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# Role of local corticosteroid in management of tennis elbow

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**Abstract**
**Background:** Lateral epicondylitis or tennis elbow is common clinical and functionally limiting condition encountered by orthopedic surgeon having chronic course and its etiology and management is under controversies. The aim of this study is to know the efficacy of local corticosteroids in its management.
**Materials and methods:** The study was conducted in Department of Orthopaedics, RIMS Ranchi from November 2016 to October 2017. Sixty patients of either sex (33 female and 27 male), mean age 38yrs presenting with pain over lateral epicondyle were selected for the study. After written informed consent local steroids (0.5ml methylprednisolone with 0.5ml of 2% lignocaine) were injected over the maximum tender point in elbow.
**Results:** The incidence was more common in females and dominant arm is been involved mostly. Out of 60 patients 42 patients (70%) got almost complete relief from pain in 6 weeks of time. But at the end of 12 weeks, the final follow up only 11 patients (18.33%) were pain free and 30 patients (50%) had recurrence of symptoms.
**Conclusion:** Local corticosteroids are very effective treatment for lateral epicondylitis if used over short term and for early symptomatic relief.

**Keywords:** Tennis elbow, steroid injection

## Introduction
Tennis elbow also known as lateral epicondylitis is common complaint of general population with incidence of 3-8%, higher in tennis players 5-8%. It is characterized by pain and tenderness over lateral epicondyle of humerus. Female are commonly affected and mostly seen in dominant arm. The onset of symptoms occurs due to repeated supination pronation of forearm in overextension. Earlier it was considered as a inflammatory process but the current concept says it is a micro tear within the origin of extensor carpi radialis brevis. Local pathology includes degeneration, disorganized collagen and neovascularity. Histopathological finding of tennis elbow shows immature angiofibroblastic hyperplasia. Diagnosis is made by sign and symptoms like pain and tenderness over lateral epicondyle of elbow, pain is aggravated by restricted dorsiflexion of wrist and repeated supination and pronation of forearm, pain on grasping objects forcefully. Radiographs are usually within normal limits, calcific tendinitis may be seen in certain cases. The disease is usually self-limiting and last for 6-24 months. Mostly patients of tennis elbow are treated conservatively which includes rest, ice therapy, analgesics, friction massage, stretching and strengthening exercises, tennis elbow bands and counterbracing, physical therapy with ultrasound and local corticosteroid injections. All these are non-operative treatment of tennis elbow and are responsive in almost 95% of the patients. In our study we are focusing on short term outcome of local corticosteroid injections in treatment of tennis elbow.

## Materials and Methods
This study was done in Department of Orthopaedics, RIMS Ranchi from November 2016 to October 2017. Sixty patients of either sex (33 female and 27 male) mean age 38yrs presenting with pain over lateral epicondyle were selected for the study. Diagnosis was made on the basis of clinical examination with complaint of pain in left elbow leading to impairment of daily activities.

Patients included in this study are having Pain and tenderness over lateral epicondyle of humerus of 6 -12 weeks aggravating on cozen's test(test is performed by keeping the patients elbow in semi flexed position and forearm pronated and asking the patient to dorsiflex the wrist against resistance. Pain in lateral aspect of elbow is indicative of positive test.)
All patients were counseled about the advantages and disadvantages of treatment, natural history of disease and a written informed consent was obtained.

**Injection Technique**
Patient was positioned supine, arm adducted by side, elbow kept in 45 degrees of flexion and forearm & wrist pronated. The landmark for injection was marked i.e the point of maximum tenderness over lateral epicondyle. Under proper anti septic precaution Injection of 0.5ml methylprednisolone (20mg) with 0.5ml of 2% lignocaine was given at the site of maximum tenderness.

**Follow Up**
Patients were evaluated at the end of 2nd, 6th and 12th week. Results were evaluated at the end of twelve weeks based on the criteria as in Table 1. A record of 60 patient's pain with visual analogue scale (VAS) was obtained at the start of study having arranged of 0 to 10, 0 indicative of no pain and 10 being the worst pain ever experienced.

