

CT Lower Extremity (includes Arthrograms)

CPT: 73700, 73701, 73702

IMPORTANT NOTES

- For most indications MRI is the preferred exam
- If MRI is Preferred CT cannot be authorized without a statement that MRI is not available, has been done but was not diagnostic, or that the patient cannot tolerate an MR examination

Red Flags Disregard any requirement for prior management if any of the following are part of the clinical history:

- Abnormal CBC, Sed Rate, etc
- Bladder and Bowel dysfunction
- Fever
- Cancer, History of
- Immunocompromised state
- IV drug use
- Major weakness of a limb
- Pain increased at rest
- Saddle anesthesia
- Trauma
- Unexplained weight loss
- Urinary tract infections

The requirement for Medical or Conservative Management prior to imaging is satisfied if the following are met:

- Nonsteroidal anti-inflammatory drugs for at least four weeks (Requirement is waived if NSAIDS are not tolerated or contraindicated, or if condition worsens while under treatment.)
- Activity modification or physical therapy if appropriate

NOTE:

If the criteria indicate that MRI is Preferred, CT cannot be authorized without a statement that MRI is not available, has been done but was not diagnostic, or that the patient cannot tolerate an MR examination

CT Arthrograms Always ordered with contrast

Knee

Chondromalacia Patella

Knee pain, predominantly anterior, not responding to conservative management.

McMahon Patrick J, Kaplan Lee D, "Chapter 4. Sports Medicine" (Chapter). Skinner HB: CURRENT Diagnosis & Treatment in Orthopedics, 4e: <http://www.accessmedicine.com/content.aspx?aID=2318624>.

Gagliardi, JA, Chung, EM, Chandnani, VP, Kesling, KL, Christensen, KP, Null, RN, Radvany, MG, Hansen, MF Detection and staging of chondromalacia patellae: relative efficacies of conventional MR imaging, MR arthrography, and CT arthrography Am. J. Roentgenol. 1994 163: 629-636

Osteochondritis Dissecans MRI PREFERRED

Loose body by X-ray MRI PREFERRED

Ankle

Impingement Syndrome MRI PREFERRED

Antero-lateral ankle pain unresponsive to conservative treatment

- X-rays nondiagnostic
- Hauger, O, Moinard, M, Lasalarie, JC, Chauveaux, D, Diard, F Anterolateral compartment of the ankle in the lateral impingement syndrome: appearance on CT arthrography Am. J. Roentgenol. 1999 173: 685-690 Cochet, Hubert, Pele, Eric, Amoretti, Nicolas, Brunot, Sebastien, Lafenetre, Olivier, Hauger, Olivier Anterolateral Ankle Impingement: Diagnostic Performance of MDCT Arthrography and Sonography Am. J. Roentgenol. 2010 194: 1575-1580 Molloy, S., Solan, M. C., Bendall, S. P. Synovial impingement in the ankle: A NEW PHYSICAL SIGN J Bone Joint Surg Br 2003 85-B: 330-333
- Ankle unstable, X-ray nondiagnostic MRI PREFERRED
 - **Suspected osteochondral injury MRI PREFERRED**
- Normal or nondiagnostic X-ray No response to conservative treatment
- Ankle unstable, X-ray nondiagnostic MRI PREFERRED

Reference ACR Appropriateness Criteria

Routine Imaging May be ordered with contrast

1 Major Symptom or Complaint presented as primary indication

1.1 Mass, soft tissue or bone MRI PREFERRED

1.1.1 Prior imaging nondiagnostic (US or X-ray)

1.2 Pain post trauma

2 Working Diagnosis or Rule Out presented as primary indication

2.1 Compartment Syndrome MRI PREFERRED

2.1.1 Pain with passive stretching of muscle

2.1.2 Pain, more severe than expected from trauma

2.1.3 Paresthesias

2.1.4 Plulseless Paralysis

References

1. Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 6th Edition; Judith Tintinalli et al Eds. Chapter 278 Compartment Syndromes Paul R Haller

