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CONTEMPORARY DIAGNOSTIC RADIOLOGY, Volume 35, Answer Sheet
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Question 20-1. This question speaks to the usual location of a stress fracture of the hip, which is the distal femoral neck (B). There are 2 types of femoral neck stress fractures. The tension type occurs superolaterally, and the compression type occurs inferomedially. The tension type has a significant risk to progress to a complete fracture; the compression type does not. So (B) is the correct answer.

Question 20-2. This question emphasizes that femoral herniation pits (Pitt pits) are usually asymptomatic, but they rarely may be symptomatic. In patients with a symptomatic femoral herniation pit, it may be associated with femoroacetabular impingement (E). So (E) is the correct answer.

Question 20-3. This question highlights causes of avascular necrosis of the femoral head, which include long-term oral corticosteroid use (A), sickle cell disease (B), subcapital femoral fracture (C), and radiation therapy involving the hip (D), but not obesity (E). So (A), (B), (C), and (D) are true, but (E) is false and the exception; and (E) is the correct answer.

Question 20-4. This question is illustrated by a planar image from a bone scan (Figure 10) of a 38-year-old man who presented with acute onset of right hip pain after strenuous exercise. His medical history was unremarkable, and laboratory values were normal. Scintigraphically, intense focal radiotracer uptake is localized to the region of the lesser femoral trochanter. Although femoral neck stress fracture (A), osteoid osteoma (B), greater femoral trochanteric bursitis (D), and an osteochondral defect (E) all produce a focal area of increased radiotracer uptake, the lesser trochanter region of focal radiotracer uptake is not compatible with any of these options. However, both the clinical and scintigraphic presentations are most suggestive of a lesser femoral trochanter avulsion injury (C). So (C) is the most likely diagnosis, and (C) is the correct answer.

Question 20-5. This question alludes to clinical features of femoroacetabular impingement, which include restricted flexion of the femur at the hip (A), gradual onset of hip pain without antecedent insult (B), hip pain on sitting (C), and hip pain initiated by physical activity (D). So (A), (B), (C), and (D) are true. Femoroacetabular impingement occurs in individuals 20 to 50 years of age, not mostly in the elderly (E). Thus (E) is false and the exception, and (E) is the correct answer.
Question 20-6. This question calls attention to a clinical vignette in which the bone scan of an 18-year-old patient with chronic right hip pain, worse at night but relieved by a prostaglandin inhibitor, reveals a focal area of intense radiotracer uptake in the subcapital portion of the right femoral neck. The focal area of increased radiotracer activity in femoroacetabular impingement (A) is about the anterolateral femoral head, adjacent anterosuperior aspect of the acetabulum, or both. Stress fractures (B) of the femur occur at the distal femoral neck, not in the subcapital area. Avascular necrosis (D) of the femur about the hip involves the femoral head. Osteochondral defects (E) of the hip are located about the acetabular and femoral head surfaces. So (A), (B), (D), and (E) are unlikely diagnoses. However, both the clinical and scintigraphic findings in this young patient are highly suggestive of osteoid osteoma (C). Thus (C) is the most likely diagnosis, and (C) is the correct answer.

Question 20-7. This question calls attention to the cause of femoroacetabular impingement, which is an anatomic deformity of the femoral head and/or acetabulum (D). So (D) is the correct answer.

Question 20-8. This question deals with a clinical situation in which the bone scan of a 60-year-old woman with pain in her left hip of 1-week duration and a history of long-term oral corticosteroid use reveals the “donut sign” in her left femoral head. Both the clinical and scintigraphic findings are classic for early-stage avascular necrosis (B). So (B) is the most likely diagnosis, and (B) is the correct answer.

Question 20-9. This question refers to the most likely cause of the “double density sign” in the femoral neck on standard delayed planar bone scintigraphy, which is an osteoid osteoma (A). This specific sign is the result of focal intense increased radiotracer uptake at the nidus with a surrounding border of less intense radiotracer activity correlating to the rim of sclerosis on radiographs or CT. So (A) is the correct answer.

Question 20-10. This question concerns bone scintigraphic features of chronic osteoarthritis of the hip which include nonfocal increased radiotracer uptake about the acetabular surface (A), nonfocal increased radiotracer uptake about the femoral head surface (B), and curvilinear distribution of radiotracer uptake about the joint (D), but not focal radiotracer uptake isolated to the superolateral region of the joint (C), which is seen in early, not chronic, cases of osteoarthritis. So (A), (B), and (D) are true, but (C) is false and the exception; and (C) is the correct answer.

**Answer Key for Volume 35 #20:**

1. B
2. E
3. E
4. C
5. E
6. C
7. D
8. B
9. A
10. C