

Differential Diagnosis of Acute, Post-traumatic Wrist Pain

| Cause | Clinical Features | Imaging Findings | Collected Cases |
|--|--|---|---------------------------------------|
| Distal radius, ulna, or combined radius and ulna fracture | Pain and tenderness along the distal radius and ulna; MOI: usually FOOSH | Discontinuous cortex and displaced bone fragment on XR, CT, or MR; abnormal marrow signal on MR | 20 |
| Carpal bone fractures | Pain and tenderness along the anatomic snuffbox; MOI: usually FOOSH | Discontinuous cortex and displaced bone fragment on XR, CT, or MR (XR may not show the fracture, especially in the acute phase); abnormal marrow signal on MR | 11 scaphoid; 3 pisiform; 2 triquetrum |
| Fracture/dislocation of the carpus | Pain and tenderness of the carpus; deformity; MOI: usually FOOSH | Discontinuous cortex, displaced bone fragments, and displaced bones on XR, CT, or MR; abnormal marrow signal on MR | 3 |
| ABBREVIATIONS | | | |
| CT = computed tomography; FOOSH = fall on an outstretched hand; MOI = mechanism of injury; MR = magnetic resonance; XR = plain film radiography; | | | |

Differential Diagnosis of Wrist Pain (Not Acute, Post-traumatic)

| Cause | Clinical Features | Imaging Findings | Collected Cases |
|--|---|---|------------------------------|
| Bone Abnormalities | | | |
| Avascular necrosis of the lunate (Keinbock's) | Repeated trauma; loss of motion; weakness | Ulnar minus variant on XR, CT, and MR; dense lunate on XR, CT; small lunate XR, CT, and MR; abnormal SI on MR | 4 |
| Ulnar abutment syndrome | Pain on the ulnar side of the wrist especially with axial loading | Ulnar plus variant on XR, CT, and MR; abnormal marrow signal on MR | 1 |
| Bone tumor | | | 1 (with pathologic fracture) |
| Joint Abnormalities (DRUJ, RC, CMC) | | | |
| Osteoarthritis | Pain with motion alleviated with rest; tenderness over the joint; prior trauma; osteoarthritis of other joints; decreased grip strength with thumb CMC OA | Osteophytes, joint space narrowing, subchondral sclerosis or cysts, joint effusion on XR, CT, and MR; focal articular cartilage defects on MR, CT-arthrography, and MR-arthrography | 2 |
| Rheumatoid arthritis | Loss of motion; morning stiffness; positive RF; positive anti-CCP; rheumatoid arthritis of other joints | Loss of joint space, erosions, and joint effusion on XR, CT, and MR; abnormal marrow SI MR | 1 |
| Crystal arthropathy (gout, CPPD) | Acutely painful joint; crystals on joint aspiration; arthropathy of other joints | Chondrocalcinosis and/or soft tissue calcifications on XR, CT, MR; secondary osteoarthritis on XR, CT, and MR | 1 |
| Extra-articular Soft Tissue Abnormalities | | | |
| Ganglion cyst | Palpable abnormality of the wrist; trans-illumination; aspirated fluid | Soft tissue mass on XR, CT, and MR | 6 |
| Tenosynovitis | Diffuse wrist pain; dorsal swelling and inflammatory change | Soft tissue swelling on XR, CT, and MR; fluid in the tendon sheaths and abnormal tendon SI on MR | |
| TFC tear | Ulnar sided wrist pain, clicking, crepitus; grip weakness | Discontinuous TFC on MR; contrast leak across TFC on arthrography and MR arthrography | 2 |
| Interosseous | Wrist pain | Wide interosseous space, ulnar - | 1 |

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| ligament tears | | plus variant on XR, CT, and MR; discontinuous ligaments and leak from compartment of injection on arthrography and MR-arthrography | |
| Tendon tear | | | 1 ECU |
| De Quervain's tenosynovitis | Radial sided pain and grip weakness | Reactive changes along the radial cortex on XR, CT, and MR; thick irregular tendons on MR | 2 |
| Carpal tunnel syndrome / median neuropathy | Overuse; paresthesias and hypesthesias in the median nerve distribution; positive Tinel test or Phalen maneuver | Imaging usually not necessary. Swelling and abnormal SI of the nerve on MR. | |
| Ulnar neuropathy | Paresthesias and hypesthesias of the small finger; prior trauma | Deformed Guyon canal from prior trauma on CT or MR | |
| Complex regional pain syndrome | Diffuse wrist pain; diffuse swelling; hair loss; changes of skin color or temperature | Demineralization on XR and CT; abnormal marrow SI on MR; diffuse abnormal uptake on nuclear medicine bone scan | |
| WRIST PAIN WITH NO IMAGING FINDINGS ON WRIST IMAGING STUDIES | | | |
| Referred pain from the elbow or hand; radicular pain from cervical spine disease | | | |
| ABBREVIATIONS | | | |
| CCP = cyclic citrullinated peptide; CMC = carpometacarpal joint; CT = computed tomography; DRUJ = distal radio-ulnar joint; MR = magnetic resonance imaging; OA = osteoarthritis; RC = radio-carpal joint; RF = rheumatoid factor; SI = signal intensity; TFC = triangular fibrocartilage; XR = plain film radiography | | | |

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