

CT Orbit, Sella, Posterior Fossa, Ear

CPT: 70480, 70481, 70482

IMPORTANT NOTES

- 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

1 Major Symptom or Complaint presented as primary indication

1.1 Enophthalmos

References

1. de Keyser, J., Bruyland, M., de Greve, J., Bernheim, J., Ebinger, G. Enophthalmos as a rare manifestation of metastatic orbital involvement. Postgrad Med J 1985 61: 149-152
2. Eto, RT, House, JM Enophthalmos, a sequela of maxillary sinusitis AJNR Am J Neuroradiol 1995 16: 939-941

1.2 Exophthalmos, unilateral or bilateral

1.3 Head or Neck Mass

1.4 Hearing loss, Unilateral or asymmetric by audiometry

1.4.1 Suspected acoustic neuroma or CPA tumor

References

1. Zeiger Roni F, McGraw-Hill's Diagnosaurus 2.0: <http://www.accessmedicine.com/diag.aspx>.
2. Stallard Timothy C, "Chapter 30. Emergency Disorders of the Ear, Nose, Sinuses, Oropharynx, & Mouth" (Chapter). Stone CK, Humphries RL: CURRENT Diagnosis & Treatment: Emergency Medicine, 6th Edition: <http://www.accessmedicine.com/content.aspx?aID=3105811>.

1.5 Impaired color perception

1.6 Orbital or periorbital mass or vascular malformation

1.7 Otorrhea, recurrent or persistent purulent

1.8 Pain on eye movement or tenderness of globe

1.8.1 suspected optic neuritis [MRI preferred]

References

1. Ropper AH, Brown RH, "Chapter 36. Multiple Sclerosis and Allied Demyelinating Diseases" (Chapter). Ropper AH, Brown RH: Adams and Victor's Principles of Neurology, 8th Edition: <http://www.accessmedicine.com/content.aspx?aID=974915>
2. Aminoff MJ, Greenberg DA, Simon RP, "Chapter 4. Disturbances of Vision" (Chapter). Aminoff MJ, Greenberg DA, Simon RP: Clinical Neurology, 6th Edition: <http://www.accessmedicine.com/content.aspx?aID=2081264>

1.9 Tinnitus Ringing, hissing, buzzing, or roaring sounds without external source

1.9.1 Objective (can be heard by the examiner) Continuous Tinnitus should be imaged with MRI unless contraindicated

1.9.2 Objective (can be heard by the examiner) Pulsatile Tinnitus requires MRA or CTA

1.9.3 Subjective (can only be heard by patient) tinnitus is best imaged with MRI unless contraindicated

References

1. Boahene Derek K, Driscoll Colin L, "Chapter 51. Otosclerosis" (Chapter). Lalwani AK: CURRENT Diagnosis & Treatment in Otolaryngology-Head & Neck Surgery, 2nd Edition: <http://www.accessmedicine.com/content.aspx?aID=2830673Lockwood>,
2. Alan H., Salvi, Richard J., Burkard, Robert F. Tinnitus N Engl J Med 2002 347: 904-910

1.10 Vertigo

1.10.1 NOTE: Vertigo requires the patient to experience a sense of spinning, either of the patient, or the surroundings. it is more than dizziness, lightheadedness or imbalance.

1.10.2 Associated other neurologic findings

1.10.2.1 Altered mental state

1.10.2.2 Loss of vision

1.10.2.3 Weakness or paralysis

1.10.3 Hearing Loss

1.10.4 Nausea or Vomiting

1.10.5 Nystagmus

References:

1. Waterston, John Practical Management of the Dizzy Patient N Engl J Med 2001 344: 536
2. Savitz, Sean I., Caplan, Louis R. Vertebrobasilar Disease N Engl J Med 2005 352: 2618-2626

