

2011 Imaging Criteria

Magnetic Resonance Imaging (MRI), Ankle (Pediatric)^(1, 2)

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 avascular necrosis (osteonecrosis), talus
- 400 Suspected acute posterior tibial tendon rupture
- 500 Suspected osteomyelitis

- 100 Chronic monarticular joint pain **[All]**⁽³⁾
 - 110 Symptoms at ankle **[One]**
 - 111 Joint pain
 - 112 Locking
 - 113 Giving way by Hx
 - 120 Findings at ankle **[Two]**
 - 121 Pain with passive ROM
 - 122 Limited ROM
 - 123 Crepitus⁽⁴⁾
 - 124 Tenderness
 - 125 Joint effusion/swelling
 - 130 Ankle x-ray nondiagnostic for etiology of pain⁽⁵⁾
 - 140 Continued Sx/findings **after** Rx **[Both]**^(6, 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 ankle **[One]**
 - 211 Joint pain
 - 212 Locking
 - 213 Giving way by Hx
 - 220 Findings at ankle **[Two]**
 - 221 Pain with passive ROM
 - 222 Limited ROM

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- 223 Clicking
- 230 Ankle x-ray nondiagnostic for loose body

- 300 Suspected avascular necrosis (osteonecrosis), talus **[All]**^(12, 13)
 - 310 Ankle pain
 - 320 Pain with passive ROM
 - 330 Talus fracture/nonunion of fracture by imaging⁽¹⁴⁾
 - 340 Ankle x-ray nondiagnostic for avascular necrosis

- 400 Suspected acute posterior tibial tendon rupture **[All]**⁽¹⁵⁾
 - 410 Injury to the area by Hx ≤ 3 wks
 - 420 Symptoms at ankle **[Both]**
 - 421 Pain in medial ankle
 - 422 Pain increased by weight bearing/inversion
 - 430 Findings at ankle **[Two]**
 - 431 Pain with passive ROM
 - 432 Limited ROM
 - 433 Crepitus⁽⁴⁾
 - 434 Tenderness
 - 435 Joint effusion/swelling
 - 440 Ankle x-ray nondiagnostic for etiology of pain⁽⁵⁾

- 500 Suspected osteomyelitis **[Both]**
 - 510 Findings **[One]**⁽¹⁶⁾
 - 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 Ankle x-ray nondiagnostic for osteomyelitis⁽¹⁷⁾

Notes

(1)

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).

(2)

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

(3)

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.

(4)-DEF:

Crepitus is a sometimes audible, or sometimes palpable, grating sensation caused by two irregular cartilage surfaces moving relative to each other. It can be appreciated when the joint is extended or flexed.

(5)

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

(6)

External joint support is important adjunctive therapy in most cases. Canes, crutches, or walkers can be used to decrease load and alleviate symptoms. Immobilization can provide rest to the joint using various immobilization devices (e.g., splints, immobilizers).

(7)

The listed treatment(s) may have occurred at any time in the course of the illness.

(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)

This criteria point includes exercise therapy by provider instruction to the patient, as well as supervised training through formal PT. Exercise may not be appropriate if symptoms have been present for a long period of time and exercise has been attempted previously, or if symptoms are severe on presentation.

(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)-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.

(13)

MRI is superior to bone scan for demonstrating avascular necrosis and is the test of choice if the plain x-ray is nondiagnostic.

(14)

The imaging study may be an x-ray, CT, or tomogram.

(15)

Posterior tibial tendon injuries typically occur with activities that require rapid changes in direction, such as basketball, hockey, tennis, and soccer (Dunfee et al., *Radiol Clin North Am* 2002; 40(2): 289-312, vii). Acute partial or complete rupture of the posterior tibial tendon in young, athletic individuals is uncommon and is usually seen at the insertion of the tendon on the navicular bone (Rosenberg et al., *Radiographics* 2000; 20: S153-S179). Accurate diagnosis is required since one-third of moderate to severe ankle sprains have an associated injury such as osteochondral talar dome fracture, posterior impingement, or peroneal or posterior tibial tendon injury (McBryde and Hoffman, *South Med J* 2004; 97(8): 738-741).

(16)

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

(17)

MRI may be warranted to visualize the extent of bone marrow and soft tissue changes as osseous changes do not appear on x-ray until 7 to 10 days after onset (Balassy and Hormann, *Eur J Radiol* 2008; 68(2): 245-258).