



Urgent Care Evaluation and Management of Hip Osteoarthritis

Urgent Message: Osteoarthritis of the hip most commonly affects older adults and those with other risk factors including obesity and prior hip injury. It is a diagnosis of exclusion, therefore, the initial priority in urgent care for patients presenting with hip pain involves excluding alternative, time-sensitive etiologies.

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Editor's Note: While the images presented here are authentic, the patient case scenarios are hypothetical.

Abstract

Oxarthrosis, or osteoarthritis (OA), of the hip is a common condition that can lead to significant pain, decreased mobility, and reduced quality of life. While OA management is typically handled in primary care or orthopedic specialty clinics, urgent care (UC) centers may encounter patients experiencing acute exacerbations or complications related to hip OA. Best practices for the UC management of hip OA prioritizes ruling out more serious diagnoses including, but not limited to, fracture, septic arthritis, and avascular necrosis of the femoral head. The initial imaging study of choice when hip OA is considered is plain hip x-rays (XR) where evidence of arthritic changes, osteophytes, and joint space narrowing can help confirm the diagnosis of OA.

Clinical Scenario

An 80-year-old woman presented to UC complaining of worsening left hip pain, which began insidiously approximately 4 years earlier. She noted that her pain had become worse over the last week without any trauma. Prior to the worsening pain, she reported that she had

Questions for the Clinician at the Bedside

1. Which patients are most likely to develop osteoarthritis (OA) of the hip?
2. What symptoms are most suggestive of OA of the hip?
3. What are the expected physical exam findings of hip OA?
4. Which therapies are effective for hip OA? Which patients should be referred for possible hip arthroplasty?
5. What other conditions should be considered in patients with presumed hip OA?

gone on a walk. She complained of more significant pain when she ranged the hip. She reported taking ibuprofen without much relief. She denied back pain, knee pain, falls, fever, and numbness or paresthesia.

On physical exam, her vital signs were normal. Her abdominal and back exams were unremarkable, and she had no spinal or abdominal tenderness. A focused exam of the area where she was experiencing pain revealed normal appearance of the skin overlying the left hip without overlying erythema, ecchymoses, or swelling. Moderate pain was reported with flexion and extension of the hip as well as with passive internal and external rotation. She reported mild pain with palpation

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Image 1. X-ray Image of Female Patient With Osteoarthritis of the Left Hip

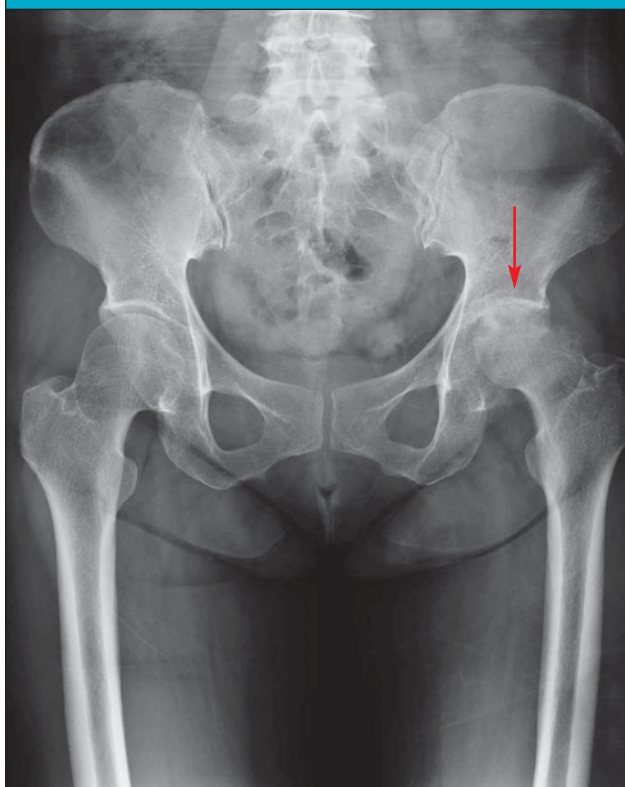
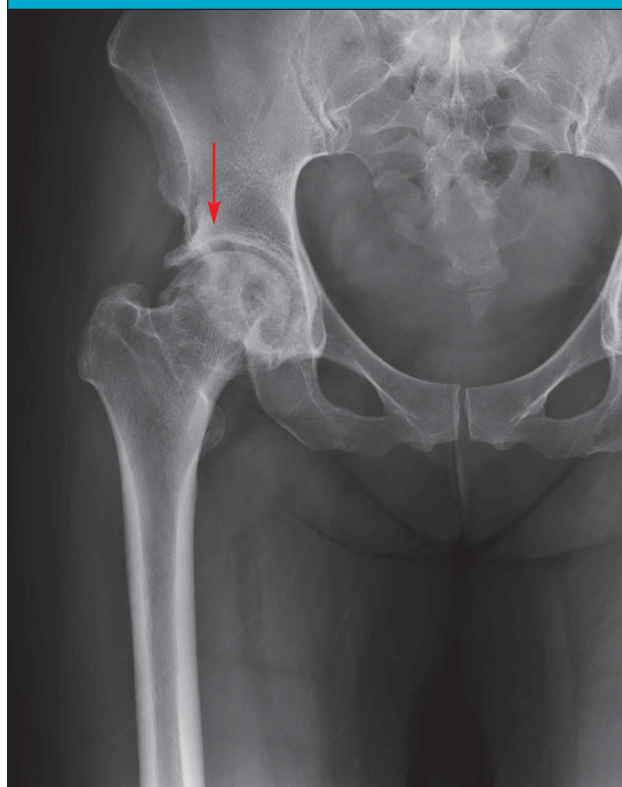


