OUTCOME OF MODIFIED OPEN SURGERY IN TENNIS ELBOW

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Background: Tennis elbow is a common disorder of upper extremity. It can be treated conservatively in majority of the patients but some resistant cases eventually need surgery. **Material & Methods:** This descriptive study was conducted at Department of Orthopaedics, Ayub Teaching Hospital, Abbottabad, from January 2002 to June 2006. Sixteen patients had surgical release of the extensor tendon origin along with excision of the lateral epicondyle ridge. These patients did not respond to conservative treatment i.e. rest, non-steroidal anti inflammatory drugs (NSAIDS), local steroid injections and physiotherapy. Patients were followed upto six months. Outcome was graded as excellent, good and poor according to pain relief and function of the hand. **Results:** Sixteen patients (17 elbows) were studied. Thirteen were female (81.25%) and three were male (18.75%). Fifteen patients (93.75%) had unilateral Tennis Elbow, while one had bilateral involvement (6.25%). In unilateral disease, right side was affected in eleven patients (68.75%) and left side in four (25%). Excellent outcome was noticed in eleven patients (68.75%) and good result in five patient (31.25%). **Conclusion:** Open surgical technique of releasing extensor tendon origin along with excision of lateral condylar ridge of the humerus is new and simple procedure and yields excellent and good result in patients with resistant Tennis Elbow

Keywords: Tennis elbow, lateral, epicondylitis

INTRODUCTION

Tennis elbow or lateral epicondylit is is a syndrome of pain localised over the common origin of extensor muscles of the wrist and fingers at the lateral epicondyle, and hence, also known as lateral epicondylitis. First, reported in literature by Runge [1] in 1873. It is mostly seen in manual workers, house wives and women suffering with rheumatoid arthritis. Its peak incidence is in the fifth decade of life.

Although the term epicondylitis means inflammatory process but it is a misnomer as there is no evidence to suggest so. It may be caused by repeated micro trauma to the Extensor carpi radialis brevis (ECRB) origin but the aetiology and pathogenesis still remain unclear[1,2]. Tennis elbow is a clinical diagnosis by eliciting tenderness over the lateral epicondyle and there may be localizing pain over the ECRB origin when the patient pinches with the wrist in extension, also called hand shake sign. There are some differential diagnoses of the condition that includes radial tunnel syndrome, osteochondritis of the capitullum and osteoarthritis of the lateral compartment of the elbow. There are various treatment modalities including conservative and surgical. Conservative treatment includes non steroidal anti inflammatory drugs (NSAID), exercises, restriction from manual work, local steroid injection and lithotripsy. The initial treatment is rest, local splints, activity modification and steroid injection. 90% of the patients respond to conservative treatment. [2]

Patients who do not respond to conservative measures may need surgery. It has been reported that up to 8% of patients require surgery. [3, 4] There are many surgical procedures available as have been reviewed by Bosworth [5] and Rosen et al [6] that include extensor tendon tenotomy, excision of damaged part of the tendon, exploration of radio-humeral joint and lengthening of extensor carpi radialis brevius (ECRB).

This study was designed to assess the outcome of modified open technique; extensor tendon origin release along with excision of lateral condylar ridge of the humerus, in patients with resistant Tennis elbow.

MATERIAL AND METHODS

This descriptive study was conducted at Department of Orthopaedics, Ayub Teaching Hospital, Abbottabad, from January 2002 to June 2006, on sixteen patients where by surgical release of extensor tendon origin along with excision of lateral epicondylar ridge was done. Patients who failed to respond to conservative and medical treatment were included in the study. All patients were evaluated pre-operatively to exclude any cervical, shoulder or wrist pathology.

Diagnosis of Tennis elbow was confirmed clinically by resisted extension of the pinch grip with wrist in extension and pronation provoking pain over the common extension origin. Furthermore, we have discovered a clinical sign that has been named **"Handshake sign"**, where the patient with Tennis elbow experiences pain in the lateral epicondyle on hand shake.

