

## **Research Article**

# **The Transosseous Refixation of the Common Extensors Tendons for Refractory Lateral Epicondylitis: A Retrospective Analysis of 15 Patients**

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**Abstract:** Tennis elbow is a common disorder in orthopaedics. Most common presentation is idiopathic. There are multiple etiopathologies such as trauma, inflammation, fibrosis has been proposed but no definitive cause is known. Most of the treatment regimes focus on rest, physiotherapy and corticosteroid injection. The aim of our study is to provide a surgical alternative to patients with refractory tennis elbow. We did a retrospective study of 15 patients operated by debridement of fibrous tissue at common extensor origin and re-fixation using suture anchor. All patients were diagnosed on basis of clinical examination, MRI and elbow arthroscopy. After surgery patients were immobilized for four weeks and after that range of motion exercises were started. All patients had good pain relief and function on basis of subjective and objective parameter. We recommend this procedure for all patients with refractory tennis elbow.

**Keywords:** Chronic instability, Elbow arthroscopy, Epicondylitis

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## **INTRODUCTION**

Tennis elbow is a very common orthopaedic disorder both in normal population and athletes. Incidence in tennis playing population is around 50% in whole life time.

Lateral epicondylitis is usually treated by conservative methods such as NSAID, short wave diathermy, rest to affected elbow, tennis elbow band and steroids injection. Most patients do respond to these methods but still there is a group of patients who did not respond to any of the conventional methods. There is not much literature available about surgical method of treatment for tennis elbow.

We have done a prospective study of 15 cases of refractory lateral epicondylitis treated by debridement of common extensor origin and re-fixation.

The aim of this study was to evaluate the outcome of this procedure in terms of pain relief and functional improvement.

## **MATERIALS AND METHODS**

There were 15 patients in this study out of which 8 were female and 7 were male. All these patients were treated by conservative methods including

corticosteroid injection but did not respond and all these patients had persisted pain for more than six months. This study was reviewed by the local ethics committee.

In addition to the clinical examination, MRI was performed in every case. Diagnostic arthroscopy was done to evaluate intra-articular pathology and associated ligament laxity. All patients with any other associated pathology like posterior lateral rotator instability, mal-united fracture etc. excluded.

All patients were operated by single surgeon at same centre. Average time of surgery was 52 minutes. All patients were operated under tourniquet as bloodless field helped in identifying abnormal fibrous tissue at common extensor origin. After debridement and removal of sharp bony edges or spicule if present, extensor tendon origin was reattached using No. 2 Ethibond and 4 mm titanium suture anchors.

Elbows were kept in full extension for 4 weeks after which range of movement at elbow were started, and weight lifting was allowed at 3 months.

Patients were followed up at 6 months and one year.

All patients were asked to fill a questionnaire form before and after surgery. With the help of this

questionnaire pre-and post-operative condition of the patient was queried. Subjective parameters [visual analogue scale (0-10), school grades (very good (1) poor (6))] and objective findings [ROM, Mayo Elbow Performance Score] were done in addition to specific questions about the postoperative course of treatment (eg, analgesics intake, number of physiotherapy sessions, disability etc. applicable), the length of hospital stay, the cut-seam-time, cortisone infiltrations as well as complications were asked.

**RESULTS**

After evaluation of the data, based upon the subjective and objective patient-specific parameters, a

significant reduction in symptoms as well as a significant improvement of the functional result was noted.

Postoperative range of motion showed no significant change. The functional outcome (Mayo Elbow Performance Score) was on average increased by 57% (50.2 points preoperatively, postoperatively 78.9). Subjective (VAS, school grades) was also here a significant postoperative significant increase.

Two patients had complication related to hardware prominence. They needed removal of hardware after 6 months.

**Table 1: Characterization of the patients, preoperative interventions and operational data and results of patient-specific questionnaire**

Gender (male/female)	7:8
Affected side (R;L)	10:5
Handedness	13:2
Average Number of steroid injections	2
Hospital stay in days	3.5days
Complications	2
Analgesic intake after surgery(weeks)	2
Result (weeks)	10
Residual symptoms	1

**Table 2:- Preoperative and postoperative intra-individual comparison, considering the functionality (ROM), the subjective assessment of the patients and the functional outcome using the Mayo Elbow Performance Score.**

Criteria		Pre-operative MW + SD	Post-operative MW + SD	Pre V/s Post-operative p-value ; 95% KI
Functionality (ROM)	Flexion	140.4 ± 9.0	138.1 ± 6.6	0.30 ; [-2,1; 6,7]
	Extension Deficit	1.2 ± 4.3	1.3 ± 2.9	0.91 ; [-2,1; 1,9]
	Pronation	71.9 ± 12.7	75.4 ± 6.6	0.22 ; [-9,1; 2,2]
	Supination	83.9 ± 3.3	80.2 ± 11.2	0.11 ; [-0,9; 8,2]
Subjective Assessment	VAS Scale	8.1 ± 1.6	3.0 ± 3.1	< 0.01; [ 3,7; 6,4]
	School Grade	4.6 ± 1.1	2; 3 ± 1.5	< 0.01; [ 1,6; 3,1]
Scores	Mayo Elbow Performance Score	50.2 ± 10.1	78.9 ± 15.1	< 0.01; [-35,8; -21,5]



**Fig. 1: Showing elbow arthroscopy used to diagnose intra articular lesion such as instability**



**Fig. 2: MRI showing lateral epicondylitis**



**Fig. 3: Showing intraoperative image of debridement of fibrous tissue**

### DISCUSSION

The elbow joint is difficult to examine due to surrounding soft tissue (tendons, ligaments, muscles). Thus diagnosis of underlying pathology and complex treatment regimens provide treating physician a special challenge.

Chronic instability of the elbow, such as the posterolateral rotary instability may be the consequence of an initial injury (dislocation, varus and / or hyperextension events, radial head fracture) [1,4, 8, 12, 13], repetitive micro-trauma (predisposing sports (e.g. tennis) chronic radial Epicondylitis [2, 7, 10, 11, 14]. Likewise multiple cortisone infiltrations on lateral epicondyle Extensor tendon origin [3,5, 6] can also lead to elbow instability. Chronic instability some time mimics lateral epicondylitis.

Diagnostic elbow arthroscopy was used to decide further surgical treatment regime. In an open surgery with out prior diagnostic arthroscopy, chances of missing Intra-articular lesion are there, which can lead to persistent symptoms.

Few patients were treated by conservative therapy like cortisone infiltrations on lateral epicondyle / radial band origin. On diagnostic arthroscopy no relevant instability was detected. Subjectively there seems to be a correlation between the number of cortisone infiltration and the degree of instability. This observation could not statistically substantiated by the data gathered. This observation was same as Fadale *et al.* described [5].

Intra-operative most common structure which was involved was extensor carpi radialis brevis. Extensor digitorum brevis was involved in 50% of cases. [3,9,15]

Strengths of this study are the standardized diagnostic arthroscopy performed, and preoperative MRI-guided diagnosis and treatment by a single surgeon.

One limitation of the study is the retrospective analysis of the questionnaires. In the future, prospective study designs should be sought in order to avoid possible distortions result of the retrospective survey. Another limitation is that there is no control group against which the operating profit of patient can be compared.

### CONCLUSION

Tennis elbow is a common disorder in sports man as well as in normal population. In our study there was significant correlation between affected side and handedness. This is a chronic problem and for patient, as well as the economy, this has serious impact.

Since this method lead to significant improvement in both symptoms and function, we recommend this procedure for refractory cases of tennis elbow, prior MRI and diagnostic elbow arthroscopy helps in reducing false positive diagnosis.

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