Image 2. X-ray Image of Female Patient With Osteoarthritis of the Right Hip



of the greater trochanter on the left. She denied pain with range of motion of the knee, and there was no bony tenderness to the knee. Her neurovascular status was intact with a 2+ dorsalis pedis pulses in both feet and normal sensation to light touch diffusely in both lower extremities. An anterior posterior (AP) radiograph of the pelvis was obtained, which showed arthritic changes in the left hip (**Image 1**).

Epidemiology and Pathophysiology of Hip Osteoarthritis

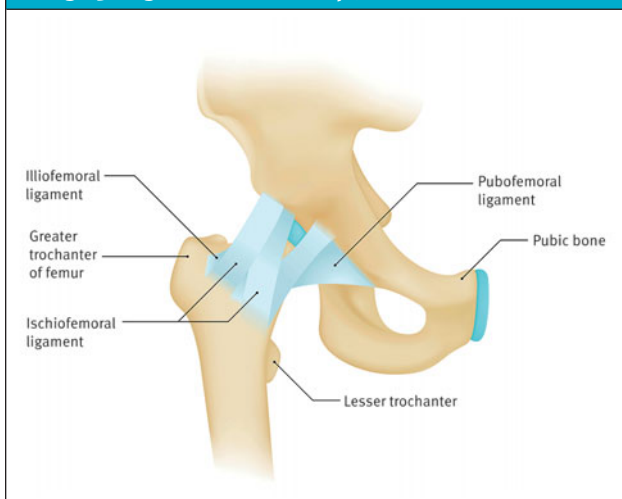
Osteoarthritis is the most common rheumatic condition worldwide and the leading cause of musculoskeletal disability in developed countries. The hip is one of the most common joints affected by OA^{1,2} with the prevalence being reported as high as 12% in certain regions.³ There are 2 main categories of hip OA: primary/idiopathic; and secondary, which is associated with a known underlying cause.⁴ OA manifests initially as a “molecular derangement (abnormal joint tissue metabolism)” followed by the breakdown of cartilage, changes in bone structure, the formation of osteophytes, and inflammation of the synovial membrane. These pathological processes ultimately lead to joint space narrow-

ing and result in symptoms of pain, stiffness, swelling, and functional impairment of the joint (**Image 2**).^{2,5}