Surgery was performed under general anaesthesia and tourniquet control. This technique has also been described by others [7,8]. A 7 cm incision was made over the centre of extensor origin. The origin of extensor tendon was exposed and detached

from the lateral epicondyle with the help of periosteum elevator and knife. Extensor carpi radialis brevius was identified for any pathology. Lateral epicondylar ridge was also shaved with chisel. The detached extensor origin was stitched with periosteum of the lateral epicondyle with vicryl-1. Haemostasis was secured and wound closed in layers. Post-operatively, back slab was applied for two weeks. Intravenous antibiotic (first generation cephlosporin) was given for one day followed by oral preparation for further six days.

Patients were followed up for six months. First visit was scheduled two weeks post-operatively, for removal of sutures and back slab. Patient was advised forearm extensor resistance exercises and avoidance of weight lifting and manual work for further four weeks. Thereon, they were reviewed on monthly basis. At each visit, we determined patient satisfaction following surgery, strength of hand grip and elbow function.

Outcome was graded as excellent, good or poor according to pain relief and function (Table 2).

RESULTS

Thirteen female (81.25%) and three male (18.75%) patients were subjected to the study. Fifteen patients (93.75%) had unilateral disease while one patient (6.25%) had bilateral involvement. In unilateral TE, right side was involved in 11 (68.75%) patients and left side in 4 patients (25%) (Table 1). Age range of the patients was 25 to 60 years. All female patients were house wives. Out of 3 male patients, one was labourer, one was office boy and one was painter, by profession. Outcome results were graded as excellent, good and poor as shown in Table 3. Fifteen patients (93.75%) were satisfied with the results of surgery.

Table 1 – Side involved (n=16)

Side involved	No of elbow	%
Right elbow	11	68.75
Left elbow	4	25.00
Bilateral	1	6.25

Table 2 – Outcome grading

Grading	Parameter
Excellent	Full recovery and return to normal activities within 6 to 8 weeks time
Good	Full recovery and return to normal activities within 3 months
Poor	delayed recovery i.e. after 3 months and persistence of pain & inability to do required activities.

Table 3 – Outcome of Procedure (n=16)

Grading	Number of Patients	%
Excellent	11	68.75
Good	5	31.25
Poor	0	0

DISCUSSION

Surgical treatment of Tennis elbow is recommended when conservative treatment like physiotherapy, local steroid injection, TE strip and lithotripsy shock waves fail.

Advantages of surgical treatment i.e. forearm extensor tendon release are; permanent relief from the disorder within 6 to 12 weeks time and patient can resume normal activities early without any functional compromise. Patients who are treated by conservative measure need prolonged restriction from activities and repeated visits to the doctor or a physiotherapist that costs a lot in terms of money and time.

In our study we used modified open surgery technique in resistant tennis elbow and we achieved success in all the cases. In modified open technique, excision of lateral epicondylar ridge provide smooth surface for reattachment of extensor tendon origin, thereby minimizing the chances of recurrence.

In our this study, excellent and good outcome was obtained in eleven (68.75%), and five patients (31.25%), respectively. In one female patient who had bilateral release of extensor tendon, had pain over the left lateral epicondyle with positive handshake sign up to six months, that improved later on.

Nirschl and Pettrone[8] have reported excellent outcome in 66 out of 88 elbows (75%) by open technique that is comparable to our results. However, Grundberg and Dobson [9] claim good and excellent result in 29 out of 30 elbows (96.66%), by releasing the extensor origin using percutaneous method. Similarly, Baumguard and Schwartz[10], using percutaneous release of extensor origin, have reported excellent results in 32 (91.42%) and poor in 3 (8.57%) out of 35 patients.

In another study of open release of extensor tendon, 75% of the patients had excellent or good results and 73% of them being satisfied with the results of surgery[11].

CONCLUSION

Proper diagnosis of Tennis elbow is mandatory before embarking upon surgery to get the desired results, otherwise the outcome of surgery may not be satisfactory.

Modified open surgical technique is a new, and simple procedure and ensures excellent outcome in patients with resistant Tennis elbow..

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