Medial Navicular Subluxation as a Radiographic Indicator of Charcot Neuroarthropathy

Foot & Ankle Category: Diabetes

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Introduction
Various studies have attempted to classify clinical and radiographic Charcot changes based on anatomic location, stage and severity in an attempt to aid in the treatment of this complex clinical problem. None of the existing classifications has been entirely successful in this endeavor. This study was undertaken to assess if medial navicular subluxation (adduction of the navicular on the talus) is a radiographic finding present in patients with Charcot arthropathy and if this finding could potentially play a direct role in guiding management options.

Methods
A retrospective review of 143 consecutive patients diagnosed with Charcot arthropathy of the foot from January 2004 to May 2011 was performed. Patients were identified based on a clinical diagnosis code 713.5 during an outpatient clinic visit from 2 surgeons at a single institution. After excluding some patients, a series of radiographs of 50 feet in 40 patients was compared to an age matched control group. Radiographic data including talonavicular coverage angle and talonavicular uncoverage percentage were collected.

Results
Statistical significance (p<0.05) was noted when comparing the mean talonavicular coverage angle of the Charcot arthropathy group (1.46+/−20.71mm) and the control group (12.08+/−6.21mm). There was no statistical difference between the groups in regards to demographic data.

Conclusion
Medial navicular subluxation is a radiographic finding that is more commonly present in foot radiographs of those with Charcot arthropathy than a matched control group. While it is unclear from this study the clinical significance of these findings, the senior author believes it is due to the pull of the posterior tibialis on the navicular and has cut this tendon to facilitate midfoot reduction during Charcot reconstructions.