Understanding the Anatomy

The pelvis is composed of 3 rings including the large ring of the pelvis, and the 2 smaller rings created by the superior and inferior pubic rami bilaterally. The femoral neck extends proximally to the femoral head, which articulates with the acetabulum of the pelvis as a ball-in-socket joint.⁶ The femoral head is held in place by the strong fibrous labrum that circumferentially lines the acetabulum.⁷ The ligaments of the joint capsule also play a role in stability and include the iliofemoral, pubofemoral, and ischiofemoral ligaments (**Image 3**). Dynamic stability of the pelvis and hips is provided by a variety of muscle groups including the hip flexors (especially the iliopsoas), the gluteal muscles (ie, gluteus medius and maximus, piriformis, quadratus, obturator internus, and the gemelli), and the lateral stabilizers (ie, tensor fascia lata and the iliotibial band complex) (**Image 4**).⁸

The innervation to the hip joint primarily comes from branches of the femoral, obturator, and sciatic

Image 3. Ligaments of the Hip Joint

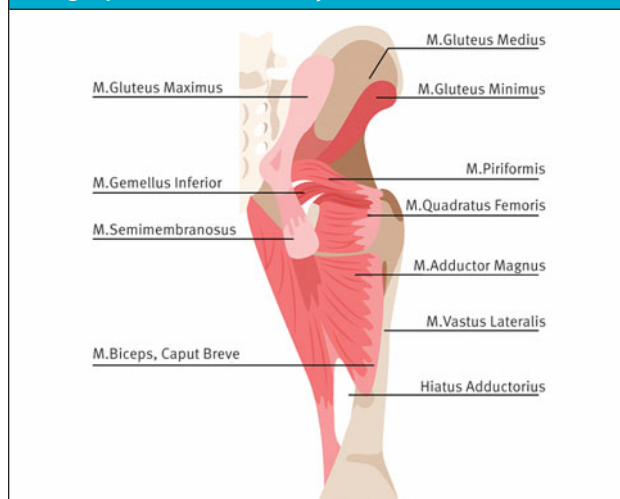
nerves. Vascular supply for the hips comes through the medial and lateral circumflex femoral arteries.⁹

Clinical History

Importantly, pain from OA of the hip (ie, femoacetabular) joint often will not be experienced as “hip pain” by patients but rather will localize anteriorly or in the groin. It is rare for hip OA to present with isolated lateral or posterior pain.¹⁰ Radiation of pain into the anterior thigh and knee is also a frequent complaint.¹¹ Hip OA related pain is usually chronic and progressive in nature, however, it can be exacerbated by trauma or repetitive use/activity (which may not seem significant to patients and may even be as simple as light walking). Improvement with rest is also typical for OA related hip pain.¹¹ Patients with hip OA often describe “start-up pain,” or pain and stiffness upon awakening or de-developing after a period of inactivity, which will improve significantly over 30 minutes after beginning to move.² It is useful to inquire in an open-ended fashion about the patient’s ability to ambulate and how the pain may limit their daily activities.

In addition to exploring the hip pain, other historical features that warrant further assessment include any associated paresthesia, sensation changes or warmth or coolness of the extremity, fevers, vomiting, recent and prior surgeries to the area, and injection drug use (IVDU). The presence of any of these characteristics suggests the possibility of a more ominous etiology and warrant further investigation.

Review the past medical history with a focus on underlying conditions that could increase the likelihood of more serious diagnoses and hence the need for ad-

Image 4. Muscles of the Hip

ditional work-up. Patients with history of instrumentation of the hip (including intraarticular or bursal injection), placement of hardware, or prior arthroplasty warrant thorough exploration of the timeline and outcome of these procedures, especially if performed in the previous 3 months when the risk is greatest (although prosthetic joint infection can occur at any time post-operatively).¹² It is prudent to consult with the patient’s orthopedist in such cases to ensure appropriate immediate evaluation and follow-up. Reviewing prior imaging studies when available can often provide useful clues to the patient’s prior orthopedic history as well.

Special attention should be given to conditions such as diabetes, liver disease, cancer, immunosuppression, and cardiovascular disease. A thorough medication history can provide clues to alternate diagnoses. For example, frequent use of systemic corticosteroids may increase the risk of avascular necrosis (AVN) of the femoral head or septic arthritis due to immunosuppression.¹³ Bisphosphonate therapy can lead to femoral insufficiency fractures.¹⁴ IVDU dramatically increases the risk of spinal infections and septic arthritis, which both may present with hip pain.¹⁵

Finally, it is worthwhile to review any past imaging studies available and any prior therapies the patient has tried, including arthroscopic surgeries and intra-articular injections—which may not be radiographically evident on XR.