2.2 Fracture suspected

2.2.1 Pain and/or swelling at site AND

2.2.1.1 x-ray nondiagnostic

2.3 Osteomyelitis Suspected MRI PREFERRED

2.3.1 Pain or Fever AND One

2.3.1.1 C reactive Protein elevated

2.3.1.2 Elevated ESR

2.3.1.3 Fever

2.3.1.4 Leukocytosis

2.3.1.5 Positive Blood Cultures

References:

1. Parsonnet Jeffrey, "Chapter 120. Osteomyelitis" (Chapter). Fauci AS, Braunwald E, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J: Harrison's Principles of Internal Medicine, 17th Edition: <http://www.accessmedicine.com/content.aspx?aID=2893649>.
2. Alok Kapoor, Stephanie Page, Michael LaValley, Daniel R. Gale, and David T. Felson Magnetic Resonance Imaging for Diagnosing Foot Osteomyelitis: A Meta-analysis Arch Intern Med, Jan 2007; 167: 125 – 132.
3. J. Herman Kan, Melissa A. Hilmes, Jeffrey E. Martus, Chang Yu, and Marta Hernanz-Schulman Value of MRI After Recent Diagnostic or Surgical Intervention in Children with Suspected Osteomyelitis Am. J. Roentgenol., Nov 2008; 191: 1595 – 1600.
4. Kuo-Chen Lee, Yi-Ting Tsai, Chih-Yuan Lin, and Chien-Sung Tsai Vertebral osteomyelitis combined streptococcal viridans endocarditis Eur. J. Cardiothorac. Surg., Jan 2003; 23: 125.
5. D Allen, S Ng, K Beaton, and D Taussig Sternal osteomyelitis caused by Aspergillus fumigatus in a patient with previously treated Hodgkin's disease J. Clin. Pathol., Aug 2002; 55: 616 – 618.
6. M Ida, H Watanabe, A Tetsumura, and T Kurabayashi CT findings as a significant predictive factor for the curability of mandibular osteomyelitis: multivariate analysis Dentomaxillofac. Radiol., Mar 2005; 34: 86 – 90.
7. Jyri K. Koort, Tatu J. Mäkinen, Juhani Knuuti, Jari Jalava, and Hannu T. Aro Comparative 18F-FDG PET of Experimental Staphylococcus aureus Osteomyelitis and Normal Bone Healing J. Nucl. Med., Aug 2004; 45: 1406 – 1411.
8. Susan A. Connolly, Leonard P. Connolly, Laura A. Drubach, David Zurakowski, and Diego Jaramillo MRI for Detection of Abscess in Acute Osteomyelitis of the Pelvis in Children Am. J. Roentgenol., Oct 2007; 189: 867 – 872.

2.4 Necrotizing Fasciitis [Two] [Automatic Expedited Review by Physician Reviewer if Criteria are not met]

2.4.1 Pain

2.4.2 Swelling

2.4.3 Fever

2.4.4 Warm, shiny or discolored skin over the affected area

2.4.5 Elevated WBC count (Leukocytosis)

2.4.6 Lymphangitis and/or Lymphadenitis.

References

1. Tubbs Robert J, Savitt Daniel L, Suner Selim, "Chapter 12. Extremity Conditions" (Chapter). Knoop KJ, Stack LB, Storrow AB, Thurman RJ: The Atlas of Emergency Medicine, 3e: <http://www.accessmedicine.com/content.aspx?alD=6003337>.
2. Fugitt JB, Puckett ML, Quigley MM, Kerr SM. Necrotizing fasciitis. RadioGraphics 2004;24 : 1472-1476

2.5 Pes Planum (flat foot)

2.6 Stress fracture, suspected BOTH MRI PREFERRED

2.6.1 Localized Pain

2.6.2 Nondiagnostic Repeat X-ray at least 7 days after onset of symptoms

References:

1. Gaeta, Michele, Minutoli, Fabio, Vinci, Sergio, Salamone, Ignazio, D'Andrea, Letterio, Bitto, Linda, Magaudo, Ludovico, Blandino, Alfredo; High-Resolution CT Grading of Tibial Stress Reactions in Distance Runners; Am. J. Roentgenol. 2006 187: 789-793
2. Gaeta M, Minutoli F, Scribano E, et al. CT and MRI findings in athletes with early tibial stress injuries: comparison with bone scintigraphy and emphasis on cortical abnormalities. Radiology2005; 235:553 -561
3. Current Diagnosis & Treatment in Family Medicine; Jeannette E. South-Paul, et al editors Chapter 36. Common Upper & Lower Extremity Fractures David A. Nikovits, MD, Richard E. Rodenberg, Jr., MD, Thomas D. Armsey, & Robert G. Hosey, MD

