



Percutaneous tennis elbow release under local anesthesia: A prospective study

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Abstract:

Tennis elbow is a common disorder of upper extremity. Majority of the patients can be treated conservatively but some resistant cases eventually need surgery. The aim of this study is to evaluate the results of percutaneous tennis elbow release under local anesthesia. From July 2005 to July 2010, 52 elbows in 46 patients (12 males and 34 females) were recruited from outpatient department having tennis elbow for more than one year. All patients were operated under local anesthesia. All patients were followed for twelve months. The clinical results were evaluated in terms of pain, activity level and patient satisfaction. Pain relief was achieved on average eight weeks after surgery. The results were excellent in forty patients (86.95%) and good in six patients (26.08%). No wound related complications were encountered. On subjective evaluations, 40 patients reported full satisfaction and 6 patients reported partial satisfaction with the results of treatment. Percutaneous tennis elbow release under local anesthesia is a minimal invasive procedure can be performed in an outpatient setting. This procedure is easy, quicker, less complication with good results and is economical.

Key words: Tennis elbow, Percutaneous, Local anesthesia, Minimal invasive procedure.

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Introduction:

Tennis elbow (lateral epicondylitis) is a common condition in orthopedic practice. The incidence of tennis elbow is from 1 to 3% [1]. The pathology is poorly understood and most structures on the lateral side of the elbow have been implicated. It is usually diagnosed in patients with pain over the radial aspect of the elbow, worsened by repetitive or excessive movements of wrist with the elbow in

extension, and aggravated by resistive contraction of wrist extensors [2]. Mechanical overload and repetitive stress on a tendon with a degenerative lesion are known to be the primary causes. Conservative measures using anti-inflammatory drugs, physical therapy, and local steroid injections can be the preferred options in the early stages. However, they produce unsatisfactory outcomes that can lead to chronicity and a pervasiveness of the symptoms in many cases.

The diagnosis of tennis elbow is made clinically by means of physical examination and patient history. Other possible causes of lateral elbow pain should be excluded. More than 90% of patients with tennis elbow respond to medical treatment [3]. Surgery is reserved for resistant cases that have failed a minimum six months course of conservative treatment. Numerous surgical procedures have been described for lateral epicondylitis [3, 4, and 5]. In recent years, several studies were reported about the outcomes of percutaneous release of the common extensor origin [6, 7, 8, and 9]. The purpose of this

study was to find out the outcome results of percutaneous tennis elbow release under local anesthesia.

Methodology:

This prospective study was carried out at Orthopaedics department of M. M. Medical College from July 2005 to July 2010. It was approved by institutional medical ethics committee. A total of 52 elbows in 46 patients (12 males and 34 females) with tennis-elbow admitted to our institute were included in present study. Thirty-four patients (73.91%) were women and twelve patients (26.08%) were male. 6 patients had bilateral tennis elbow and 40 patients had unilateral tennis elbow. 38 cases of tennis elbow were found on the right side and 14 cases were seen on the left side. The mean age of patients was 45 years (range: 30 to 60 years). A written informed consent was obtained from all the patients. All patients were followed for twelve months. The indications for surgery were as follows: more than 6 months of persistent symptoms despite the aggressive conservative treatments, such as rest, drug therapy, splinting, physiotherapy, and a history of more than 3 steroid injections for treatment, and functional impairment at work and home. Cases were excluded if there had been previous surgery or other elbow pathology such as rheumatoid arthritis, osteoarthritis, or radial tunnel syndrome.

Percutaneous technique:

The percutaneous technique involves a 1 cm incision over the mid-point of the lateral epicondyle to reveal the common extensor origin. The elbow is flexed to protect the radial nerve. A small pair of artery forceps is maneuvered under the common extensor origin which may, thus, be well visualised. It is divided. The wrist is flexed to complete the defect and allow a 1 cm gap to be created at the common extensor origin. This gap is palpated to confirm that the procedure is complete. The wound is closed and local pressure applied to create haemostasis when the tourniquet is released. A wool and crepe bandage was applied that was removed after seven days to allow the early commencement of an exercise programme. The clinical results were evaluated in terms of pain, activity level and patient satisfaction. The follow-up data were obtained from the patients’ charts and a questionnaire, and classified according to Grundberg and Dobson [10] [Table 1].