Physical Examination

Review the patient’s vital signs. Fever, hypotension, and/or significant tachycardia warrant further exploration. Ensure the most accurate temperature measure-

ment technique available in patients with hip pain if they report subjective fevers. Before focusing on the area of the patient's pain, a screening examination of the abdomen and back is important to avoid missing sources of referred pain. Document the patient's general appearance and ability to ambulate.

The physical exam of the hip should include the 5 pillars of any musculoskeletal assessment:

1. Inspection
2. Palpation
3. Range of motion (ROM)
4. Strength
5. Neurovascular status

Passively range the hip in a progressive fashion. A log roll of the entire leg with the patient supine and knee extended is a gentle first examination. Significant pain with log roll suggests such patients will often not tolerate more aggressive passive ROM.¹⁶ Inspect and palpate for skin changes such as erythema, ecchymosis, abrasions, lacerations, fluctuance, necrosis, or crepitus. Palpate for location of pain, but do not be surprised if patients are non-tender. The highest yield findings on physical exam will be limitations to active ROM (especially internal rotation and adduction), and pain with passive ROM (especially flexion and internal rotation).^{17,18} Note which active movements exacerbate pain such as walking or twisting.

To evaluate the neurovascular status, palpate the femoral pulse in the groin, and assess the skin color and temperature of the leg, noting any pallor or coolness. Additionally, check capillary refill in the foot and note any swelling as well as the location of the leg affected. Sensation can be screened by lightly touching different areas of the leg and foot and comparing the sensation to the contralateral lower extremity. Check patellar and ankle jerk reflexes bilaterally. Inquire about any pain radiating down the leg, which could indicate nerve compression. An examination of the lumbar spine should be performed in non-traumatic hip pain patients routinely, as referred pain and radicular pain can often manifest as hip pain. The straight leg raise (SLR) test is a sensitive test for lumbar disc herniation (ie, sciatica) etiologies of pain, whereas the crossed SLR is insensitive but >90% specific.¹⁹

Differential Diagnosis

Most of the diagnoses listed can be ruled out with a thorough history and physical exam. Differential diagnosis includes:

- Traumatic or pathologic fracture
- Septic arthritis

- Crystal arthropathy (ie, gout, calcium pyrophosphate disease)
- Inflammatory arthritis (ie, rheumatoid arthritis)
- Avascular necrosis of the femoral head (Legg-Calvé-Perthes disease in young children)
- Apophyseal avulsion fracture
- Overuse/strain
- Transient synovitis
- Trochanteric bursitis
- Radicular pain or referred pain from the lumbar spine, abdomen, pelvis etc.
- Malignancy

Diagnostic Testing

Blood laboratory testing is rarely helpful unless there is clinical suspicion for infection. While white blood cell count and inflammatory markers (ie, sedimentation rate and c-reactive protein) are sensitive for excluding infection, these are highly non-specific, and false positives are common.²⁰ As these tests rarely affect UC management or disposition, it is prudent to forgo such testing, especially when results will not be quickly available. Plain radiography is the initial test of choice. A standard hip XR includes an AP view (with internal rotation) and a lateral view (cross-table or frog-leg). Proper positioning is key: in the AP view, the greater and lesser trochanters should be visible, with minimal femoral head-neck overlap. Avoid excessive external or internal rotation to prevent joint space width (JSW) measurement errors. Lesquesne's view (false profile) can assess anterior joint space and early OA. Avoid switching views in longitudinal studies to ensure consistency. In obese patients, supine positioning may improve image quality.²¹

AP hip XR will typically reveal arthritic changes in the hip, but clinical correlation is important. The radiographic appearance of OA of the hip involves joint space narrowing (especially to the superior aspect of the joint), osteophytes, and subchondral sclerosis along the acetabular rim and femoral head.^{1,2} The diagnosis of hip OA requires XR findings with suggestive symptoms typical of arthritis such as groin pain, joint stiffness, and limited range of motion. Advanced imaging is generally not required. Many patients have radiographic findings without any symptoms, and there is poor correlation with XR findings and severity of symptoms.^{2,22}

