

MRI Upper Extremity Joint

CPT: 73221, 73222, 73223

IMPORTANT NOTES

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

1 Major Symptom or Complaint presented as primary indication

1.1 Pain in joint, X-rays non diagnostic

1.1.1 Failed Conservative Management

1.1.2 Known Malignancy Elsewhere, suspect metastasis (Conservative Management NOT required)

1.2 Pain post trauma

1.2.1 See Suspect Compartment Syndrome

1.2.2 X-rays non diagnostic

1.3 Swelling

1.3.1 Failed conservative management

1.4 Mass, soft tissue or bone

1.4.1 X-ray, CT or Ultrasound nondiagnostic

2 Working Diagnosis or Rule Out presented as primary indication

2.1 Avascular Necrosis Suspected, Pain in Joint and [ONE]

2.1.1 Alcoholism

2.1.2 Cushing's disease

2.1.3 History of pancreatitis

2.1.4 Sickle Cell disease

2.1.5 Steroid use in recent past (up to one year)

2.1.6 Systemic Lupus (SLE)

2.2 Brachial Plexus Pathology (Plexopathy) MRI of shoulder or C spine with contrast preferred.

2.2.1 Note Plexopathy refers to an abnormality of the complex of nerve roots exiting the spine and organizing into the nerves serving the arm, trunk or legs. Symptoms may include burning, tingling, or numbness in a circumferential or dermatomal distribution. The symptoms may radiate to the hand or remain localized in the neck.

2.2.2 Indications BOTH

2.2.2.1 History

2.2.2.1.1 Breast or lung cancer

2.2.2.1.2 History of radiation therapy to the chest, breast or axilla

2.2.2.1.3 Palpable mass in neck or shoulder area

2.2.2.1.4 Trauma, including at birth

2.2.2.2 Symptoms of upper extremity

2.2.2.2.1 Numbness

2.2.2.2.2 Paresthesias

2.2.2.2.3 Radiating pain

2.2.2.2.4 Weakness

References:

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2. Aliya Qayyum, A. David MacVicar, Anwar R. Padhani, Patrick Revell, and Janet E. S. Husband Symptomatic Brachial Plexopathy following Treatment for Breast Cancer: Utility of MR Imaging with Surface-Coil Techniques Radiology 2000 214: 837-842.
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4. Bowen B, Seidenwurm DJ, Davis P, et al, Expert Panel on Neurologic Imaging, American College of Radiology, Appropriateness Criteria, Plexopathy, accessed at http://www.acr.org/SecondaryMainMenuCategories/quality_safety/app_criteria/pdf/ExpertPanelonNeurologicImaging/PlexopathyDoc12.asp 12/28/08
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6. Edward Fathers, David Thrush, Susan M Huson, and Andrew Norman Radiation-induced brachial plexopathy in women treated for carcinoma of the breast Clinical Rehabilitation, Feb 2002; 16: 160 – 165.
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9. Walker, AT, Chaloupka, JC, de Lotbiniere, AC, Wolfe, SW, Goldman, R, Kier, EL Detection of nerve rootlet avulsion on CT myelography in patients with birth palsy and brachial plexus injury after trauma Am. J. Roentgenol. 1996 167: 1283-1287
10. T. Yoshikawa, N. Hayashi, S. Yamamoto, Y. Tajiri, N. Yoshioka, T. Masumoto, H. Mori, O. Abe, S. Aoki, and K. Ohtomo Brachial Plexus Injury: Clinical Manifestations, Conventional Imaging Findings, and the Latest Imaging Techniques RadioGraphics, October 1, 2006; 26(suppl_1): S133 – S143.
11. A. TAVAKKOLIZADEH, A. SAIFUDDIN, and R. BIRCH Imaging of Adult Brachial Plexus Traction Injuries J Hand Surg Eur Vol., June 1, 2001; 26(3): 183 – 191

