Case Series

EARLY ARTHROSCOPIC ANTERIOR TALOFIBULAR REPAIR: A CASE SERIES WITH PERSONAL TECHNIQUE

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ABSTRACT

Ankle sprains often disrupt the anterior talofibular ligament either partially or completely. Arthroscopy has been described for ligamentous repair yet has been implied in limited cases of acute injury. Beginning in 2015, we have treated 71 patients for anterior talofibular ligament injury. After the talofibular ligament injury diagnosis, an early surgical repair was performed for complete ruptures between days 1 and 3 following injury, which was feasible in 59 cases (83.1%) and 12 partial ruptures between days 9 and 30 following ankle sprain. One patient sustained a re-rupture during postoperative sports activity, and one patient reported longstanding ankle stiffness and pain, for which a second look determined the cause of pain to be a previously untreated osteophyte, whereas ligament integrity was confirmed. Literature suggests that arthroscopy is superior in identifying chondral lesions while permitting timely treatment. Arthroscopic repair of acute talofibular ligament ruptures is reliable, reduces the risk of chronic ankle symptoms following sprains, offers patients a higher quality of life, allows return to sports in less than 90 days, and reduces the risk of future re-injury.

KEYWORDS: *talofibular ligament, arthroscopy, ligament repair, ankle sprain*

INTRODUCTION

Ankle sprains are extremely common and often lead to anterior talofibular ligament disruptions, leading to residual chronic symptoms (1, 2). Sequelae of ankle sprains may manifest as recurrent pain, impingement, and cartilaginous damage or instability due to joint hyperlaxity (3-5).

Currently, repair methods include open surgery used for complete ligament tears and thermal shrinkage for chronic ligament laxity. Arthroscopy has also been described in chronic symptomatic talofibular ruptures using the arthro-Brostrom (6), among other techniques.

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Following this research, we introduce an arthroscopic approach that can be used in acute, partial, and complete anterior talofibular ligament repair tears.

PATIENTS AND METHODS

Beginning in 2015, we treated 71 patients for anterior talofibular ligament injury. The right ankle was affected in 53 cases, and the left ankle in 18. Males constituted 66.2% of our patients; the mean age was 26 (range minimum of 17 and maximum of 47). Patients were assessed for ligament status through clinical and magnetic resonance examinations, and the surgical indication was given whenever tears were graded III or in cases of athletic patients with injuries graded I or II.

We performed early surgical repair for complete ruptures between days 1 and 3 following injury, feasible in 59 cases (83.1%), and 12 partial ruptures between days 9 and 30 following ankle sprain. Postoperative management consisted of cast immobilization for 35 days, followed by a rehabilitation program of at least 60 days. Office work was permitted between days 20-40 from cast removal. Sports activities were allowed between 7 and 90 days from cast removal. One patient sustained a new injury during postoperative sports activity, which led to re-rupture. No further complications arose.

Technical note

A non-traumatic traction device was positioned after patient positioning and surgical field preparation. Anteromedial and anterolateral portals were established, and a third portal was placed just medial to the first anterolateral portal, minding the peroneal nerve passage. We proceeded with synovectomy of the anterior compartment when necessary.

Shaver is used to prepare the talus ligament footprint, and the torn end of the talofibular ligament is hooked with a polydioxanone 2-0 thread that is advanced into the joint for a “poor man shuttle” and is retrieved from the lateral portal (Fig. 1).

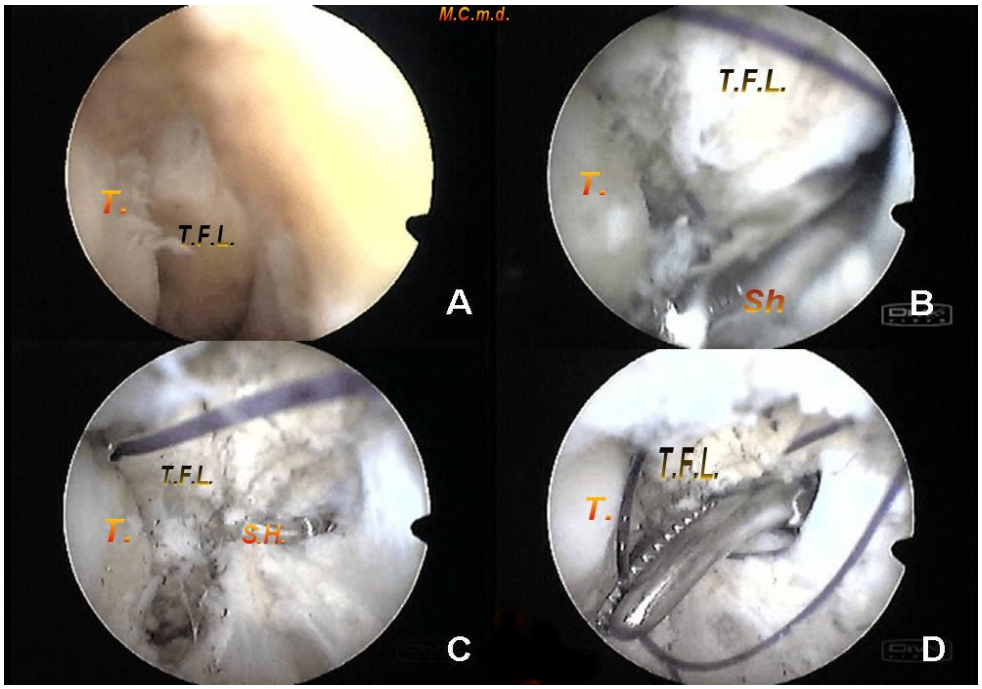

Fig. 1. *Talofibular ligament identification (**A**); shaver is used for talar bed preparation at the ligament insertion site (**B**); a suture hook is passed through the ligament (**C**); the ligament is passed through the lateral portal using a shuttle thread (**D**).*

