**Answers: Chapter 14**

**Matching**

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

**Image Labeling**

1A. Anterior pararenal space  
1B. Perirenal space  
1C. Posterior pararenal space  
1D. Peritoneal cavity  
2A. Renal hilum  
2B. Peritoneum  
2C. Anterior renal fascia  
2D. Perinephric fat  
2E. Posterior renal fascia  
2F. Quadratus lumborum  
2G. Kidney  
2H. Psoas major muscle  
2I. Lumbar vertebrae

**Multiple Choice**

1. c  6. a  11. d  16. a  
2. d  7. d  12. a  17. b  
3. b  8. b  13. a  18. c  
5. b  10. a  15. b  20. c

**Fill-in-the-Blank**

1. Peritoneal membrane; parietal peritoneum; transversalis fascia  
2. Anterior; posterior perirenal; Gerota’s; Zukerlandl  
3. Parietal peritoneum; perirenal fascia  
4. Anterior renal fascia; posterior renal fascia  
5. Posterior renal; transversalis; psoas; quadratus lumborum  
6. Chyle cistern; thoracic  
7. Anteriorly  
8. Lymphadenopathy; inflammation; primary neoplasia; metastases  
9. Lymphadenitis  
10. Ormond; great vessels; ureters; lymphatics; hydronephrosis  
11. Larger; complex; mass effect  
12. Leiomyosarcoma; liposarcoma; lymphoma; adrenal  
13. Abscess; hematoma; urinoma; lymphocele  
14. Renal; fascia  
15. Lymphocele

**Short Answer**

1. The lymphatic system returns excess fluid from the interstitial spaces to the bloodstream, collects cellular debris and bacteria, and absorbs and transports dietary fat. The lymph nodes filter the lymph fluid, phagocytize foreign proteins and infectious debris, and generate and send lymphocytes to infected tissues.

2. The muscles can appear large and anechoic, especially in muscular patients, and can be mistaken for retroperitoneal fluid collections. If this is in question, ask the patient to flex and extend his or her hip. The muscles can be seen to extend and contract with movement of the leg. The muscles should also appear symmetrical; therefore, scanning the contralateral side should demonstrate similar-appearing structures.

3. Any pathology should be imaged in orthogonal planes and measurements should be taken in three dimensions. The characteristics of the mass, the relationship of the mass to the surrounding structures, and the area or organ of origin should also be documented. Color and spectral Doppler may be used to document the blood flow characteristics of the mass or collection.

4. Lymph nodes that are enlarged due to inflammation typically maintain their oval shape and are hypoechoic. They maintain their fatty hilum and demonstrate hyperemia with color Doppler. Primary malignant lymph nodes tend to be hypoechoic to anechoic and more rounded than oval. There may be a loss of the fatty hilum, asymmetric cortical widening, and avascular areas may be visualized within the lymph node.

5. Tumors of the retroperitoneum can become very large, up to 20 pounds or more. Solid masses cannot displace the musculoskeletal structures of the back, making them difficult to palpate. By the time they are large enough to be visualized, palpated, or cause symptoms, they have typically become very large.
IMAGE EVALUATION/PATHOLOGY

1. A large, solid, well-defined heterogeneous mass is seen in this image. Malignant tumors of the retroperitoneum include liposarcoma, leiomyosarcoma, rhabdomyosarcoma, myxosarcoma, and fibrosarcoma. Benign solid tumors of the retroperitoneum include lipoma, leiomyoma, rhabdomyoma, myxoma, and fibroma.

2. An anechoic fluid collection is seen between the renal cortex and the renal capsule. Given the patient’s history of a recent biopsy, the most likely diagnosis is a subcapsular hematoma.

3. The arrows are pointing to a large fluid collection surrounding the kidney. The most likely diagnosis given the patient’s history is a urinoma from rupture of the obstructed collecting system.

CASE STUDY

1. The arrows are pointing to lymph nodes. The lymph nodes do not appear normal. They are grossly enlarged and are surrounding the aorta and abdominal vessels. This represents lymphadenopathy.