2.3 Carpal Tunnel Syndrome

2.3.1 Suspected

2.3.1.1 Intermittant pain and paresthesias in hand or wrist not responding to splinting

2.3.1.1.1 Equivocal or nondiagnostic EMG (electromyogram)

2.3.1.2 Thenar ((thumb side of hand) muscular atrophy

2.3.1.2.1 Equivocal or nondiagnostic EMG (electromyogram)

2.3.2 Follow up after surgical treatment

2.3.2.1 Worsening symptoms – X-rays nondiagnostic

2.3.2.1.1 Equivocal or nondiagnostic EMG (electromyogram)

References:

1. J. G. Jarvik, E. Yuen, D. R. Haynor, C. M. Bradley, D. Fulton-Kehoe, T. Smith-Weller, R. Wu, M. Klot, G. Kraft, L. Wang, V. Erlich, P. J. Heagerty, and G. M. Franklin MR nerve imaging in a prospective cohort of patients with suspected carpal tunnel syndrome *Neurology* June 11, 2002 58:1597-1602
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4. Occupational therapy practice guidelines for individuals with work-related injuries and illnesses. 2009. NGC:007510 American Occupational Therapy Association, Inc. – Professional Association
5. Hellmann David B, Imboden John B, "Chapter 20. Musculoskeletal & Immunologic Disorders" (Chapter). McPhee SJ, Papadakis MA: *CURRENT Medical Diagnosis & Treatment 2012*: <http://www.accessmedicine.com/content.aspx?aID=10083>.

2.4 Fracture, suspected

2.4.1 X-rays non diagnostic on two occasions

2.5 See Loose Body

2.5.1 Decreased ROM

2.5.2 Locking of joint

2.5.3 Pain

2.6 Labral Tear, suspected BOTH

2.6.1 Positive result on ONE of the following

2.6.1.1 Apley Scratch test

2.6.1.2 Apprehension test

2.6.1.3 Clunk sign

2.6.1.4 Drop Arm test

2.6.1.5 Hawkins test

2.6.1.6 Relocation test

2.6.1.7 Sulcus sign

2.6.2 Shoulder pain interfering with use of shoulder

2.7 Locking

2.8 Loose Body TWO

2.8.1 Decreased ROM

2.8.2 Locking of joint

2.8.3 Pain

References:

1. Padhraig F. O'Loughlin, Benton E. Heyworth, and John G. Kennedy Clinical Sports Medicine Update: Current Concepts in the Diagnosis and Treatment of Osteochondral Lesions of the Ankle Am J Sports Med February 2010 38:392-404;
2. SCHENCK, ROBERT C., JR., GOODNIGHT, JON MARC Current Concept Review – Osteochondritis Dissecans J Bone Joint Surg Am 1996 78: 439-56
3. Osteochondritis Dissecans See Loose body.

2.10 Osteomyelitis suspected

2.10.1 Pain or Fever AND One

2.10.1.1 C reactive Protein elevated

2.10.1.2 Elevated ESR

2.10.1.3 Fever

2.10.1.4 Leukocytosis

2.10.1.5 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>.
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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.
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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.

2.11 Rotator Cuff Tear or Tendinitis BOTH

2.11.1 Failed Conservative Management

2.11.2 One of the following

2.11.2.1 Decreased ROM

2.11.2.2 Pain

2.11.2.3 Tenderness at supraspinatus insertion

2.11.2.4 Weakness to abduction

2.12 Scapho-lunate disruption

2.12.1 Confirmed by x-ray, for surgical planning

2.13 Torn Tendon or Ligament

2.13.1 Impaired ability to flex or extend joint, or hypermotility of joint

2.13.1.1 Failed Conservative Management

2.13.2 Palable gap in tendon

2.13.3 Evidence of tendon abnormality on US

2.14 Ulnar Impaction Syndrome ALL THREE

2.14.1 Failed Conservative management

2.14.2 Surgery contemplated

2.14.3 Ulnar-sided wrist pain, swelling, and limitation of motion

3 Abnormal Physical Exam Finding presented as primary indication

3.1 Apley scratch test positive

3.1.1 [See Labral or Rotator Cuff Tear, suspected \(Loss of range of motion: rotator cuff problem\)](#)

