MedPOINT MANAGEMENT	**Clinical Protocol:** Ankle MRI	
	ORIGINAL EFFECTIVE DATE: 11/30/2011	**REVIEWED/REVISED DATE(S):** 06/18/2019
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PROTOCOL OVERVIEW

This Clinical Protocol advises on indications and guidelines for Ankle MRI.

INDICATIONS/CRITERIA

A. **Ankle Pain, Unexplained**

- MRI, ankle, is indicated for *unexplained ankle pain* when ANY ONE of the following is present (unenhanced when not considering surgery):
  1. Persistent pain of unclear etiology with normal plain x-rays, not improving after 7 days of conservative therapy, causes MAY INCLUDE:
     a) Acute or chronic ligament tear
     b) Occult fracture when pain persists 6 or more weeks after injury
     c) Tendon tear
  2. Indeterminate lesions or anomaly on plain x-ray or CT scan or bone scan demonstrating increased uptake
  3. Suspected osteochondral injury with normal plain x-ray
  4. Suspected osteonecrosis as indicated by ANY ONE of the following:
     a) Focal radiolucency on plain x-ray
     b) Bone scan demonstrates well-localized increased uptake
     c) Pain, stiffness, and swelling associated with localized tenderness to pressure
     d) Persistent pain in patient with sickle cell anemia or chronic corticosteroid usage
  5. Bone scan demonstrates well-localized increased uptake
  6. Loose body in joint space
  7. Instability on physical examination (e.g., suspected ligament tear)
  8. Recurrent sprains (e.g., suspected chronic ligament tear) or edema
  9. Suspected osteomyelitis or osteonecrosis
  10. Suspected stress fracture AND ALL of the following:
      a) History of overuse or excessive activity
      b) Localized pain
      c) Symptoms persist or recur despite rest
      d) Two normal plain x-rays at least 3 weeks apart
      e) Concerns regarding infection or inflammatory process make bone scan suboptimal

B. **Neoplasm, Bone: Malignant and Benign**

- MRI, ankle, is indicated for malignant or benign bone neoplasm when ANY ONE of the following is present (unenhanced):
  1. Abnormal finding on plain x-ray or bone scan
  2. Palpable bony abnormality with normal plain x-ray
  3. Known diagnosis of cancer located elsewhere AND ANY ONE of the following:
     a) Unexplained localized signs and symptoms
     b) Abnormal plain x-ray or bone scan
  4. Persistent pain of unclear etiology

5. Ewing sarcoma, chondrosarcoma, or osteosarcoma AND ANY ONE of the following:
   a) Initial staging
   b) Monitoring response after treatment completed and surveillance for recurrence

C. Osteomyelitis

- MRI, ankle, is indicated for osteomyelitis when ANY ONE of the following is present (unenhanced; enhanced only when diagnosis is unclear):
  1. Localized bone pain associated with chills or fever, particularly after trauma or orthopedic surgery
  2. Cellulitis that responds poorly to antibiotics
  3. Diabetes or severe peripheral vascular disease AND ANY ONE of the following:
     a) Persistent foot pain, even without ulcer present
     b) Persistent or worsening ulcer
  4. Focal lesion seen on bone scan
  5. Suspected sinus tract infection from ulcer

D. Achilles Tendon Rupture

- MRI, ankle, is indicated for Achilles tendon rupture when ANY ONE of the following is present:
  1. Acute rupture when diagnosis equivocal
  2. Chronic rupture, to differentiate between complete and partial tears

E. Soft Tissue Mass, Tumor, and Other Abnormalities

- MRI, ankle, is indicated for soft tissue mass, tumor, or other abnormalities for ANY ONE of the following (may require enhanced):
  1. Soft tissue mass AND ANY ONE of the following:
     a) Deep, painful, large or enlarging masses
     b) Masses that cross anatomic boundaries
     c) Concern for effect on adjacent anatomic structures
     d) Vascular lesions, particularly in child, AND ANY ONE of the following:
        (1) Initial staging
        (2) Within 3 months after treatment completed
        (3) Post-treatment surveillance, annually for 5 years
        (4) Abnormal physical findings after treatment completed
     e) Soft tissue muscle abscess, when performed for planning of biopsy or surgical treatment
     f) Initial staging or surveillance

F. Evidence Summary

Criteria

- MRI is useful following ankle sprain or other trauma to diagnose ligament injury, occult stress fractures, or osteochondral lesions
- MRI is useful to detect fractures of the talus not seen on plain x-ray, such as snowboarder's fracture, and injury to the anterior talofibular ligament due to ankle inversion injury
- The diagnosis of ankle impingement is clinical
- Complete Achilles tendon rupture can usually be diagnosed by physical examination (weakness of ankle plantar flexion, a palpable or visible gap in the tendon, and a positive calf squeeze test); however, MRI is useful when the extent of rupture is in doubt
- For osteomyelitis of the foot or ankle, a systematic review and meta-analysis found that MRI had greater diagnostic accuracy than bone scan, plain x-rays, or studies using white blood

cells. A review reported that MRI can detect osteomyelitis as early as 3 to 5 days after symptom onset, with satisfactory specificity

- For malignant bone tumors, MRI is appropriate for initial staging, re-evaluation after chemotherapy or radiation therapy, and periodic post-treatment surveillance
- Recurrences after 5 years are more common with chondrosarcoma than other sarcomas
- For soft tissue sarcoma, MRI is appropriate for initial staging, re-evaluation after treatment is completed, and post-treatment surveillance
- The likelihood of recurrence of soft tissue sarcoma after 10 years is low

CITATION

Milliman Care Guidelines, Ambulatory Care, "Ankle MRI", 23rd Edition, 2/26/2019