2.7 Tarsal coalition

2.7.1 foot pain, valgus heel, and decreased subtalar motion

References:

1. Lomasney, LM, Demos, TC, Harris, EJ; Computed tomographic imaging of the foot and ankle. Developmental and congenital anomalies; J Am Podiatr Med Assoc 2000 90: 223-233
2. Jack, E. A.; BONE ANOMALIES OF THE TARSUS IN RELATION TO "PERONEAL SPASTIC FLAT FOOT"; J Bone Joint Surg Br 1954 36-B: 530-542 [a paper from well before the CT era, with an excellent description of tarsal coalition and radiographs to illustrate.]

2.8 Tumor, suspected MRI PREFERRED

2.8.1 Lesion on prior imaging

2.8.2 Pain

3 Abnormal Physical Exam Finding presented as primary indication

3.1 Palpable gap in muscle or tendon MRI PREFERRED

3.2 Pulseless paralysis MRI PREFERRED

4 Abnormal Lab or Imaging presented as primary indication

5 Significant Prior Medical History presented as primary indication

5.1 Congenital foot anomalies for evaluation

5.2 Fracture, known

5.2.1 For treatment planning

5.2.2 Non union of known fracture Suspected

5.2.2.1 Movement at fracture site by PE, x-ray or statement of patient

5.2.2.2 No evidence of healing for at least 3 months

5.2.2.3 Pain

5.3 Osteomyelitis Known MRI PREFERRED

5.3.1 Interval follow up during and after treatment

5.3.2 Preoperative

5.3.3 Worsening clinical situation

References:

1. Parsonnet Jeffrey, "Chapter 120. Osteomyelitis" (Chapter). Fauci AS, Braunwald E, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J: Harrison's Principles of Internal Medicine, 17th Edition: <http://www.accessmedicine.com/content.aspx?aID=2893649>.
2. Alok Kapoor, Stephanie Page, Michael LaValley, Daniel R. Gale, and David T. Felson Magnetic Resonance Imaging for Diagnosing Foot Osteomyelitis: A Meta-analysis Arch Intern Med, Jan 2007; 167: 125 – 132.
3. J. Herman Kan, Melissa A. Hilmes, Jeffrey E. Martus, Chang Yu, and Marta Hernanz-Schulman Value of MRI After Recent Diagnostic or Surgical Intervention in Children with Suspected Osteomyelitis Am. J. Roentgenol., Nov 2008; 191: 1595 – 1600.
4. Kuo-Chen Lee, Yi-Ting Tsai, Chih-Yuan Lin, and Chien-Sung Tsai Vertebral osteomyelitis combined streptococcal viridans endocarditis Eur. J. Cardiothorac. Surg., Jan 2003; 23: 125.
5. D Allen, S Ng, K Beaton, and D Taussig Sternal osteomyelitis caused by Aspergillus fumigatus in a patient with previously treated Hodgkin's disease J. Clin. Pathol., Aug 2002; 55: 616 – 618.
6. M Ida, H Watanabe, A Tetsumura, and T Kurabayashi CT findings as a significant predictive factor for the curability of mandibular osteomyelitis: multivariate analysis Dentomaxillofac. Radiol., Mar 2005; 34: 86 – 90.
7. Jyri K. Koort, Tatu J. Mäkinen, Juhani Knuuti, Jari Jalava, and Hannu T. Aro Comparative 18F-FDG PET of Experimental Staphylococcus aureus Osteomyelitis and Normal Bone Healing J. Nucl. Med., Aug 2004; 45: 1406 – 1411.
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5.4 Pes Planum (flat foot)

5.5 Prosthesis for positioning and alignment

5.5.1 X-ray nondiagnostic

5.6 Tumor, known MRI PREFERRED

5.6.1 Interval routine follow up of primary or metastatic tumor

5.6.2 New or worsening symptoms