



Isolated Talonavicular Arthrodesis for Talonavicular Arthritis: A Follow-up Study

Bilal M. Barkatali, MBChB, MRCS, Manthravadi Sundar, MCh Orth

Department of Trauma and Orthopedic Surgery, Royal Oldham Hospital, Oldham, Manchester, United Kingdom

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ABSTRACT

We have reviewed a single surgeon's (M.S.) experience of talonavicular arthrodesis in 7 feet in 7 patients with isolated talonavicular arthritis. A standard dorsomedial approach was used to the talonavicular joint. Fixation was performed with 5.5-mm, partially threaded, cancellous screws. The visual analog scale for the foot and ankle (VASFA) was used to measure the preoperative and postoperative results in the categories of pain, function, other complaints, and total score. The follow-up period was 17 to 90 months (mean 48). The overall VASFA score ranged from +19.2 to +57.6 (mean +33.2, $p < .01$). The VASFA score for pain ranged from +19 to +74.8 (mean +51.3, $p < .01$). The VASFA score for function ranged from +12.5 to +68.2 (mean +28.3, $p < .01$). The VASFA score for other problems ranged from +12 to +45.8 (mean +25.5, $p < .01$). None of the 7 feet required revision, and all 7 patients were satisfied with the outcome and would have the operation again. We have concluded that, taking into account the small power of the present study, talonavicular arthrodesis is a successful treatment for isolated talonavicular arthritis.

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The talonavicular (TN) joint is a multiaxial, ball and socket joint subjected to multidirectional forces and forms part of the medial column joint complex, which provides stability during the gait cycle (1,2). It can be damaged secondary to a number of pathologic entities. TN fusion was first described in 1884 by Ogston (3) for children with severely pronated feet. The successful use of TN fusion has been described for post-traumatic arthritis, rheumatoid arthritis, posterior tibial tendon insufficiency, adult-acquired pes planus, and juvenile pes calcaneal valgus. The results for these indications have been good. Isolated TN arthritis is much less common, and TN fusion for this indication alone has not been previously reported. The purpose of our report was to present the results of TN arthrodesis for isolated talonavicular arthritis.

Patients and Methods

Aims

We aimed to assess the outcome of isolated TN fusion for TN arthritis. The primary aim was to assess patient satisfaction using the

visual analog scale for the foot and ankle (VASFA) (4). The secondary aims were to assess bony union and adjacent joint arthritis.

Assessors

The senior author (M.S.) performed the intervention as described and also assessed the radiographic union on radiographic evaluation. The first author (B.M.B.) assessed the radiographic union on radiographic evaluation and also performed the statistical analysis.

The assessors had no input into the VASFA outcome scores (4), because the VASFA was completed by the patients.



Fig. 1. Anteroposterior radiograph showing isolated talonavicular arthritis.

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Conflict of Interest: None reported.

Address correspondence to: Bilal M. Barkatali, MBChB, MRCS, Department of Trauma and Orthopedic Surgery, Royal Oldham Hospital, 40 Chequers Road, Chorlton Green, Manchester M21 9DY, UK.

E-mail address: bilalb1@hotmail.com (B.M. Barkatali).



Fig. 2. Lateral radiograph showing isolated talonavicular arthritis.

Study Population

The inclusion criterion was midfoot pain, localized to the TN joint, with arthritic changes visible on radiographs of at the TN joint (Figs. 1 and 2). These findings were all documented by the operating surgeon before the patient was considered for surgery. The exclusion criteria were a history of trauma, posterior tibialis tendon dysfunction, and mid- or hindfoot structural abnormalities.

A total of 11 feet in 10 patients underwent TN fusion from September 2002 to October 2008. These procedures were all performed by the senior author (M.S.) at the Royal Oldham Hospital. Of the 10 patients, 1 died, and 2 patients were excluded from the study because of multiple operations on the ipsilateral foot. The study therefore included 7 feet in 7 patients. The mean duration of follow-up was 48 (range 17 to 90) months.

Intervention

The surgery was performed by the senior author (M.S.). The patients were given either general anesthesia or spinal anesthesia. Antibiotics were given at induction. The patient was placed in the supine position, with a tourniquet applied to the leg. Standard preparation and drapes were applied. The TN joint was approached by



Fig. 4. Lateral intraoperative radiograph showing screw placement in talonavicular joint.

way of a longitudinal incision and a dorsomedial approach. The joint was identified, capsulotomy was performed, and the joint was mobilized. The articular cartilage was removed using a rongeur and small osteotome. The bone surface was roughened with drill holes, and the joint surface was opposed and held in place with 1.1-mm Kirchner wires. The joint was then fused using 5.5-mm screws (Figs. 3 and 4). An image intensifier control was used to check the positioning throughout. The fixation was protected with a plaster cast for 6 weeks.

Outcome Measures

The primary outcome of surgery was assessed by the patient completing a VASFA outcome questionnaire (4). The VASFA is a questionnaire-based, subjective, validated, and computerized, scoring system. It includes 20 questions of function, pain, other complaints, and the total score. The patient is asked to place a cross on a VAS from 0 to 100 for each question. The scores are then entered into an Excel (Microsoft, Redmond, WA) spreadsheet, which calculates the scores for the various categories. This was done retrospectively for the preoperative and postoperative scores.

The secondary outcome of union was assessed clinically and radiologically. Both of us individually assessed the postoperative radiographs and commented on whether union had occurred radiographically. Degeneration in adjacent joints was also recorded.

The patients were also asked whether they would recommend the operation to a family member and/or friend and whether they would undergo the operation again.



Fig. 3. Anteroposterior intraoperative radiograph showing screw placement in talonavicular joint.

Table 1
Patient demographics (N = 7 feet in 7 patients)

Variable	Value
Gender	
Male	4
Female	3
Age (y)	
Range	30 to 89
Mean	64
Follow-up (mo)	
Range	17 to 90
Mean	48

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