

Differential Diagnosis of Acute, Post-traumatic Hip Pain

Acute Post-traumatic Pain			
Cause	Clinical Features	Imaging Findings	Collected Cases
Pelvis fracture	Pain at the location of fracture in the pelvis; MOI: fall or MVA	Discontinuous cortex and displaced bone fragment on XR, CT, and MR; abnormal marrow signal on MR	17
Femoral fracture	Pain along the anterior hip; pain with hip motion; shortened leg with external rotation of the hip; MOI: fall	Discontinuous cortex and displaced bone fragment on XR, CT, and MR; abnormal marrow signal on MR	11
Hip dislocation	Pain and deformity of the hip; limited range of motion; MOI: severe trauma, e.g. from an MVA	Displaced femoral head on XR, CT, and MR	1
Muscle or tendon tear	Pain of the involved muscle or tendon; weakness	None on XR; discontinuous muscle or tendon on MR or CT; abnormal SI in the tendon or muscle on MR	9
Labral tear	Limited ROM	None on XR; displaced labrum; fluid within the labrum on CT-arthrography, MR, and MR-arthrography	
ABBREVIATIONS			
AC = acromioclavicular; CT = computed tomography; MOI = mechanism of injury; MR = magnetic resonance; MVA = motor vehicle accident; RCT = rotator cuff tear; SI = signal intensity; XR = plain film radiography			

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

Cause	Clinical Features	Imaging Findings	Collected Cases
Bone Abnormalities			
Stress fracture	Overuse; osteopenia or osteoporosis; focal tenderness at the site of fracture	Fracture line or abnormal alignment on XR, CT, and MR; abnormal marrow SI on MR	4 pelvis 1 femur
Avascular necrosis	Pain with internal and external rotation; limping; tenderness over anterior hip	Sclerosis and collapse on XR or CT; “double line” sign along with abnormal contour on MR	6
Femoroacetabular impingement	Decreased range of motion	Acetabular calcification on XR and CT; abnormal contour of femoral head on XR, CT, and MR; premature OA	2
Primary and metastatic bone tumors	History of malignancy; pain at the location of the tumor (may be poorly localized); night pain; severe pain not relieved by rest	Destroyed bone cortex, absent trabeculae, associated soft tissue mass on XR, CT, and MR; increased (with blastic) versus decreased (with lytic) bone density on XR, CT; abnormal bone marrow SI with MR	2 pelvis 2 femur
Bone marrow edema syndrome	Anterior hip pain; loss of motion	Osteopenia on XR and CT; abnormal marrow SI on MR	
Paget disease			2 pelvis
Fibrous dysplasia			1
Intra-articular Tissue Abnormalities			
Osteoarthritis	Pain with motion alleviated with rest; tenderness over the joint; prior trauma; 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	8
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	
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	2
Ankylosing spondylitis	Decreased range of motion	Uniform narrowing of the hip joint on XR, CT, and MR; fusion of the SI joint	

Labral tear	Decreased range of motion (esp intermittent or positional)	None on XR; defect on MR (best seen on MR arthrogram or 3.0T MR)	3
Infection	Acute loss of hip motion; tenderness over the hip; fever and elevated WBC, ESR, or CRP	Loss of joint space, periostitis (with osteomyelitis) on XR, CT, and MR; abnormal marrow SI on MR	1 sacro-iliitis 1 hip
Villonodular synovitis	Decreased range of motion	Erosions with chronic disease on XR, CT, and MR; soft tissue lesions in the joint space on MR	
Juxta-articular Tissue Abnormalities			
Bursitis	Tenderness over trochanter with normal hip range of motion	None on XR; increased fluid in the bursa on MR	
Hernia	Painless motion of the hip; soft tissue mass in the groin	None on XR; herniated fat or bowel on CT or MR	
Tendinopathy including tendon tear	Tenderness of the involved structure	None on XR or CT; swelling, abnormal SI, or peritendinous fluid on MR	1 hamstring 1 gluteus medius
Abscess			1 ischial tuberosity
Heterotopic ossification			1
Ovarian dermoid			1
HIP PAIN WITH NO IMAGING FINDINGS ON HIP IMAGING STUDIES			
Lumbar disc disease, meralgia paresthetica, aorticoiliac insufficiency, polymyalgia rheumatic, retroperitoneal abscess			
ABBREVIATIONS			
CCP = cyclic citrullinated peptide; CPPD = calcium pyrophosphate dehydrate crystal deposition disease; CRP = c-reactive protein; CT = computed tomography; ESR = erythrocyte sedimentation rate; MR = magnetic resonance imaging; OA = osteoarthritis; RF = rheumatoid factor; WBC = white blood cell count; XR = plain film radiography			

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