

Lateral Fixation for Talonavicular Arthrodesis Using the Medial Approach: Technique Tip

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Introduction

Talonavicular arthrodesis alone or as part of double or triple fusion is performed for many disorders. The short-term risk of major complications comparing single vs double arthrodesis is similar.¹ Among the hindfoot joints, the talonavicular joint is most prone to delayed union and nonunion.^{3,7,8} This may be associated with a difficulty in approaching the talonavicular joint and fully restoring its concave articular surface, as well as with a condition of increased biomechanical stress, since this joint is the most mobile of the hindfoot joints.^{2,6} Moreover, the screw fixation technique usually employed stabilizes only the medial side of the joint, leaving a great area without fixation. Additional approach to stabilize the central and lateral part of the joint is associated with a risk of neurovascular lesion.⁵ We describe a simple fixation method that increases the stability of the fixation, promoting lateral joint stabilization, without the morbidity of an additional approach.

Surgical Technique

After general, spine, or regional anesthesia, the patient is placed supine, prophylactic antibiotic is administered, the lower extremity is exsanguinated, and a thigh tourniquet is inflated to 300 mm Hg.

The joint is approached through a 6-cm medial longitudinal incision centered over the talonavicular joint. After medial capsulotomy, the joint is approached and prepared for arthrodesis using a joint distractor, rongeur, osteotome, and drill for microfracture. The joint is reduced and temporarily secured with 2 cannulated screw guidewires (4.5 or 5.0 mm) placed from distal medial (navicular bone) to proximal lateral (talus), one is

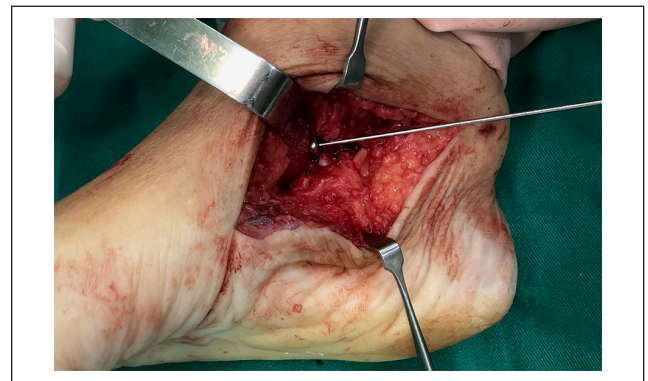


Figure 1. Transoperative view of the guidewire and anterograde screw fixation.

introduced more dorsal and the other more plantar about 15 mm apart. A third guidewire is inserted between the 2 guidewires from the talus to the navicular, from proximal medial (talus) to distal lateral (navicular) (Figure 1). After intraoperative fluoroscopy to confirm the correct guidewire position, the screws are inserted under the guidance of the guidewires (Figure 2).

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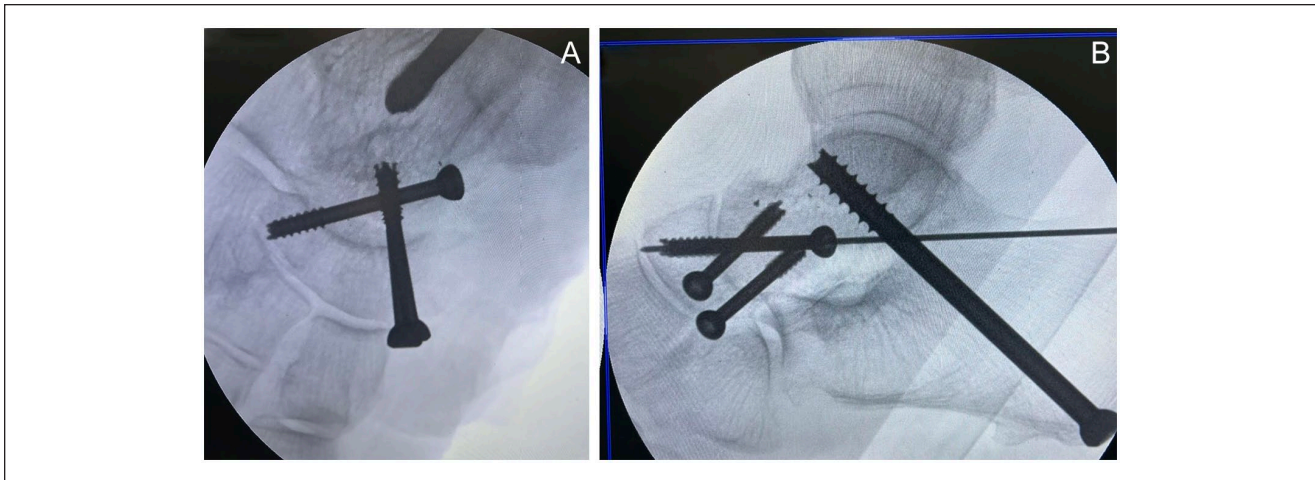


Figure 2. Transoperative (A) anteroposterior and (B) lateral radiographs of lateral joint fixation after cannulated screw fixation.

Postoperative care includes protection in a nonweight-bearing splint for 2-3 weeks, followed by a weightbearing cast until radiographic signs of union are detected, usually about another 2 months.

Discussion

Talonavicular arthrodesis is extremely useful for hindfoot arthritis and deformity, but some particular characteristics of the joint make it prone to nonunion. The rate of nonunion after fusion is higher for the talonavicular joint among the hindfoot joints, reaching up to 37% of cases.^{2-4,6,8} Talonavicular joint preparation is demanding because of its concave shape, and there is high mechanical stress owing to the midfoot location, but the insufficient fixation of the regular medially placed screw fixation is also an important factor.

The surgical technique described here is technically simple, may increase the stability of talonavicular arthrodesis, and does not increase morbidity or require a sophisticated implant. The position of the screw allows lateral joint stabilization but not compression on the lateral side, and care must be taken to avoid naviculocuneiform joint penetration. The construct, however, may increase the stiffness of the arthrodesis and possibly decrease the risk of nonunion or malunion.

Ethical Approval

Ethical approval was not sought for the present study because it reports a technique tip. The patient provided written, informed consent for the inclusion of image content from his operation.


Declaration of Conflicting Interests

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