1.11 Vision loss

1.11.1 New onset

1.11.2 Rapidly Progressing May be time sensitive, expedite processing

2 Working Diagnosis or Rule Out presented as primary indication

2.1 Bell's Palsy

2.1.1 Facial paralysis, bilateral

2.1.2 Facial paralysis, unilateral

2.1.2.1 No recovery after 10 days

References:

1. Michael Benatar; Jonathan Edlow The Spectrum of Cranial Neuropathy in Patients With Bell's Palsy Arch Intern Med. 2004;164(21):2383-2385.
2. J I Seok, D-K Lee, K J Kim The usefulness of clinical findings in localising lesions in Bell's palsy: comparison with MRI J Neurol Neurosurg Psychiatry 2008;79:418-420
3. N Julian Holland, Graeme M Weiner Recent developments in Bell's palsy BMJ 2004;329:553-557,

2.2 Cholesteatoma, suspected

2.2.1 Changes in the tympanic membrane

2.2.2 Hearing loss

2.2.3 Otorrhea

2.2.4 Tinnitus

References:

1. C. Y. Joseph Chang, MD Cholesteatoma in Current Diagnosis & Treatment in Otolaryngology-Head & Neck Surgery Anil K. Lalwani Copyright © 2004 by The McGraw-Hill Companies, Inc. Chapter 49.
2. Robert, Y, Carcasset, S, Rocourt, N, Hennequin, C, Dubrulle, F, Lemaitre, L Congenital cholesteatoma of the temporal bone: MR findings and comparison with CT AJNR Am J Neuroradiol 1995 16: 755-761

2.3 Malignant otitis externa

2.4 Optic neuritis MRI strongly preferred

2.4.1 Multiple Sclerosis, known

2.4.2 Pain with movement of the eyes

2.4.3 Paralysis of eye movement

2.4.4 Visual loss progressing rapidly

References:

1. Boorstein, JM, Moonis, G, Boorstein, SM, Patel, YP, Culler, AS Optic neuritis: imaging with magnetization transfer Am. J. Roentgenol. 1997 169: 1709-1712
2. Evine, Harvey L. Et al the Neuroradiological evaluation of "optic neuritis" Am. J. Roentgenol. 1975 125: 702-716
3. Bert, Robert J., Samawareerwa, Ranji, Melhem, Elias R. CNS MR and CT Findings Associated with a Clinical Presentation of Herpetic Acute Retinal Necrosis and Herpetic Retrobulbar Optic Neuritis: Five HIV-Infected and One Non-Infected Patients AJNR Am J Neuroradiol 2004 25: 1722-1729

2.5 Orbital tumor suspected

2.5.1 Exophthalmos

2.5.2 Mass on physical exam

References:

1. C.C. Annunziata, J. Fink, J.P. Villablanca, J.D. McCann, R.A. Goldberg, and G.J. Ben-Simon Rethinking Orbital Imaging- Imaging Features of Orbital Tumors at the Jules Stein Eye Institute Invest. Ophthalmol. Vis. Sci. 46: E-Abstract 4209
2. Ennio Polito; Luca Burroni; Patrizia Pichierri; Antonio Loffredo; Angelo G. Vattimo Technetium Tc 99m-Labeled Red Blood Cells in the Preoperative Diagnosis of Cavernous Hemangioma and Other Vascular Orbital Tumors Arch Ophthalmol 2005 123: 1678-168

2.6 Osteomyelitis suspected MRI Preferred

2.6.1 Pain or Fever AND One

2.6.1.1 C reactive Protein elevated

2.6.1.2 Elevated ESR

2.6.1.3 Fever

2.6.1.4 Leukocytosis

2.6.1.5 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.

