

2011 Imaging Criteria

Magnetic Resonance Imaging (MRI), Hip^(1*RIN, 2, 3)

ICD-9-CM: 88.94

CPT: 73721, 73722, 73723

I/O Setting: Outpatient

INDICATION(S)

- 100 Chronic monarticular joint pain
- 200 Suspected intra-articular loose body
- 300 Suspected nondisplaced femoral neck fracture
- 400 Suspected avascular necrosis (osteonecrosis), femoral head
- 500 Suspected osteomyelitis

- 100 Chronic monarticular joint pain **[All]**⁽⁴⁾
 - 110 Symptoms at hip **[One]**
 - 111 Joint pain
 - 112 Locking
 - 113 Giving way by Hx
 - 120 Findings at hip **[Two]**
 - 121 Pain with passive ROM
 - 122 Limited ROM
 - 123 Weakness of abductors/hip flexors⁽⁵⁾
 - 130 Hip x-ray nondiagnostic for etiology of pain⁽⁶⁾
 - 140 Continued Sx/findings **after** Rx **[Both]**⁽⁷⁾
 - 141 NSAID **[One]**⁽⁸⁾
 - 1 Rx ≥ 4 wks
 - 2 Contraindicated/not tolerated⁽⁹⁾
 - 142 PT ≥ 6 wks⁽¹⁰⁾
- 200 Suspected intra-articular loose body **[All]**⁽¹¹⁾
 - 210 Symptoms at hip **[One]**
 - 211 Joint pain
 - 212 Locking
 - 213 Giving way by Hx
 - 220 Findings at hip **[Two]**
 - 221 Pain with passive ROM
 - 222 Limited ROM
 - 223 Clicking
 - 230 Hip x-ray nondiagnostic for loose body

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- 300 Suspected nondisplaced femoral neck fracture **[All]**⁽¹²⁾
- 310 Hip pain
 - 320 Hip pain increased by weight bearing/passive ROM
 - 330 Hip x-ray nondiagnostic for fracture
- 400 Suspected avascular necrosis (osteonecrosis), femoral head **[All]**^(13, 14)
- 410 Hip pain
 - 420 Pain with passive ROM
 - 430 Hip x-ray nondiagnostic for avascular necrosis
- 500 Suspected osteomyelitis **[Both]**
- 510 Findings **[One]**⁽¹⁵⁾
 - 511 ESR > 30 mm/hr
 - 512 Temperature > 100.4 F(38.0 C)
 - 513 WBC > 10,000/cu.mm($10 \times 10^9/L$)
 - 514 Blood culture positive
 - 515 C-reactive protein > 10 mg/L
 - 520 Hip x-ray nondiagnostic for osteomyelitis

Notes

(1)-RIN:

For suspected bone tumor, see the "Magnetic Resonance Imaging (MRI), Extremity" criteria subset.

(2)

MRI has largely replaced arthrogram as a means of nonarthroscopic joint assessment. An arthrogram is an invasive procedure requiring the administration of contrast material to evaluate the joint space and can provide similar information to the MRI for certain indications if read by an experienced radiologist (Firestein and Kelley, Kelley's textbook of rheumatology, 8th ed. 2008, 2 v.). MRI offers the advantages of excellent soft tissue contrast and multiplanar imaging. It does not expose the patient to ionizing radiation and eliminates the need for intra-articular contrast (Crawford et al., Br Med Bull 2007; 84: 5-23).

(3)

The following are examples of relative and absolute contraindications to the use of magnetic resonance imaging:

- Implanted devices that are electrically or magnetically activated (e.g., cardiac pacemakers, automatic cardioverter defibrillators, drug infusion pumps, cochlear implants)
- Ferromagnetic metal objects (e.g., cerebral aneurysm clips, intraocular metallic foreign body, prostheses, screws)
- Pregnancy, first trimester
- Renal insufficiency in cases when magnetic resonance imaging is performed with gadolinium-based contrast

(4)

Chronic monarticular pain, with or without prior trauma, may be caused by intra-articular loose bodies, chondromalacia, or chondral defects. Chronic pain in more than one joint may represent a systemic rheumatic disorder which may be diagnosed by clinical evaluation and blood tests.

