor carpi radialis; lateral epicondyle; LAX
13. Medially; radial tuberosity; partial; full
14. Flexor; median; ulnar; radial; carpal tunnel
15. Extensor; base of the patella
16. Medial collateral ligament (MCL); MCL; LCL
17. Gastrocnemius-semimembranosus bursa; Baker’s cyst; popliteal crease
18. Lateral; inversion
19. Posterior tibialis tendon; flexor digitorum longus; flexor hallucis longus
20. Achilles; vascular watershed; 2 to 6 cm

SHORT ANSWER
1. Sonographically, a tendon appears as a tightly bound, linear band of hypoechoic strands, fibrillar pattern, interspersed with relatively hypoechoic tissue. In the SAX plane, the tendon has a whisk broom appearance, with the collagen fibers displayed as hyperechoic foci throughout the tendon distribution. The tendon should maintain a uniform thickness except where it inserts into the bone.

2. The echogenicity of the tendon is dependent upon the insonation angle. If the tendon is imaged slightly off perpendicular, it may appear hypoechoic and give the false appearance of tendon pathology. Rocking the transducer to maintain a perpendicular angle will result in an accurate diagnosis.

3. In the SAX view, the nerve will appear round or oval and have a honeycomb pattern demonstrating hypoechoic, circular nerve fibers surrounded by the hyperechoic perineuron or connective tissue. The entire nerve is surrounded by the hyperechoic epineuron. In the LAX plane, the nerve has a railroad track appearance with hypoechoic nerve fibers divided by the hyperechoic perineuron. Healthy nerves should maintain a uniform width and contour or taper from proximal origin to distal termination.

4. Cuff atrophy, absence of the cuff, a focal hyperechoic defect, or a hyperechoic defect are considered major criteria. Minor criteria include abnormal fluid, a "naked tuberosity," the cartilage interface sign, and deltoid herniation.

5. The posterior medial condyle of the femur and the articular cartilage are the most anterior landmarks. Posterior to the medial condyle is the semimembranosus tendon. Lateral to the medial condyle and the semimembranosus tendon is the gastrocnemius muscle. Between the tendon and the muscle is the location of a Baker’s cyst. The popliteal artery, vein, and tibial nerve lie lateral to the bursa. In order to confidently diagnose a Baker’s cyst, a communication between the joint space and the suspected bursa is essential.

IMAGE EVALUATION/PATHOLOGY
1. The anechoic space represents fluid that has accumulated due to a full tear in the biceps tendon.
2. A tear is seen in the supraspinatus tendon.
3. The median nerve is compressed. The median nerve, represented by the white arrow, is normal in dimension and the nerve represented by the open arrow is compressed.
4. The ligament is thickened and pulled away from the bone, representing a tear of the ligament.

5. Baker’s cyst

CASE STUDY

1. The supraspinatus tendon is retracted. Tendon fibers are seen in the fluid that has accumulated in the tendon space. A full-thickness tear of the supraspinatus is visualized with tendon retraction.