

A Case Report: Technique for Distal Tibiofibular

Joint Arthrodesis

Anthony Brutico, DPM, MBS; Guido LaPorta, DPM, MS, FACFAS
Geisinger Community Medical Center, Scranton, PA

Geisinger

Discussion

Arthrosis of adjacent joints following a triple arthrodesis is apparent and well-documented in literature. Patients that underwent triple arthrodesis who later develop pain in the ankle are likely faced with arthrodesis of adjacent joints including the ankle. The authors of this paper believe that the above procedure can be used as an alternative, prior to arthrodesis of the ankle joint following a triple arthrodesis.

Furthermore, this described procedure could be used as an adjunct procedure when performing a triple arthrodesis or pes plano valgus reconstruction. Literature on arthrodesis of the tibiofibular joint following sequelae of triple arthrodesis is limited and should be investigated further with respect to lateral talar subluxation and talocrural pressures.

Conclusion

At 1-year follow up, the patient is progressing uneventfully with no apparent complications. The patient reports no pain with ambulation and no pain with ankle end range of motion. She is able to traverse stairs without pain to the right ankle and she is also able to ambulate for long periods of time without any pain or restrictions. The patient is currently ambulating in sneakers without pain. Post-operative radiographs (Figure 7) demonstrate intact hardware without signs of radiolucency or failure.

References

1. Smith, Ronald W., et al. "Triple Arthrodesis In Adults With Non-Paralytic Disease." *The Journal of Bone and Joint Surgery-American Volume*, vol. 86, no. 12, 2004, pp. 2707–2713., doi:10.2106/00004623-200412000-00018.

Abstract

The aim of this paper is to present a case of identified osteoarthritis of the tibiofibular joint following triple arthrodesis. A case report and operative technique is presented for a 74-year-old female with right lateral ankle instability and osteoarthritic changes associated with the distal tibiofibular joint. After failure of all conservative treatments, patient underwent right ankle arthroscopy with debridement of chronic synovitis and subsequent arthrodesis of the distal tibiofibular joint.

Introduction

Arthrosis of the ankle is a long-term complication encountered in patients that undergo triple arthrodesis. In a recent study by Smith et al, 27% prevalence of severe ankle arthrosis following triple arthrodesis was reported {1}. A literature search was performed to further extrapolate association between arthrosis of the tibiofibular joint following triple arthrodesis, however; none were identified. Arthrosis changes of the tibiofibular joint should also be considered for evaluation of complications following triple arthrodesis as is likely the case presented.

Case Description

A 74-year-old female presents to the office status post triple arthrodesis in 2013, she proceeded with an uneventful post-operative course. Patient presents with pain localized to the right ankle since January 2018. Physical exam revealed pain to the right lateral ankle with end range of motion in dorsiflexion and plantarflexion. There was pain with palpation to the distal tibiofibular joint on the right. Radiographic imaging showed arthrosis to the tibiofibular joint and extensive osteophytic changes surrounding the joint (Figures 1 & 2). It was then determined that surgical intervention consisting of ankle arthroscopy and arthrodesis of the arthritic tibiofibular joint was to be performed.



Figure 1: Pre-op radiograph



Figure 2: Pre-op radiograph

Operative Technique

Step 1: Arthroscopy of the right ankle joint was performed and upon inspection, heavy amounts of well-adhered chronic synovitis and debris was noted within the joint. Extensive debridement of the lateral ankle joint was performed. Post-debridement of the ankle joint was noted to be significantly improved. The EHL tendon was directly visualized after further surgical dissection and was then lengthened.

Step 2: Once the syndesmosis and the center of the fibular shaft were confirmed under fluoroscopy, a linear incision was made anterior to the center of the fibular shaft extending from the lateral malleolus and carried proximally 4-5 cm. Additional dissection was performed to create anterior and posterior full-thickness flaps off the fibula. At this time, heavy bony overgrowth of the tibiofibular joint was noted, which was then sharply resected. The ankle joint was stressed under fluoroscopy and excessive mobility of the syndesmosis was noted.

Step 3: A 3.0 neuro burr was then introduced into the syndesmosis to debride remaining intraarticular cartilage (Figure 3). Each side of the joint was subchondrally drilled with the aforementioned burr. Secondary to the extensive amount of debridement, a deficit was noted within the joint, which was then filled with bone substitute.



Figure 3



Figure 4

Step 4: A 2-hole plate was placed over the posterior lateral surface of the distal fibula which was provisionally fixated with an olive wire through the distal hole. The proximal hole was then prepared and drilled in anticipation of insertion of the tran-syndesmotomic screw (Figure 4). One fully threaded 3.5mm x 55mm screw was advanced through the plate and placed in a trans-syndesmotomic fashion, parallel with the ankle joint (Figure 5). The olive wire was removed from distal hole of the plate and at this time the fibula was prepared and drilled with a 4.0mm x 18mm screw (Figure 6). The construct was stressed under fluoroscopic guidance and no diastasis of the syndesmosis was appreciated.



Figure 5



Figure 6

Results

Patient remained non-weightbearing postoperatively in a CAM walker with assistance of a knee scooter. At 6 weeks she was transitioned to partial weightbearing up to 50% normal body weight in a CAM boot with assistance of crutches. At 8 weeks she was allowed full weightbearing in a CAM boot. She was given a prescription for physical therapy to increase range of motion and strength. She was able to return to work at 12 weeks with full weight bearing in a CAM boot. At 16 weeks the patient was transitioned to sneakers as tolerated. At 20 weeks there was confirmed radiographic healing and union of the syndesmosis, and reported no symptoms or pain on physical examination of the right ankle.



Figure 7: Post-op radiographs 1-year