There are 3 established techniques for radiographic assessment of hip OA which differ in reliability. These 3 methods are: minimum JSW measurement; Kellgren and Lawrence (KL) grading system; and Croft grading system. The JSW method quantitatively measures the

narrowest space between the femoral head and acetabulum with a width of <2.0 millimeters indicating OA. This objective measurement leads to high reproducibility and interobserver agreement.²³ In contrast, the KL and Croft grading systems rely on qualitative visual assessments of radiographic features like osteophytes, joint space narrowing, and bone deformities, resulting in moderate interobserver variability due to differences in interpretation. JSW measurement is more suitable for clinical practice because of its simplicity and higher reliability. The KL and Croft systems can serve as supplementary tools when evaluating severe cases of OA.²³

Indications for Referral to the Emergency Department

Consider the following for referral to the emergency department (ED):

- Concern for hip fracture (ie, inability to bear weight)
- Intractable pain
- Concern for septic arthritis
- Consideration of an alternative time-sensitive diagnosis

Management of Hip Osteoarthritis In Urgent Care

As always, the initial responsibility of the UC provider in evaluating a patient with presumed hip OA is to consider alternative conditions that require timely intervention to prevent adverse outcomes. Such diagnoses include occult fractures, septic arthritis, and malignancy. In the setting of trauma, plain radiographs can miss between 2% and 9% of hip fractures.²⁴ Plain radiographs can also fail to detect AVN in 38-59% of cases.^{25,26} If clinical suspicion is high (ie, a previously ambulatory patient who is now unable to bear weight), advanced imaging should be obtained prior to discharge or permitting weight bearing. As this is often not possible in UC settings, ED referral is appropriate in such cases to allow for timely access to cross-sectional imaging. Magnetic resonance imaging (MRI) of the hip serves as the gold standard for evaluation of occult fracture. Computed tomography (CT) of the hip is a second line option if MRI is unavailable. CT, however, can also miss fractures with a sensitivity of 86-94%.^{27,28,29}

Infection and malignancy should be considered in patients with measured or reported fevers and/or the presence of red flag risk factors including: immunosuppression, prior septic joint, active/metastatic cancer, severe pain at rest, unexplained weight loss, IVUDU, advanced liver disease, rheumatoid arthritis or other autoimmune conditions, and poorly controlled diabetes. If patients report 1 or more of these risk factors,

and there is clinical concern, immediate referral to the ED is recommended.^{30,31}

After reasonably excluding alternate, time sensitive diagnoses, it is appropriate to begin treatment for OA in cases with supporting history and XR findings. The initial treatment of OA of the hip focuses on symptom relief. By the time symptoms of hip OA manifest, significant joint damage has usually occurred, and conservative treatments should be expected to offer only moderate and temporary relief.³² Disease-modifying interventions remain elusive, and total hip arthroplasty (THA) is ultimately required in advanced cases.^{32,33}

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Current best practice for management of pain related to hip OA begins with progression from conservative non-pharmacological methods to pharmacological treatments, and finally referral to an orthopedist to review surgical options.

The most effective non-pharmacological options for patients with hip OA to improve quality of life involve a personalized approach integrating patient education, tailored exercise programs, physical therapy, and weight loss in patients who are overweight or obese.^{2,5,34,35,36} Additionally, the use of walking aids, appropriate footwear, and adaptations of home or work environment can reduce pain and enhance daily function.^{34,35} Physical therapy referral in those with mild to moderate OA is recommended by the American Academy of Orthopedic Surgeons (AAOS).³⁶

Initial pharmacological management strategies that can be initiated in the UC setting should focus on the patient’s acute symptoms. Oral non-steroidal anti-inflammatory drugs (NSAIDs) in patients are generally effective and well-tolerated for short courses without contraindications. Reasonable options for NSAID ther-

apy include diclofenac 100 mg daily, ibuprofen 800 mg 3 times daily, or naproxen 500mg twice daily. NSAIDs have been shown to improve function and reduce opioid use in patients with OA.^{37,38} Topical NSAIDs have shown efficacy in treating pain associated with OA of the hands and knees, but their use has not been shown to be effective for analgesia in patients with hip OA.^{5,37,38} This is thought to be attributable to the relatively greater distance from the skin to the hip joint.⁵ For individuals with contraindications to oral NSAIDs, acetaminophen, up to 3,000mg daily, can be used, although has been shown to be slightly less effective. Such doses of acetaminophen can also be safely added to an NSAID regimen and may offer some additional relief for hip OA pain.⁵

