

Madigan Army Medical Center Referral Guidelines

Charcot Foot

Diagnosis/Definition

Charcot deformity is a neuroarthropathy of the foot and ankle. The most common area of manifestation is in the midfoot, followed by the forefoot and ankle region. This presents as hot, red, swollen foot, ankle or lower leg that is most often confused with cellulitis, DVT or gout in the early phase. The average time of delay to proper diagnosis is 29 weeks. Prompt treatment with offloading of the foot with a removable walking boot or short leg cast and crutches, wheelchair or rollabout prevents progressive collapse of the foot. It is this collapse of the foot that can lead to callus formation, ulceration, infection and amputation.

Checklist of Factors to Consider a Diagnosis of Acute Charcot Neuroarthropathy

- ✓ Age \geq 50 years
- ✓ Peripheral neuropathy of any etiology
- ✓ Diabetes diagnosis of \geq 10 years
- ✓ No recollection of trauma (>50% of patients will recall no trauma or minor trauma, i.e. sprain, walking for a longer period or duration than is their normal)
- ✓ Pain
- ✓ History of treatment/hospitalization for “recurrent cellulitis”
- ✓ No open wounds
- ✓ Unilateral edema
- ✓ Erythema which resolves with elevation
- ✓ No systemic or laboratory findings concerning for infection⁷
- ✓ Radiographs
 - no fractures or dislocations noted initially ONLY increased soft tissue volume
- ✓ Venous duplex ultrasound (DUS)
 - negative for deep venous thrombosis (DVT)
- ✓ Tc99
 - bone scan with increased uptake in all phases
- ✓ MRI
 - periarticular bone marrow edema that enhances on post-contrast images

Treatment of Acute Charcot Neuroarthropathy

- Obtain bilateral weight bearing radiographs of the feet and ankles
- Non-weight bearing to the affected lower extremity using a removable walking boot, crutches, wheelchair, or rollabout
- ASAP consult to Limb Preservation Service. ASAP consults MUST have provider-to-provider contact. Simply placing the ASAP consult will not guarantee immediate action.

Ongoing Management and Objectives

- To decrease the rate of toe, foot and lower extremity amputation with prompt referral of suspected Charcot foot and/or ankle processes'
- To manage each patient's condition with a combination of mechanical, medical and surgical therapies tailored specifically for the unique characteristics of neuroarthropathy with/without ulcerations

Indications for Specialty Care Referral

- All patients with suspected Charcot foot and/or ankle deformities should be referred for evaluation by the Limb Preservation Service as an ASAP consult. All patients will require an approved consult to be seen.

Criteria for Return to Primary Care

- All patients should be followed by the primary care provider for treatment of all co-morbid conditions and routine care with the goal of optimal health and wellness for the whole patient

References

1. Armstrong DG, Todd WF, Lavery LA, Harkless LB, Bushman TR. The natural history of acute Charcot's arthropathy in a diabetic foot specialty clinic. *J Am Podiatr Med Assoc.* 1997 Jun;87(6):272-8.
2. Lee L, Blume PA, Sumpio B. Charcot joint disease in diabetes mellitus. *Ann Vasc Surg.* 2003 17(5):571-80.
3. Foltz KD, Fallat LM, Schwartz S. Usefulness of a brief assessment battery for early detection of Charcot foot deformity in patients with diabetes. *J Foot Ankle Surg.* 2004 Mar-Apr;43(2):87-92.
4. Pakarinen TK, Laine HJ, Honkonen SE, Peltonen J, Oksala H, Lahtela J. Charcot arthropathy of the diabetic foot. Current concepts and review of 36 cases. *Scand J Surg.* 2002;91(2):195-201.
5. Wukich DK, Sung W, Wipf SA, Armstrong DG. The consequences of complacency: managing the effects of unrecognized Charcot feet. *Diabet Med.* 2011 Feb;28(2):195-8.
6. Yu GV, Hudson JR. Evaluation and treatment of stage 0 Charcot's neuroarthropathy of the foot and ankle. *J Am Podiatr Med Assoc.* 2002 Apr;92(4):210-20.
7. Chantelau E. The perils of procrastination: effects of early vs. delayed detection and treatment of incipient Charcot fracture. *Diabetic Med.* 2005 22:1707-1712.
8. Chantelau E, Richter A, Ghassem-Zadeh N, Poll LW. "Silent" bone stress injuries in the feet of diabetic patients with polyneuropathy: a report on 12 cases. *Arch Orthop Trauma Surg.* 2007 Apr;127(3):171-7.
9. Shibata T, Tada K, Hashizume C. The results of arthrodesis of the ankle for leprotic neuroarthropathy. *J Bone Joint Surg Am.* 1990 Jun;72(5):749-56.

Last Review for this Guideline: **July 2012**

Referral Guidelines require review every three years.

Maintained by the Madigan Army Medical Center - Quality Services Division
Clinical Practice and Referral Guidelines Administrator