**Table 1:** Criteria for evaluation of results

| Results | Pain | Tenderness | Cozen's test |
|---|---|---|---|
| Excellent | Nil | Nil | -ve |
| Good | Nil | Deep | -ve |
| Poor | -ve/+ve | superficial | +ve |

**Results**
A total of 60 patients were evaluated for the study, 27 (45%) male and 33 (55%) female (Table 2). It is more commonly observed in age group 30-39 yrs followed by 40-49 yrs indicating high prevalence in third and fourth decade. Right side of limb was affected in 34 (56.66%) patients and left side was affected in 26 (43.33%) patients (Table 3), may be due to most of the population are right handed and right hand being their dominant hand.

**Table 2:** Age and Sex distribution

| Age(YRS) | Male | Female | Total |
|---|---|---|---|
| <30 | 02 | 05 | 07 |
| 30-39 | 12 | 12 | 24 |
| 40-49 | 9 | 08 | 17 |
| >50 | 04 | 08 | 12 |
| Total | 27 (45%) | 33 (55%) | 60 (100%) |

**Table 3:** Side Distribution

| Side | Male | Female | Total |
|---|---|---|---|
| Right | 16 | 18 | 34 |
| Left | 11 | 15 | 26 |
| Total | 27 | 33 | 60 |

The median VAS pain score at the start of our study was 7 (range 4-10) which is reduced to a median score of (range 0-8) at 6 weeks of follow up. But at the end of 3 months (i.e 12 weeks, the final follow up) the median VAS score noted was 6 (range 0-10) suggestive of recurrence in majority of patients.

| Visual Analogue Scale (VAS) | In the beginning | At 6 weeks | At 12 weeks |
|---|---|---|---|
| 0-3 | 0 | 42(70%) | 11(18.33%) |
| 4-7 | 20(33.33%) | 10(16.66%) | 19(31.66%) |
| 8-10 | 40(66.66%) | 8(13.33%) | 30(50%) |

Out of 60 patients 42 patients (70%) got almost complete relief from pain in 6 weeks of time. But at the end of 12 weeks, the final follow up only 11 patients (18.33%) were pain free and 30 patients (50%) had recurrence of symptoms.

**Discussion**
The term "Tennis elbow" is a quite common condition affecting the general population who may have never played tennis, though it is more common in tennis elbow. It increases the morbidity as it affects the daily routine activities. It occurs mostly due to stress, overload, overuse and repeated pronation and supination movements. It is usually a self-limiting condition, it is seen that approximately 80% of the patients improve in their symptoms over 1 year of time with conservative management. Poor prognostic factors includes manual labour, dominant arm being involved and prolonged duration of symptoms.
The etiology is uncertain. Increased activity of extensor carpi radialis brevis and increased level of excitatory neurotransmitters are proposed as cause of the disease. Refractory cases may be due to entrapment of posterior interossi nerve in radial tunnel. Diagnosis is made by sign and symptoms like pain and tenderness over lateral epicondyle of elbow, pain is aggravated by restricted dorsiflexion of wrist and repeated supination and pronation of forearm, pain on grasping objects forcefully. Radiographs are usually within normal limits, calcific tendinitis may be seen in certain cases. MRI may be aid in diagnosis, thickened tendon; ECRB origin thinned, separated partially or completely torn can be visualized on T1 and T2 images. Most effective management and the duration of therapy are controversial. Haker et al [5] compared local corticosteroid injection with epicondylitis bandage and splinting. The results for steroid injection were better in two weeks, but recurrence was detected in 44% of patients in 6 months and results of physical examination were better similar in both groups at 12 months. Smidt N et al reported that corticosteroid injection were more effective in 3-6months time compared to control or drugs group but at 3-12 months the results of injections were no better than control. Bisset et al reported that the local corticosteroid injections are effective in short term, but results were worst as compared to the other treatment modalities like physiotherapy. Gosens et al compared the results of two groups of patients with chronic lateral epicondylitis. The first group was treated by PRP injection, and the second group was treated by corticosteroid injection; both groups significantly improved across time. After 2 years of follow-up, the DASH score of the corticosteroid group returned to baseline levels while those of the PRP group significantly improved.

**Conclusion**
Local injection of steroids are very effective therapy for pain relief in acute presentation but their use should be limited to short term only.

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