

Meknas K, Odden-Milland A, et al. Radiofrequency Microtenotomy. A Promising Method for Treatment of Recalcitrant Lateral Epicondylitis. Am J Sports Med 2008;36(10):1960-1965.

Design: Randomized clinical trial

Population/sample size/setting:

- 24 patients (11 women, 13 men, mean age 48) referred for treatment of tendinosis of the lateral epicondyle to a university orthopedics department in Norway
- Indication for surgery was pain and tenderness in lateral epicondyle with exacerbation of pain on resisted extension of wrist and digits
- Exclusion criteria were severe organic disease, seriously reduced general health status, or an unclear diagnosis with diffuse pain
- All patients had completed 12 months of conservative treatment, including at least 3 steroid injections, NSAIDs, and physical therapy of at least 3 months

Main outcome measures:

- Randomized to one of two operations on the day of surgery: extensor tendon release and repair (n=11) or radiofrequency microtenotomy (n=13)
- Pain VAS was measured at entry and at 3, 6, and 12 weeks postoperatively
- Mayo Elbow Performance Score (MEPS) is a 100 point scale (high score is better) which assigns 45 points for pain, 20 points for range of motion, 10 points for stability, and 25 points for function; this also was measured at entry and at 3, 6, and 12 months postoperatively
- Grip strength was measured by a dynamometer 12 weeks postoperatively
- An additional telephone interview was done between 10 and 18 months postoperatively
- Median operative time for tendon release was 30 minutes and for microtenotomy was 18 minutes; incisions were about 3 cm for both operations
- In the measurement done 3 weeks after surgery, average pain VAS had declined significantly in the microtenotomy group (from 7.1 to 3.6), but not in the release group (from 6.5 to 6.4)
- Pain measurements at later times (6 weeks, 12 weeks, and 10-18 months) showed significant and equivalent declines from baseline in both groups
- Grip strength at 12 weeks improved significantly in the microtenotomy group (from 28.3 kg to 39.8 kg) but not in the release group (from 30.3 kg to 36.3 kg); however, grip strength was not significantly different between the two groups either at baseline or at 12 weeks
- MEPS improved significantly in both groups at 12 weeks, in the microtenotomy group from 55.4 to 87.3 points, and in the release group from 60 to 82.2 points; however, MEPS scores did not differ significantly between the two groups at baseline or at 12 weeks
- Average return to work time was about equal (10.7 weeks for microtenotomy and 11.5 weeks for release group); 3 patients in release group and 2 patients in microtenotomy group remained off work

- Some of the patients had thermography of the elbow to compare preoperative and postoperative surface skin temperatures, but these results are not relevant to the comparisons between groups in the study

Authors' conclusions:

- Similar results were found for microtenotomy and extensor tendon release
- Microtenotomy resulted in earlier improvement in pain VAS and in grip strength
- Microtenotomy is safe and offers a good alternative to tendon release for the treatment of lateral epicondylitis

Comments:

- Study is small, and measures of uncertainty (confidence intervals) are lacking
- MEPS is a mix of self-report (pain and function) and observer measurements (range of motion and stability); grip strength is an observer measurement
- MEPS and grip strength measurements were used at the 12 week follow-up, but whether the observer was aware of treatment allocation is not stated
- The number of patients enrolled was 24, but the number of patients screened and excluded was not reported; a flow diagram would have been informative but was not presented
- Tabular presentation of baseline characteristics and of results would have made the data comparison clearer
- Paired t-tests were used to measure significant change from baseline, but this is not a convenient way to compare two different treatment groups; analysis of covariance with the baseline score is a preferred way of comparing two groups, since it can control regression to the mean more effectively
- Because the baseline scores of the microtenotomy group were slightly worse (and thus more susceptible to regression to the mean), regression to the mean may have affected the apparently greater improvement reported in the microtenotomy group
- The discussion mentions that radiofrequency microtenotomy may have a neuroablative effect which could account for its rapid effect
- If RF tenotomy is neuroablative, it could affect the posterior interosseous nerve (PIN) in this setting
- Because the PIN innervates extensor muscles of the forearm, grip strength measurements would not be expected to detect whether the RF procedure compromised its motor function
- The value of surgical intervention of any kind for lateral elbow pain is not established, making the comparison of two surgical techniques of uncertain importance

Assessment: inadequate (small study with lack of information for some sources of bias, such as blinded measurement of follow-up, suboptimal statistical analysis, and follow-up variables of uncertain relevance)