Sparing the Naviculocuneiform Joint during Medial Column Stabilization for Rigid Flatfoot Deformity

Presenting Author:

Jeannie Huh, MD

Additional Authors:

Alexander J. Lampley, MD, Christopher E. Gross, MD, Samuel B. Adams, Jr, MD, James A. Nunley, MD, Mark E. Easley, MD

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Introduction/Purpose: Combined arthrodesis of the talonavicular (TN) and 1st tarsometatarsal (TMT) joints is a treatment option for the patient with both a rigid flatfoot and hallux valgus deformity or 1st TMT joint arthritis. In these cases, the naviculocuneiform (NC) joint is spared, as long as no evidence of joint collapse or instability is present. The purpose of this study was to assess the effect of this medial column stabilization construct on the spared NC joint over time and its ability to improve the radiographic parameters in the flatfoot deformity.

Methods: Patients who underwent concomitant TN and 1st TMT joint arthrodesis, while sparing the NC joint, in the setting of a rigid flatfoot deformity, between January 2006 and December 2014, were identified. The medical records, including preoperative and postoperative radiographs were retrospectively reviewed. Outcomes included radiographic correction gained by surgery (AP and lateral talo-first metatarsal angles), union rate, complications, and need for subsequent surgery. Specific radiographic attention was paid to development of subsequent collapse and/or arthritis at the NC joint at the time of final follow-up.
Results: 21 consecutive combined TN and 1st TMT joint arthrodeses were performed. Average age at time of surgery was 61 (range, 23-82) years. 17 patients had a mean follow-up of 35 (range, 12-88) months. Union was achieved at both arthrodesis sites in 16/17 patients (94.1%). One patient (5.9%) had a nonunion at the TN joint, requiring revision arthrodesis. The mean lateral talo-first metatarsal angle correction was 24.5 (range, 12-36) degrees. The mean AP talo-first metatarsal angle correction was 11.6 (range, 0-33) degrees. One patient (5.9%) developed NC joint collapse and underwent subsequent arthrodesis at that level. There was radiographic evidence of NC joint arthritis to varying degrees in all cases by the time of final follow-up, however, none were symptomatic to warrant arthrodesis.

Conclusion: Simultaneous arthrodesis of the TN and 1st TMT joints, while sparing the NC joint, is a reliable treatment in the carefully selected patient who presents with both a rigid flatfoot and hallux valgus deformity or 1st TMT joint arthritis. Good results in terms of union rate and radiographic correction, as well as a low complication rate were found in this study. Subsequent joint collapse and symptomatic arthritis at the spared NC joint was rare. Longer term follow-up and inclusion of functional outcomes are warranted in future studies on this topic.