3.2 Apprehension test positive

3.2.1 [See Labral or Rotator Cuff Tear, suspected \(Anterior glenohumeral instability\)](#)

3.3 Clunk sign positive

3.3.1 [See Labral or Rotator Cuff Tear, suspected \(Labral disorder\)](#)

3.4 Crepitus

3.5 Decreased Range of Motion (ROM)

3.5.1 Failed Conservative Management

3.6 Drop arm test positive

3.7 Effusion

3.7.1 Failed conservative management

3.8 Hawkins' test positive

3.8.1 [See Rotator Cuff Tear, suspected \(Supraspinatus tendon impingement\)](#)

3.9 Joint instability

3.10 Joint line tenderness

3.10.1 Failed Conservative Management

3.11 Mass, soft tissue or bone

3.11.1 X-ray, CT or Ultrasound nondiagnostic

3.12 Relocation test positive

3.12.1 [See Labral or Rotator Cuff Tear, suspected](#)

3.13 Shoulder Pop on external rotation

3.13.1 [See Labral Tear, suspected](#)

3.14 Osteomyelitis

3.14.1 Known

3.14.1.1 Interval follow up during and after treatment

3.14.1.2 Preoperative

3.14.1.3 Worsening clinical situation

3.14.2 Suspected

3.14.2.1 Pain or Fever AND One

3.14.2.1.1 C reactive Protein elevated

3.14.2.1.2 Elevated ESR

3.14.2.1.3 Fever

3.14.2.1.4 Leukocytosis

3.14.2.1.5 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>.
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3.15 Sulcus sign positive

3.15.1 See Labral or Rotator Cuff Tear, suspected (Inferior glenohumeral instability)

4 Abnormal Lab or Imaging presented as primary indication

4.1 Abnormality on plain film, images not diagnostic

5 Significant Prior Medical History presented as primary indication

5.1 Arthritis

5.1.1 Evaluation of joint prior to aggressive therapy, and interval follow up.

5.2 Elbow Injuries

5.2.1 Biceps or triceps tendon tear

5.2.1.1 Reduced ability to flex or extend at elbow

5.2.2 Radial (lateral) Collateral Ligament (RCL) injury ALL

5.2.2.1 Failed Conservative Management

5.2.2.2 Increased varus with passive stretch

5.2.2.3 Lateral tenderness

5.2.3 Ulnar (Medial) Collateral Ligament (UCL or MCL) injury ALL

5.2.3.1 Failed conservative management

5.2.3.2 Increased valgus with passive stretch

5.2.3.3 Medial tenderness

5.3 Osteomyelitis Known

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>.
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5.4 Remicade use

5.4.1 Evaluation of joint prior to aggressive therapy, and interval follow up.

5.5 Shoulder Injury including Rotator Cuff and Labrum

5.5.1 Labral Tear, suspected

5.5.1.1 Shoulder pain interfering with use of shoulder

5.5.1.1.1 Positive result on ONE of the following

5.5.1.1.1.1 Apley Scratch test

5.5.1.1.1.2 Apprehension test

5.5.1.1.1.3 Clunk sign

5.5.1.1.1.4 Drop Arm test

5.5.1.1.1.5 Hawkins test

5.5.1.1.1.6 Relocation test

5.5.1.1.1.7 Sulcus sign

5.5.2 Rotator Cuff Tear or Tendinitis BOTH

5.5.2.1 Failed Conservative Management and

5.5.2.2 One of the following

5.5.2.2.1 Decreased ROM

5.5.2.2.2 Pain

5.5.2.2.3 Tenderness at supraspinatus insertion

5.5.2.2.4 Weakness to abduction

5.6 Wrist Injury including the TFCC ALL

5.6.1 Failed Conservative Management

5.6.2 Pain with movement and palpation

5.6.3 Weakness (decreased grasp strength)

5.6.4 X-ray nondiagnostic