

Journal Review

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Open technique is more effective than percutaneous technique for TOPAZ radiofrequency coblation for plantar fasciitis

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The purpose of this prospective non-randomized single-center study was to directly compare the open and the percutaneous approach of radiofrequency microtenotomy in the treatment of plantar fasciitis, as well as assess its long term outcome. There were 59 feet that met the criteria with a mean age of forty-three.

Inclusion criteria: symptomatic for >6 months, failed conservative therapy (RICE, stretching, strengthening exercises, NSAIDs, steroid injections)

Exclusion criteria: excessive pronation, pes cavus, hypermobile 1st ray, BMI >35, leg length discrepancy, diabetes mellitus, pregnancy, coagulopathy, infection, tumors, PVD, autoimmune or systemic diseases, prior plantar fascia surgery

The study design used three modalities used to assess the outcomes: VAS, AOFAS Ankle-Hindfoot Scale, SF-36. Results were assessed pre-operatively and then at three months, six months and one year follow-up. A TOPAZ microtenotomy machine was used in both groups. RF energy is used to excite electrolytes, generate excited radicals and ideally break up covalent molecular bonds. In turn this is expected to address chronic pathology or fasciosis by increase angiogenesis, reduce inflammatory response and increase expression of VEGF and fibroblast growth factor. Each group received 10-20 microdebridements, 5 mm apart at a depth of 3-5 mm. The open group had a three cm incision over the most tender area, then closed with vicryl and prolene. The “percutaneous” group used 2mm K-wires to penetrate skin prior to TOPAZ application. Patients were allowed full weight bearing as tolerate without orthotic protection immediately following the surgery.

Preoperatively, the groups were similar. The SF-36 scores improved significantly in the categories of physical functioning, role functioning, bodily pain and social functioning. At three months, the VAS score improved from 7.0 to 3.38, 3.19, and finally 1.94 at three, six and 12 months. The AOFAS score improved from 43.1 to 68.6, 74.6 and finally 80.1 respectfully. This indicates that RF microtenotomy is effective in plantar fasciitis treatment with an overall success rate of 66.7 satisfied patients and 71.4% of patients meeting expectations at one year.

Comparing the open to the closed techniques at the same intervals of three, six and 12 months only showed significance for the bodily pain component of the SF-36 assessment at three months in favor of the open technique. At six months, again, there was no significant difference in VAS or AOFAS, however, the percutaneous group was favorable in the SF-36 categories of vitality, role functioning and mental health. At twelve months, the open group had a significant improvement over the percutaneous group in the VAS scale for pain. It also had a non-significant improvement over the percutaneous group in AOFAS score as well as patient satisfaction and meeting expectations. These results are attributed to direct visualization of the fascia in the open technique as well as eliminating the variability of skin thickness and swelling.

This was a good article in that it shows TOPAZ as a viable treatment of plantar fasciitis if fasciotomy is not indicated or desired. It also shows that there is an improvement up to at least one-year following surgery. Both open and percutaneous techniques give good patient outcomes, but the open technique was significantly better in terms of pain, patient satisfaction and meeting patient expectations.