2.7 Pituitary disease

2.7.1 Decreased pituitary hormones or hypopituitarism

2.7.1.1 Decreased TSH or ACTH

2.7.1.2 Discordant Bone age

2.7.1.3 Hypogonadism

2.7.2 Elevated pituitary hormones including precocious puberty

2.7.2.1 ACTH

2.7.2.2 Follicular Stimulating Hormone (FSH)

2.7.2.3 Growth Hormone (GH)

2.7.2.4 Luteinizing Hormone

2.7.2.5 Prolactin (PRL)

2.7.2.6 Thyroid Stimulating Hormone (TSH)

References:

1. McGraw Hill's Access Medicine; Lange Physiology > Section IV. Endocrinology, Metabolism, & Reproductive Function > Chapter 22. The Pituitary Gland Copyright © The McGraw-Hill Companies Accessed 12/26/08

2.8 Pituitary Apoplexy

2.8.1 Acute headache with vomiting

2.8.2 Bitemporal hemianopsia

2.8.3 Depressed level of consciousness

References:

1. Frederick Shane, Danzl Daniel F, "Chapter 41. Metabolic & Endocrine Emergencies" (Chapter). Stone CK, Humphries RL: CURRENT Diagnosis & Treatment: Emergency Medicine, 6th Edition: <http://www.accessmedicine.com/content.aspx?aID=3112282.Nawar>,
2. Rita N., AbdelMannan, Dima, Selman, Warren R., Arafah, Baha M. Analytic Review: Pituitary Tumor Apoplexy: A Review J Intensive Care Med 2008 23: 75-90
3. Robert L. Reid; Malachi E. Quigley; Samuel S. C. Yen Pituitary Apoplexy: A Review Arch Neurol. 1985;42(7):712-719.

2.9 Postradiation Neuritis

2.10 Thyroid eye disease (including myopathy)

3 Abnormal Physical Exam Finding presented as primary indication

3.1 Bilateral proptosis

3.2 Enophthalmos

References:

1. de Keyser, J., Bruyland, M., de Greve, J., Bernheim, J., Ebinger, G. Enophthalmos as a rare manifestation of metastatic orbital involvement. Postgrad Med J 1985 61: 149-152
2. Eto, RT, House, JM Enophthalmos, a sequela of maxillary sinusitis AJNR Am J Neuroradiol 1995 16: 939-941

3.3 Exophthalmos, unilateral or bilateral

3.4 Head or Neck Mass

3.5 Orbital or periorbital mass or vascular malformation

3.6 Retraction of the tympanic membrane

4 Abnormal Lab or Imaging presented as primary indication

4.1 Abnormal X-ray finding involving the Orbit, Sella, Posterior Fossa, or Ear

5 Significant Prior Medical History presented as primary indication

5.1 Congenital anomalies of the ear

References

1. Rowe Lee D, "Chapter 38. Otolaryngology-Head & Neck Surgery" (Chapter). Doherty GM, Way LW: CURRENT Surgical Diagnosis and Treatment, 12th Edition: <http://www.accessmedicine.com/content.aspx?alD=2071685>.
2. Kelley Peggy E, Friedman Norman R, Yoon Patricia J, "Chapter 17. Ear, Nose, & Throat" (Chapter). Hay WW, Jr., Levin MJ, Sondheimer JM, Deterding RR: CURRENT Diagnosis & Treatment: Pediatrics, 19th Edition: <http://www.accessmedicine.com/content.aspx?alD=3401706>.

5.2 Head and Neck Cancer

5.2.1 Initial staging

5.2.2 Restaging during or shortly after therapy (if interval less than 90 days send for physician review.)

5.3 Multiple sclerosis, known

5.3.1 Change in vision

References

1. Ropper AH, Brown RH, "Chapter 36. Multiple Sclerosis and Allied Demyelinating Diseases" (Chapter). Ropper AH, Brown RH: Adams and Victor's Principles of Neurology, 8th Edition: <http://www.accessmedicine.com/content.aspx?alD=974915>.

5.4 Osteomyelitis Known MRI PREFERRED

5.4.1 Interval follow up during and after treatment

5.4.2 Preoperative

5.4.3 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.
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.

5.5 Surgical planning

5.6 Trauma

NOTE

In contrast to exams directed at soft tissues CT is preferable to MRI in evaluating bony structures. This is especially the case with complex fractures of the orbit and facial structures.