



Evaluation of BMI with an All Inside Arthroscopic Brostrom Procedure

James M. Cottom, DPM, FACFAS¹, Colin T. Graney, DPM, AACFAS²

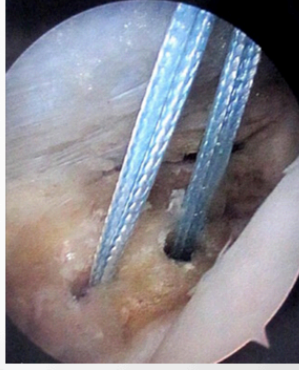
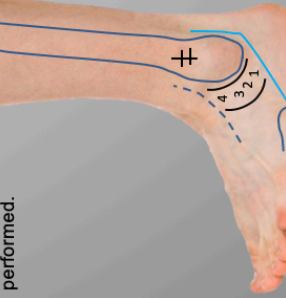
¹Fellowship Director, Florida Orthopedic Foot and Ankle Center, Sarasota, FL, ²Fellow, Florida Orthopedic Foot and Ankle Center, Sarasota, FL

Purpose

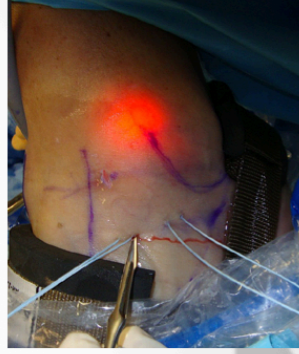
The all inside arthroscopic Broström surgical procedure for chronic lateral ankle instability is a common minimally invasive procedure selected by several foot and ankle surgeons. There have been no studies evaluating the integrity of the repair with patients who have a BMI greater than 30 to determine if the strength of the material is adequate for an increased BMI.

Methodology

retrospective review of 182 patients who underwent an all inside arthroscopic Broström procedure utilizing a 3-anchor technique were evaluated. After applying the inclusion and exclusion criteria, a total of 50 patients from each group were randomly selected. A minimum 2-year follow-up was required. At the final evaluation patients were asked if the repair felt stable or if any instability had returned, if they were satisfied with the results, if they would have the procedure performed again, as well as VAS. An anterior drawer test as well as a stressed inversion test in comparison to the contralateral limb was performed.



Above Figure: two anchors in the anterior fibula with suture.



Above Figure: Suture strands being passed percutaneously.

Results

1 patient with a BMI greater than 30 felt that the repair was unstable ($p>0.05$). The remaining 49/50 (98%) patients with a BMI >30 felt the repair was stable ($p>0.05$). Upon clinical evaluation there was no evidence of increased instability or positive anterior drawer test within either group. 46/50 (92%) patient's in the study group stated they would have the procedure performed again and were satisfied with the outcome. 100% of patients had no instability based upon clinical evaluation. No patients with a BMI >30 complained of neuritic pain. There was no significant difference between the <30 and the >30 BMI groups for VAS scores, 0.89 & 1.21 ($p>0.05$) respectively.

Literature Review

Lateral ankle sprains are among the most common injuries suffered by an active patient. 20% of reported acute ankle sprains will result in chronic instability. There have been several surgical techniques utilizing a variety of anchors, number of anchors, as well as the type of tissue harvested but none of the techniques evaluate the strength in two different populations. The open Brostrom procedure has reported excellent results using suture or suture anchors to repair the ATFL. Lee et al compared a single ATFL versus ATFL with CFL repair and found there was no significant difference in the two groups, however this was comparing two different surgical techniques as opposed to patient satisfaction with a single procedural selection.

Analysis & Discussion

The all inside arthroscopic Broström procedure utilizing a 3-anchor technique appears to function well with high satisfaction rates in a patient population with a BMI greater than 30. There appears to be no evidence of hardware failure or decreased stability with an increased patient BMI.

References

1. Hamilton, William G., Francisco M. Thompson, and Stephen W. Snow. "The modified Brostrom procedure for lateral ankle instability." *Foot & ankle* 14.1 (1993): 1-7.
2. Lee, Terry H., et al. "Outcome of the modified Brostrom procedure for chronic lateral ankle instability using suture anchors." *Foot & ankle international* 31.11 (2009): 986-989.
3. Cottom, James M., and Colin T. Graney. "The 'all inside' arthroscopic Brostrom procedure: a prospective study of 40 consecutive patients." *The Journal of Foot and Ankle* 11.1 (2010): 1-5.
4. Arnedo, Jorge L., and Peter Murgante. "Arthroscopic ligament techniques." *Foot & ankle international* 34.1 (2013): 462-473.
5. Lee, Kyong Pa, et al. "Biomechanical evaluation of the Brostrom procedure: a cadaveric study." *Knee Surgery, Sports Traumatology, Arthroscopy* 18.1 (2008): 103-106.