(5)

Weakness of the hip muscles can cause gait abnormalities, including an abductor lurch or a Trendelenburg gait. Muscle atrophy is usually not seen in the hip region.

(6)

X-ray should be performed to exclude fracture, dislocation, or tumor as possible causes of the patient's symptoms.

(7)

The listed treatments may have occurred at any time in the course of the illness. External joint support is important adjunctive therapy in most cases. Canes, crutches, or walkers can be used to decrease load and alleviate symptoms.

(8)-POL:

It is a matter of local medical policy whether to accept acetaminophen or analgesics as substitutes for NSAIDs.

(9)

Contraindications to NSAIDs may be absolute (e.g., pregnancy, history of allergic reaction) or relative (e.g., anticoagulant use, history of PUD).

(10)

Recommended treatments for arthritis include exercise therapy for strengthening, ROM, and improvement in gait. Structured low-impact exercise programs may help to reduce pain and improve mobility and function (Zhang et al., Osteoarthritis Cartilage 2008; 16(2): 137-162; Khan et al., Cochrane Database Syst Rev 2008; (2): CD004957; National Institute for Health and Clinical Excellence (NICE), Osteoarthritis: the care and management of osteoarthritis in adults. Clinical guideline 59. 2008, 25).

Active patients (e.g., those who walk daily, participate in sports, or engage in home exercise) often do not require formal exercise programs, but should receive formal instruction on the most appropriate exercises to address their condition.

(11)

Loose bodies in synovial joints are formed by several mechanisms, including trauma with fracture, joint disintegration from degeneration, and synovial proliferation. Examples of loose bodies include osteochondritis dissecans fragments, chondral fragments, and calcified loose bodies. Loose bodies that are stable or attached to a synovial membrane, recess, or bursa tend to be asymptomatic and can be treated conservatively. Loose bodies that move within the joint cavity can become trapped between the articular surfaces causing pain, limited motion, locking, and effusion (Dubberley et al., J Bone Joint Surg Br 2005; 87(5): 684-686).

(12)

When the clinical suspicion of a hip fracture is high and the x-ray is nondiagnostic, MRI, CT, and bone scan have been utilized to diagnose occult fractures. MRI provides an early diagnosis and has demonstrated 100% sensitivity and specificity in diagnosing occult hip fracture (Hong et al., *J Magn Reson Imaging* 2008; 27(3): 435-445; Perron et al., *Am J Emerg Med* 2002; 20(3): 234-237). CT may also provide early diagnosis, though limitations may exist depending on fracture location. A small observational study suggested decreased accuracy when CT was compared to MRI in diagnosing occult fractures (Lubovsky et al., *Injury* 2005; 36(6): 788-792; Perron et al., *Am J Emerg Med* 2002; 20(3): 234-237). Bone scans, with a sensitivity of 93% and a specificity of 95%, have historically been used in this population; however in elderly, osteoporotic patients the greatest sensitivity with this test may be at 72 hours (Galloway et al., *Australas Radiol* 2004; 48(1): 21-24; Perron et al., *Am J Emerg Med* 2002; 20(3): 234-237). The decision as to which imaging study to choose to evaluate an occult hip fracture is a matter of clinical judgment.

(13)-DEF:

Avascular necrosis, (i.e., aseptic necrosis, osteonecrosis), is a degenerative condition of focal bone causing progressive pain and bony collapse. Numerous medical conditions predispose toward avascular necrosis, including alcoholism, chronic corticosteroid use, sickle cell disease, pancreatitis, trauma, SLE, and radiation therapy.

(14)

MRI is the most sensitive imaging technique for the early diagnosis of avascular necrosis (osteonecrosis) of the hip (Clohisy et al., *J Bone Joint Surg Am* 2008; 90(10): 2267-2281).

(15)

If the patient is immunocompromised, fever may not be present and the WBC may be unchanged or low.