In UC settings with appropriate sterile equipment and with adequate clinician training, intraarticular (IA) glucocorticoid injections can be performed with direct image guidance, typically via ultrasound or fluoroscopy.³⁷ IA glucocorticoids have been shown to improve pain and function when used in combination with standard care³⁹ and receive a moderate level recommendation by the AAOS. Patients receiving IA corticosteroid injections should be counseled about possible risks, including infection and rapid progression of OA in rare cases.^{37,38} More commonly, UC clinicians will be referring patients for consideration for IA corticosteroid injections, and awareness of this therapeutic option is important in settings where there may be system or patient barriers to THA.

Other oral and IA therapies have been studied for OA of the hip and have unfortunately largely proven ineffective. Specifically, strong recommendations against IA hyaluronic acid,³⁷ IA botulinum toxin, methotrexate, hydroxychloroquine, chondroitin sulfate and glucosamine and bisphosphonates exist due to lack of supporting evidence.⁵

Next Level Urgent Care Pearls

- A diagnosis of OA of the hip requires evaluation of suggestive symptoms, exam findings, and XR findings.
- Findings suggestive of hip OA on XR include joint space narrowing, osteophytes, and subchondral sclerosis.
- Initial management strategies involve non-pharmacologic interventions including physical therapy, weight loss, and core strengthening exercises. Pharmacologic interventions include oral acetaminophen and NSAIDs.
- Do not defer specialist referrals. Given the chronic

and progressive nature of hip OA, immediate physical therapy, weight management, and orthopedic surgery referrals are all reasonable and appropriate once the diagnosis is confirmed.

- Intraarticular steroid injections may be helpful for certain patients while awaiting arthroplasty.

Red Flags and Legal Pitfalls

- Consider the possibility of hip fracture (even with minimal or no trauma history) malignancy, and septic arthritis. If these are suspected, transport the patient to the ED for further evaluation.
- Consider septic arthritis in patients acute hip pain and risk factors such as poorly controlled diabetes, IVDU, and/or immunosuppression. Do not rely on absence of a measured fever in high-risk patients.
- Plain AP pelvis XR is the initial imaging study of choice for patients presenting with hip pain. Importantly, normal XR should not be relied upon to exclude serious diagnoses, namely hip fractures, especially if the patient newly is unable to bear weight.
- MRI is the gold standard for excluding occult hip fractures. CT may be more readily available, however, a negative CT cannot be used to exclude hip fracture.

Clinical Scenario Conclusion

The patient was given acetaminophen and instructed to use occasional naproxen for more significant pain. A physical therapy referral was placed, and the importance of weight loss was reviewed. She was referred to an orthopedic surgeon for discussion of the risks and benefits of THA. The patient ultimately decided to pursue surgical management and regained full use of her hip. She experienced resolution of her pain after surgical recovery and rehabilitation.

Takeaway Points

- OA of the hip most commonly affects older adults and those with other risk factors including obesity and prior hip injury.
- The most common symptoms of hip OA include groin or hip pain that worsens with activity, stiffness after inactivity, reduced ROM and/or a grinding sensation with movement.
- Physical examination may reveal limited hip mobility, pain with active and passive ROM, crepitus, joint tenderness, muscle weakness, and altered gait.
- Effective non-surgical treatments for hip OA include physical therapy, appropriate strengthening

exercises, medications, and IA corticosteroid injections. Hip arthroplasty is the definitive treatment and generally results in dramatic improvement or resolution of symptoms.

- Hip OA is a diagnosis of exclusion. The most important initial priority in UC for patients presenting with new or worsening hip pain involves excluding alternative, time-sensitive etiologies for hip pain such as fracture, infection, malignancy, and referral from spinal or visceral pathology. ■

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