Lesson 4: Chondromyxoid Fibroma: What the Radiologist Needs to Know

Alan P. Mautz, MD, Melissa S. DuBois, MD, Ross M. Cerniglia, MD, Keith E. Baynes, MD, Guillermo F. Carrera, MD, Joseph Doan, BS, and Ryan Scott, BS

Question 4-1. This question brings attention to an important clinical vignette that emphasizes the most frequent complication of the treatment by curettage of a chondromyxoid fibroma of the distal tibia in a 25-year-old man. Local recurrence (E) is the most frequent complication of curettage, with or without bone grafting, of a chondromyxoid fibroma. So (E) is the correct answer.

Question 4-2. This question speaks to MR findings of a chondromyxoid fibroma, which include abnormal adjacent marrow signal (A), abnormal signal in adjacent soft tissues (E), peripheral nodular enhancement (D), and hypointense T1 signal (B), but hyperintense, not hypointense (C), T2 signal. So (A), (B), (D), and (E) are true, but (C) is false and the exception; and (C) is the correct answer.

Question 4-3. This question concerns accepted initial treatment options of chondromyxoid fibromas, which include curettage alone (A), curettage with bone grafting (B), en bloc excision (D), and radiation therapy (E) particularly for lesions that are surgically inaccessible, but not antibiotics (C) that are used for treatment of postoperative infection. So (A), (B), (D), and (E) are true, but (C) is false and the exception; and (C) is the correct answer.

Question 4-4. This question represents an imaging vignette. Specifically, the radiographs (not shown) of a young adult with chronic pain in the wrist revealed a lytic lesion of the distal radius with thinning, but not disruption, of the cortex, suggesting a chondromyxoid fibroma. Figure 13 is a follow-up coronal T2-weighted fat-saturated MR image. MR features evident in this image that help to support the diagnosis of a chondromyxoid fibroma include a circumscribed lesion (A), a metaphyseal-centered lesion (B) that has extended to the distal radial joint surface, peripheral intermediate signal intensity of the lesion (C), and an ovoid lesion (D). Since (A), (B), (C), and (D) are true, then (E), all of the above, is the correct answer.

Question 4-5. This question represents a clinical vignette in which a 32-year-old woman presents with acute pain about the distal right forearm. Radiographs reveal a large lytic lesion in the distal radius, suggesting a chondromyxoid fibroma. Chondromyxoid fibromas are slow-growing, lytic bone lesions that are frequently asymptomatic. When symptomatic, chondromyxoid fibromas usually cause chronic pain. However, the clinical presentation of acute pain in the region of the bone lesion should alert the diagnostic radiologist to search for a pathologic fracture (B) in the lesion. So (B) is the correct answer.
Question 4-6. This question alludes to a CT imaging characteristic of chondromyxoid fibromas, which is expansile remodeling and cortical breakthrough (A). So (A) is true. On CT imaging, the lesion of a chondromyxoid fibroma does not have mineralized chondroid matrix (B), cortical buttressing adjacent to the lesion (C), confinement to the medullary space (D), or ground-glass matrix (E). Thus, (B), (C), (D), and (E) are false. Since (A) is true, (A) is the correct answer.

Question 4-7. This question emphasizes that in general the imaging modality suggested for preoperative image-guided biopsy of a suspected chondromyxoid fibroma is CT (D). Coaxial biopsy may be performed to limit the number of localization CT scans. So (D) is the correct answer.

Question 4-8. This question addresses the potential differential diagnosis of a chondromyxoid fibroma. Chondromyxoid fibromas are lytic lesions in which the cortex thins or erodes over time. Therefore, depending on the location of the lesion, other lytic bone lesions that cause thinning of cortex, such as giant cell tumor of bone (A), aneurysmal bone cyst (B), lytic metastasis (D), enchondroma (E), and telangiectatic osteosarcoma, could be included in the differential diagnosis of a chondromyxoid fibroma. So (A), (B), (D), and (E) are true. However, osteoid osteoma (C) is primarily a sclerotic, not a lytic, bone lesion, and it causes thickening, not thinning, of cortex. So (C) is false and the exception, and (C) is the correct diagnosis.

Question 4-9. This question pertains to the most common location of a chondromyxoid fibroma in a long bone, which is metaphyseal (D). As the lesion grows, it may extend into the epiphyseal (A) and diaphyseal (B) regions of a long bone. Chondromyxoid fibromas do not arise in the distal joint space (E) and only rarely originate in the apophysis (C). Since (D) is true, (D) is the correct answer.

Question 4-10. This question refers to the most common site of occurrence of chondromyxoid fibromas, which is in the long bones about the knee. Therefore, of the options provided, the proximal tibia (B) is the correct answer.

Answer Key for Volume 37 # 4:
1. E
2. C
3. C
4. E
5. B
6. A
7. D
8. C
9. D
10. B