Rating	Pain	Activity and Patient Satisfaction
Excellent	No pain	Returned to work or activity Patient satisfied
Good	Pain only with heavy use	Returned to work or activity Patient satisfied
Poor	Pain unchanged	Patient dissatisfied

Table 1 — Rating system used to evaluate the results

Results

All patients were followed for twelve months. Pain relief was achieved on average eight weeks after surgery. During the last examination, pain, activity and patient satisfaction were evaluated (table I). The results were excellent in forty patients (86.95%) and good in six patients (26.08%). No wound related complications were encountered. On subjective evaluations, 40 patients reported full satisfaction and 6 patients reported partial satisfaction with the results of treatment. All patients had a full range of elbow motion at follow-up examination. All patients with excellent or good results returned to their former occupations or activities. All were satisfied with the incision scar.

Discussion:

Lateral epicondylitis (tennis elbow) is an overuse injury involving the extensor muscles, especially in the extensor carpi radialis brevis. Histopathological finding is fibrous granulation tissue at the origin of the common extensor tendon [11] and vascular infiltration and degeneration of the common tendon origin [3, 12]. Others claimed that the main pathology in tennis elbow was entrapment of the anterior interosseous branch of the radial nerve and suggested surgical decompression of the nerve [13, 14]. It is advisable to offer surgery only after patients have failed 3-6 months of conservative modalities, such as steroid injections, splinting, and occupational therapy. A varieties of surgical procedures has been described for the treatment of lateral epicondylitis (tennis elbow). However, most surgical procedures involve debridement of the diseased tissue of the extensor carpi radialis brevis (ECRB) muscle with decortication of the lateral epicondyle. This

procedure has been performed through open, percutaneous, and arthroscopic approaches. The most commonly used procedure is release of the common origin of the extensors using either an open or a percutaneous technique. Release of the common extensor origin is a highly satisfactory procedure for the treatment of lateral epicondylitis unresponsive to conservative treatment : the reported rates of good results have ranged from 54% to 99% [15]. In the open procedure which was first mentioned by Hohman according to Hohl [16], the abnormal tissue which consists of tears involving the common extensor origin and granulation tissue deep to the common extensor origin can be identified. The pathologic area of the extensor origin may be excised, creating a longitudinal defect which may be repaired by suturing. The rates of good results after this procedure have ranged from 77% to 85% [3, 12]. However, Goldie¹⁷ who studied the pathologic anatomy of the tennis elbow did not find any tendon tears in his study. The tears involving the common extensor origin described previously may well be secondary to injections of corticosteroids [10,18]. According to Powell and Burke, percutaneous release of the extensor common origin was first performed by Losee in 1962 [8]. This is a technically simple procedure that allows early mobilization without pain. Seventy to 90% excellent or good results have been reported in the literature [6, 8, 9, and 15]. Nazar et al. [19] stated that the post operative outcome was good to excellent in most patients. Eighty seven percent of patients had complete pain relief. The mean post-op DASH score was 8.47 (range 0 to 42.9) and the mean Oxford elbow score was 42.8 (range 16 to 48). Solheim et al. [20] stated that the QuickDASH was improved in 78 out of 80 elbows and 81% was rated as excellent or good (Quick DASH<40 points). Kaleli et al. [21] stated that ninety-four percent of the patients in our study group showed excellent or good results and all patients had a full range of elbow motion at follow-up examination. In our study the results were excellent in 86.95% patients and good in 26.08% patients. In our study the results were excellent in 86.95% patients and good in 26.08% patients.

Conclusion:

Percutaneous Tennis Elbow Release is a relatively simple outpatient procedure for the treatment of long standing tennis elbow and it is associated with a low rate of complications. We

conclude that it is currently the operation of choice and the one with which other operative procedures for tennis elbow should be compared.

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