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Arthroscopic Monopolar Radiofrequency Thermal Stabilization for Chronic Lateral Ankle Instability

A Preliminary Report on 10 Cases

Article by Lawrence M. Oloff, D.P.M., Alan P. Bocko, D.P.M., and Gary Fanton, M.D., *J Foot Ankle Surg* 2000;39(3):144-153

Analysis by **John F. Grady**, D.P.M.

CONDENSATION

Purpose of Study

To present the early results following arthroscopic monopolar thermal stabilization of 10 ankles with inversion injuries that caused instability unresponsive to conservative care

Approach

A retrospective review was conducted of the ankles of 10 patients treated with arthroscopic monopolar thermal stabilization between October 1996 and July 1998. All patients had suffered an inversion injury and had failed conservative care that included one or more of the following: oral anti-inflammatories, injections, therapy, physical therapy, orthotics, and bracing. The mean age of the patients was 34.5 years (range, 19-53) and seven were male.

Standard anterior medial and anterior lateral portals were established at arthroscopy. A 4.0-mm camera was inserted through the medial portal and the ankle joint was examined. The lateral portal was used to perform debridement or chondroplasty if needed. The anterolateral joint capsular recess was inspected and instability was confirmed by placing the ankle into a varus stress orientation. The lateral joint recess was visualized via the medial portal. With the ankle held in a maximally everted, dorsiflexed position, which increases the lateral capsular envelope, a "Tac-C" or similar probe was inserted as far distal as possible and in a sweeping motion against the deepest portion of the lateral capsuloligamentous tissue. Settings on the probe were typically from 65°C to 75°C at a power of 30-40 W. As the capsule began to shrink and tighten, the probe was worked toward the anterior portion of the ankle joint, maximally tightening the capsuloligamentous envelope. If the ankle joint was small or tight, the lateral portal was used for the camera and a secondary lateral portal was placed along the inferolateral joint margin for placement of the radiofrequency probe. A nonweightbearing, removable splint was used for 3 weeks followed by a weightbearing cast boot for 3 weeks. Mean follow-up was 9.6 months (range, 6-21).

What Investigators Accomplished

- Mean preoperative varus was 8.3° (range, 4°–15°) on the affected side compared to 4.9° (range, 4°–5) on the contralateral side.
- Mean preoperative anterior drawer was 8.4 mm (range, 5–11) on the affected side compared to 3.6 mm (range, 2–5) on the contralateral side.
- At follow-up, mean varus on the treated side was 5.5° (range, 2°–10°), a mean reduction of 2.8° ($p < .10$).
- At follow-up, mean anterior drawer was 3.6 mm (range, 2–6), a mean reduction of 4.8 mm ($p < .01$).
- Using a modified American Orthopedic Foot and Ankle Society Ankle–Hindfoot Scale for evaluation of instability that ranged from 100 (normal with no pain) to 0 (severe malalignment and instability with severe pain), the mean score improved from 58.3 preoperatively to 88.1 at follow-up, a mean increase of 29.8 points (range, 22–36).
- No complications were noted and all patients were satisfied with the procedure.

Investigators' Observations

While preliminary results support the application of monopolar thermal stabilization for the treatment of ankle instability, further studies with greater numbers of patients are required to confirm the long-term efficacy of the procedure.

COMMENTARY

This study represents a preliminary report on 10 patients whose follow-up seems limited. Of the 10 patients, only two were followed up for more than 10 months. One of these was not available for postop measurements. Because the patients were splinted, nonweightbearing for 3 weeks and then casted, weightbearing for 3 weeks, initial postcasting immobility may result in these values of “stabilization.” Follow-up after 18 months may be more appropriate to determine the success of stabilization procedures.

The photographs in this article do not seem to correspond to their description. In the caption for Figure 2, the authors describe this picture as an “arthroscopic view of the lateral gutter area of the ankle joint demonstrating enlarged capsuloligamentous envelope due to anterolateral instability.” This figure represents the posterior recess of the ankle joint turned 90° clockwise. If this were an arthroscopic representation of the lateral gutter, the “fibula” is clearly tightly against the “talus.” (See authors’ own comments about “fibula.”)

Also, in Figure 3 where the caption reports this to be the “same view of the lateral gutter as in Figure 2,” this figure is likely not gutter, but rather the shoulder of the talus. The conclusion that these figures demonstrate the success of this procedure is a possible misconception.

I feel this procedure has much potential as a useful ankle stabilization approach. It is good that the authors have introduced this procedure, but we won’t really know the results until further time has elapsed on these patients. The authors should probably report their results then. This potentially useful procedure certainly warrants further investigation.

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