

COMPARISON OF PATIENT-CENTERED OUTCOMES IN TRADITIONAL OPEN AND ALL ARTHROSCOPIC BROSTRÖM SURGERY FOR LATERAL ANKLE INSTABILITY

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STATEMENT OF PURPOSE

Recent literature suggests minimal difference in functional outcomes between open and arthrobroström techniques in lateral ankle instability. This study investigated these two procedures utilizing a validated, patient-centered outcome measure.

LITERATURE REVIEW

- Lateral ankle sprains are common and account for 85% of ankle injuries¹. Untreated ankle sprains can result in chronic ankle instability and muscle weakness that can have detrimental effects on mobility and quality of life.
- Broström published a technique for anatomic repair of the ruptured anterior talofibular ligament (ATFL)². A modification by Gould et al. detailed the incorporation of the inferior extensor retinaculum to reinforce the repair³. Together, these techniques are often regarded as the gold standard for lateral ankle ligament repair.
- In 2013, Cottom described an “all-inside” arthroscopic Broström repair utilizing a minimally invasive technique that allowed for the ability to address ligament insufficiency and intra-articular pathology while providing an expedited post-operative recovery⁴.
- Functional outcome literature has identified excellent clinical outcomes and patient satisfaction in both arthroscopic and open procedures⁵⁻⁷. Some studies have identified arthroscopic procedures as having superior outcomes⁵ while others have identified no differences between the two procedures⁸.
- While arthroscopic repair may afford an accelerated recovery process⁵, it may also have a higher rate of post-operative complications⁸.

METHODOLOGY

- Consecutive patients who underwent an open or arthroscopic Broström procedure were identified in the institution database of Foot and Ankle Outcome Scores (FAOS).
- Medical records were reviewed to identify the type of Broström and concomitant procedures performed.
- Patients were excluded if FAOS scores were not available or if medical records were incomplete.
- FAOS scores were then analyzed for measures of centrality, variance and significant differences ($p < 0.05$).

SURGICAL TECHNIQUES

➤ OPEN BROSTRÖM



Figure 1. Open Broström surgical technique (A-C). Incision placement inferior to the distal lateral malleolus (A). Sectioning of the attenuated ATFL with pants-over-vest repair (B). Subcutaneous suture closure with sterile medical tape application (C).

➤ ARTHROSCOPIC BROSTRÖM

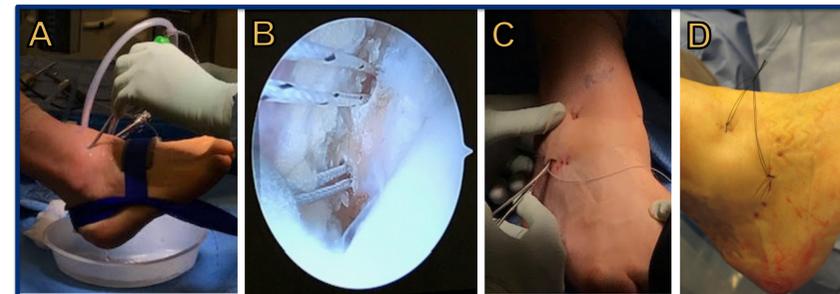


Figure 2. Arthroscopic Broström surgical technique adapted from Cottom & Rigby (A-D)⁴. Anterior ankle arthroscopy utilizing standard anteromedial and anterolateral portals allowing for visualization of any intra-articular pathology and ligament insufficiency (A). Intra-osseous placement of suture anchors into the distal fibula (B). Retrieval of lasso suture that encompasses the superior anchor suture strands as well as the inferior extensor retinaculum and residual ATFL. This was repeated for the inferior anchor that tagged the calcaneofibular ligament (C). Suture closure demonstrating minimally invasive nature of the procedure (D).

RESULTS

- 94 patients (62 arthrobroström, 32 open Broström) with a mean age of 41 ± 12 years were found to have complete data at final follow-up.
- The mean follow-up was 8 ± 1 months and did not differ between the groups ($p > 0.05$).
- Concomitant procedures were found to not be significantly different between groups ($p < 0.05$).

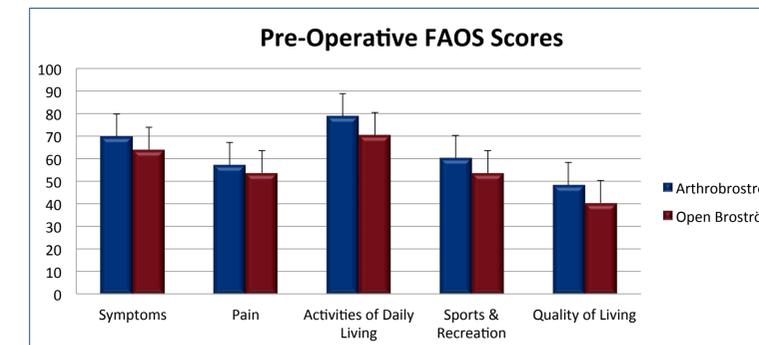


Figure 3. Pre-operative FAOS scores between procedure groups. Group differences were not found to be significantly different ($p > 0.05$).

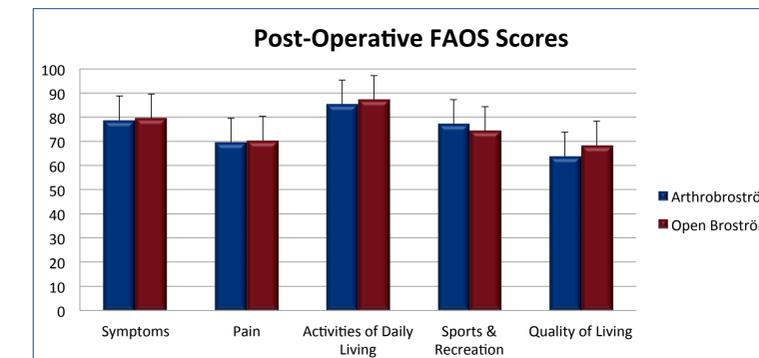


Figure 4. Post-operative FAOS scores between procedure groups. Group differences were not found to be significantly different ($p > 0.05$).

DISCUSSION

- FAOS scores failed to demonstrate a difference in the patient perception of function at final follow-up between open and arthroscopic Broström procedures in patients presenting with lateral ankle instability after having failed three months of non-operative care (bracing, orthotics, physical therapy, etc).
- The results of this study are in accordance with existing literature that demonstrate comparably excellent clinical outcomes in both arthroscopic and open procedures⁵⁻⁷

CONCLUSION

Both open and arthroscopic Broström procedures deliver high rates of patient satisfaction. There were no group differences in patient reported pain, symptoms, functional abilities, and quality of life specific to the foot & ankle at mid-term follow-up.

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