

Differential Diagnosis of Acute, Post-traumatic Elbow Pain

Cause	Clinical Features	Imaging Findings	Collected Cases
Distal humerus fracture	Pain along the distal humerus upon palpation; MOI: usually FOOSH	Discontinuous cortex, displaced bone fragment; abnormal anterior humeral line on XR, CT, and MR; abnormal marrow signal on MR	5
Radial fracture	Pain along the radial head; MOI: usually FOOSH	“Sail sign” from elbow joint effusion (hemorrhage from intra-articular fracture), discontinuous cortex, displaced bone fragment on XR, CT, and MR; abnormal marrow SI on MR	4
Ulnar fracture	Pain on palpation of the ulna; MOI: usually direct blow to the ulna from a fall	Discontinuous cortex, displaced bone fragment; abnormal anterior humeral line on XR, CT, and MR; abnormal marrow SI on MR	3
Elbow dislocation	Pain and deformity of the elbow; MOI: usually FOOSH	Displaced bones with lack of normal alignment (abnormal radiocapitellar line) on XR, CT, and MR	6
Tendon tear (including biceps tendon)	Trauma with a “snap” or “pop”; pain of the involved tendon	None on XR; discontinuous tendon on CT and MR; Swollen tendon or abnormal SI in the tendon with partial thickness tears, discontinuous tendon with retraction of the tendon margins with full thickness tears on MR	7
ABBREVIATIONS			
FOOSH = fall on an outstretched hand; CT = computed tomography; MOI = mechanism of injury; MR = magnetic resonance; SI = signal intensity; XR = plain film radiography			

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

Cause	Clinical Features	Imaging Findings	Collected Cases
Bone Abnormalities			
OCD of the capitellum	Swelling; cracking and locking	Fragmentation of the capitellum on XR, CT, or MR; abnormal SI on MR	
Bone infarction			1
Intra-articular Tissue Abnormalities			
Osteoarthritis	Pain with motion alleviated with rest; tenderness over the joint; prior trauma; catching/locking with associated loose body; osteoarthritis of other joints	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, marginal erosions on XR, CT, and MR; abnormal synovium and marrow SI on MR	1
Crystal arthropathy	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
Juxta-articular Tissue Abnormalities			
Biceps tendon tear	Absent or painful tendon	None on XR or CT; abnormal SI in tendon or tendon discontinuity on MR	
Medial/lateral epicondylitis	Pain along the medial/lateral epicondyle	Calcifications (chronic) on XR or CT; abnormal signal on MR	1
Olecranon bursitis	Pain along the posterior elbow	Calcifications (chronic) on XR or CT; distended, fluid filled bursa on XR, CT, or MR	4
Collateral ligament tear	Ligamentous laxity with increased valgus (MCL) or varus (LCL)	None on XR or CT without arthrography; discontinuous ligament or contrast extravasation on CT-arthrography, MR, and MR-arthrography	
Ulnar neuritis	Tinel's sign; ulnar neuropathy	None on XR or CT; abnormal SI on MR	
ELBOW PAIN WITH NO IMAGING FINDINGS ON ELBOW IMAGING STUDIES			

Referred pain from the neck or shoulder
ABBREVIATIONS
CCP = cyclic citrullinated peptide; CT = computed tomography; LCL = lateral collateral ligament; MCL = medial collateral ligament; MR = magnetic resonance; OCD = osteochondritis dessicans; RF = rheumatoid factor; SI = signal intensity; XR = plain film radiography;

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