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What are classic musculoskeletal imaging manifestations of lupus?

Lupus arthropathy has characteristic features of reducible ulnar-deviated subluxations with no erosions. If you see non-erosive subluxation of the thumb that has been termed “hitchhiker’s thumb”. Similar to rheumatoid arthritis, lupus arthropathy can have periarticular osteopenia. Lupus is not classically associated with joint space narrowing. A classic differential consideration for many of these features is rheumatic fever.

What is the name of the classic radiographic view of the hands that can help you identify lupus arthritis?

Norgaard or ball catcher view is a special view that can help show the ulnar subluxations at the metacarpophalangeal joints that then reduce on the AP or PA views with the hand in a flat position. For this Norgaard or ball catcher view the hand is in a position as if you are about to catch a ball, the dorsal aspect of the hand is on the imaging cassette, and an image is taken at a slightly oblique position. This view is also good for evaluating for joint erosions.

What is Jaccoud’s arthropathy?

Jaccoud’s arthropathy is a disease of ligamentous laxity in the hand and involves non-erosive disease with ulnar-deviated reversible subluxations of the 2nd through 5th MCP joints. Classic is a history of rheumatic fever. If a boards exam question gives you the history of rheumatic fever and presents a radiograph similar to lupus than you need to recognize that this is post-rheumatic fever Jaccoud’s arthropathy. However, Jaccoud’s arthropathy is non-specific and describes the non-erosive subluxations of the MCP joints that are reversible that can be seen with lupus, psoriatic arthritis, inflammatory bowel disease and other entities but NOT rheumatoid arthritis which should have erosions.

What are some basic similarities and differences between lupus arthropathy and rheumatoid arthritis?

Subluxations with erosions is most classically associated with rheumatoid arthritis and subluxation with no erosions is most associated with lupus arthritis. Both can be associated with periarticular osteopenia/osteoporosis.

What are classic musculoskeletal imaging manifestations of scleroderma?

Soft tissue calcifications can be prominent with scleroderma along with features like erosions and/or osteolysis of the ribs, mandible and clavicle. On radiographs look for soft tissue calcifications and flexion of digits due to skin retraction.

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What are top differential considerations for osteolysis of the clavicle at the acromioclavicular joint?

Hyperparathyroidism, rheumatoid arthritis, scleroderma, post-traumatic with repetitive microtrauma.

What are classic musculoskeletal imaging manifestations of gout?

Classic imaging findings of gout include so called “punched out” lytic lesions with overhanging edges and soft tissue tophi due to the uric acid crystal deposition around joints. A joint effusion is an early sign of gout. Also, “lumpy bumpy” soft tissue swelling can be seen with gout or less commonly amyloidosis. A descriptor that I think of that is helpful is that gout has periarticular or marginal erosions that are away from and not centered at the joint space with associated asymmetric soft tissue mass or masses (so called tophi). The joint space is preserved until late in disease. Extraarticular calcifications can be seen. Gout is more common in lower extremities than upper extremities and most classic is involvement in males over 40 years of age.

What are classic musculoskeletal imaging manifestations of calcium pyrophosphate deposition disease (CPPD) aka pseudogout?

Classic manifestations of CPPD arthropathy include joint space narrowing, subchondral sclerosis, subchondral cyst formation and osteophyte formation—very similar to osteoarthritis. However, unlike osteoarthritis distribution may be metacarpophalangeal (MCP) joint predominant (most classic is 2nd and 3rd MCP joints) and/or involve radiocarpal joint and/or patellofemoral joint. If you see what looks like patellofemoral osteoarthritis but the knee otherwise looks spared this is highly suggestive of CPPD arthropathy. Also look for classic chondrocalcinosis within joint space, particularly involving the triangular fibrocartilage in the wrist. Distribution is often bilateral symmetric. Association with scapholunate advanced collapse (SLAC wrist) is common.

With gout expect juxtaarticular erosions with overhanging edges and joint space preservation until late in disease and with pseudogout (CPPD) expect intraarticular erosions with osteoarthritis-like changes.

Other classic locations for CPPD include intervertebral disc and tissue around the odontoid process. Dens erosions on board exams should make you think of CPPD versus rheumatoid arthritis.

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True or false: Radiocarpal joint narrowing is more suggestive of CPPD arthropathy than osteoarthritis?

True. Radiocarpal joint narrowing is more typical for CPPD arthropathy than osteoarthritis.

True or false: hemochromatosis can cause similar musculoskeletal manifestations as CPPD arthropathy?

True. CPPD and hemochromatosis musculoskeletal manifestations can look radiographically identical. With hemochromatosis, classic MSK imaging manifestations include uniform narrowing of the MCP joints in isolation with hook-like osteophytes. If you see this pattern on a radiograph on a board exam you should consider the possibility of hemochromatosis. To confirm hemochromatosis get a liver MRI with in and out of phase images and look for signal increase on out of phase images. CPPD arthropathy usually involves older individuals compared to hemochromatosis.

Describe the classic location of erosions for rheumatoid arthritis, osteoarthritis, psoriasis, CPPD arthritis (aka pseudogout) and lupus:

Lupus: Trick question. No erosions with lupus. Look for the non-erosive joint subluxations with ulnar deviation.

Osteoarthritis and psoriasis: Subarticular erosions most classic.

Gout: Juxtaarticular erosions.

Rheumatoid arthritis: Marginal erosions.