A Minilok anchor (Depuy-Mitek, Raynham, MA, USA) is inserted on the debrided talar footprint, and the anchor strand is transported outside the portal. Using the PDS shuttle, the fibular end of the ligament is engaged, and a sliding knot is performed to secure the proximal talofibular ligament into its new distal insertion site (Fig. 2). Ligament stability is checked, and a drain and posterior leg slap is positioned for 24 hours and upon removal, the leg is cast.

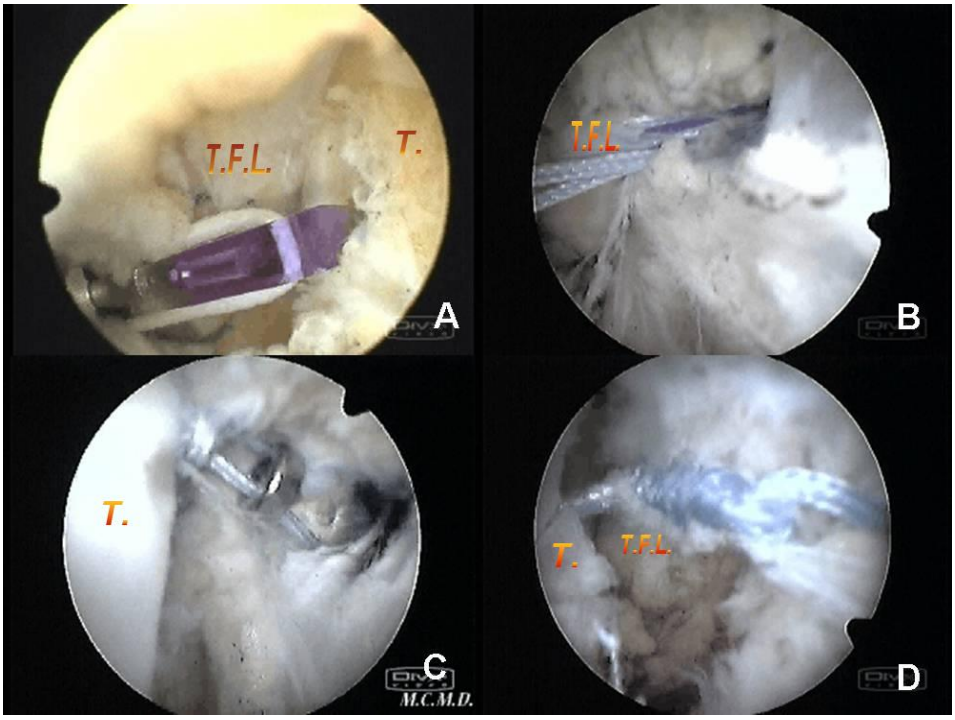

Fig 2. *A suture anchor is positioned in the talus (**A**); the anchor strand is passed through the shuttle thread (**B**); a sliding knot is performed to complete the repair (**C**, **D**).*

DISCUSSION

Literature is controversial regarding surgical ligamentous ankle repair (7-8). Studies suggest that conservative and surgical treatments are equivalent (6). However, the role of the anterior talofibular ligament and capsular integrity have been widely known to contribute to chronic ankle disorders following neglected injuries (9-12).

Despite open surgery being more frequently used for ankle ligamentous repair (13-16), arthroscopy is often used for chronic ankle instability treatment (17). The literature also suggests that arthroscopy is superior in identifying chondral lesions while permitting timely treatment (8, 9). Therefore, we recommend utilizing the described arthroscopic method to treat acute talofibular ruptures, especially when presenting talar avulsion.

As for complications, one patient sustained a new injury during postoperative sports activity, which led to re-rupture, while another patient presented with ongoing pain and underwent a second-look arthroscopy, which assessed the ligament repair integrity and evidenced a previously untreated osteophyte that was addressed.

This paper is limited by the patient number, and no statistical analysis could be performed due to the study nature. Yet, we believe that arthroscopy is feasible and reduces the risk of chronic ankle symptoms following sprains, offering patients a higher quality of life and reducing the risk of future injury. Further studies focusing on controls and long-term patient outcomes are necessary to determine the efficacy of this technique in acute talofibular ligament repair.

CONCLUSIONS

Arthroscopic repair of acute talofibular ligament ruptures is reliable, reduces the risk of chronic ankle symptoms following sprains, offers patients a higher quality of life, allows return to sports in less than 90 days, and reduces the risk of future re-injury.

Author contributions

MC ideated the surgical technique and performed the surgeries, AAM and FP wrote the article and revised it; MC and AAM performed different roles and equally contributed to the realization of the scientific work. MAM revised and submitted the article, and GP and VS coordinated the scientific work.

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