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Original article

Outcomes of arthroscopic lateral epicondylitis release: Should we treat earlier?

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ABSTRACT

Background: When managed conservatively, lateral epicondylitis often subsides only after considerable time, during which social and occupational activities are severely disrupted. If conservative management fails, a recently introduced option is arthroscopic release of the extensor carpi radialis brevis (ECRB). The primary objective of this study was to compare clinical outcomes of this procedure according to preoperative symptom duration.
Hypothesis: Earlier arthroscopic release is associated with better functional outcomes.
Material and method: Consecutive patients with arthroscopically managed lateral epicondylitis were included in a retrospective study. Arthroscopy was performed only after at least 6 months of conservative treatment. The criteria to evaluate the clinical outcomes were the Nirschl and Quick-DASH scores, muscle strength, time to pain relief, and percentage of functional recovery.
Result: Thirty-five patients were evaluated at a median of 4 years (range: 1–12 years) after surgery. Mean preoperative symptom duration was 18 months (range: 6–106 months) with a mean sick leave duration of 2.3 ± 4.9 months. Postoperatively, mean time to recovery was 37.5 days (range: 7 days to 5 years) and mean sick leave duration was 2.4 ± 2.4 months. The mean Quick-DASH score was 15.9 ± 19.1. The Nirschl score improved significantly, from 26.4 ± 7.9 to 66.3 ± 16.3. The initial muscle strength deficit was 10.1 ± 33.2% and muscle strength at last follow-up was increased by 4.3 ± 30.3%. Symptom duration showed no correlations with any of the clinical outcome measures.
Discussion and conclusions: Outcomes after arthroscopic release were not associated with symptom duration in this study. Nevertheless, the good clinical outcomes support treatment with arthroscopic release after only 6 months of conservative management.
Level of evidence: IV, retrospective study.

1. Introduction

Lateral epicondylitis, or tennis elbow, affects 1 to 3% of the general population [1]. The typical patient is aged 40 to 50 years [2] and performs manual work, or engages in activities that require repetitive wrist extension. Certain sports are associated with a younger age at onset. The risk is greater in females than in males, and it increases with advancing age and longer exposure to the offending activity [2]. A longer symptom duration is associated with a smaller likelihood of achieving a recovery after conservative or surgical treatment [3,4].

The first-line treatment is conservative [1,5] and may rely on non-steroidal anti-inflammatory drugs; physical therapy; local injections of a glucocorticoid, platelet-rich plasma [6], or botulinum toxin [7]; transcutaneous electrical nerve stimulation [8]; acupuncture; and bracing. Although most patients recover within 6 to 12 months, the symptoms may persist for 24 months or longer [3], substantially impeding occupational and lifestyle activities. Arthroscopic release of the extensor carpi radialis brevis (ECRB) produces good clinical outcomes and can therefore be offered to patients who have not responded to 6 months of optimal conservative treatment [9].

The primary objective of this study was to determine whether the clinical outcomes, at least 1 year after arthroscopic release, differed according to symptom duration at the time of surgery. The working hypothesis was that earlier arthroscopic release was associated with a shorter time to functional recovery.

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Fig. 1. Anatomical landmarks.

Fig. 2. Proximal antero-medial arthroscopy portal.

2. Material and methods

All 42 patients who received at least 6 months of conservative management between 2001 and 2013 then underwent arthroscopic ECRB release at our institution were included. Mean symptom duration at surgery was 18 months (range: 6–106 months).

2.1. Operative technique

Arthroscopic release was performed on an outpatient basis under regional anaesthesia. The patient was in the lateral decubitus position with the arm hanging down. A tourniquet was placed at the root of the arm. After identification of the main anatomical landmarks, 15–20 mL of saline was injected into the postero-lateral soft spot to distend the joint capsule and displace the vessels and nerves anteriorly (Fig. 1).

The arthroscope was introduced through the proximal antero-medial portal (Fig. 2). Kocher forceps were used to separate the epitrochlear muscles. The arthroscopy trocar was then aimed at the lateral epicondyle and used to open the capsule. A conventional arthroscope (4.0 mm in diameter, 30° angle) was used. The joint cavity was inspected (Fig. 3). The condition of the capsule was classified according to Baker [10] (Table 1). A middle antero-lateral portal (Fig. 4) was created under visual guidance by inserting a needle under the lateral epicondyle, opposite the humero-radial joint space. The capsule and tendon fibres at the under-surface of the ECRB, as well as part of the extensor digitorum communis (EDC) were severed using a hook-shaped radiofrequency probe introduced through the middle antero-lateral portal (Fig. 5). The cuts were made perpendicularly to the fibres, without extending beyond the posterior half of the lateral condyle, to guard against damaging the lateral collateral ligament and thereby inducing secondary postero-lateral instability [11]. Depth-wise, the cuts were stopped as soon as the muscle fibres became visible. Bone abrasion has been reported to cause pain, and was therefore not performed [12,13]. The superficial fascia was left intact. The portals were closed with no drains. No immobilisation or rehabilitation therapy was recommended.

Table 1
Baker classification.

Classification of Baker
Type 1: intact capsule
Type 2: linear capsular tear
Type 3: complete capsular tear

2.2. Clinical data and assessments

After a median of 4 years (range: 1–12 years), 35 patients were evaluated by an independent assessor. The remaining 7 (16.7%) patients were lost to follow-up. Of the 35 evaluated patients, 4 (11.4%) had had surgery on both elbows. Table 2 reports the main clinical and demographic features of the 35 patients.

The evaluation included a physical examination, with two subjective scores, the elbow-specific Nirschl score (Table 3) [14] and the Quick-DASH score [15]. Muscle strength was measured on both sides using a JAMAR® dynamometer. Muscle strength on the operated side was compared to that on the normal side. Symptom duration and sick leave duration before and after surgery were

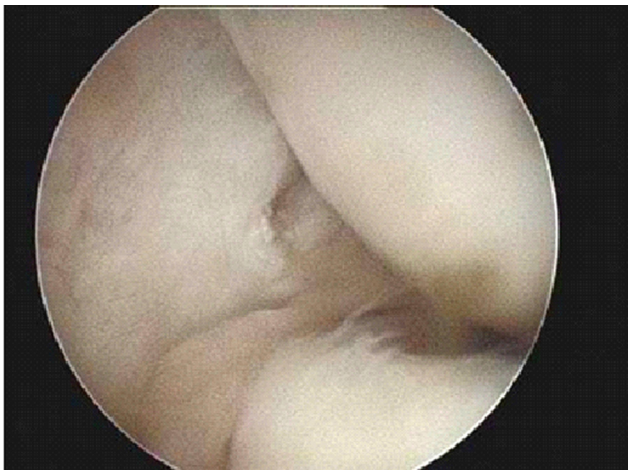

Fig. 3. Arthroscopic inspection of the joint cavity: capsule lesion type 3 in the Baker classification.