

Outcome Analysis of Percutaneous Extensor Tenotomy by 18 Gauge Needle in Chronic Lateral Epicondylitis

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Abstract

Background: Lateral epicondylitis is condition affecting tendons which causes chronic pain around lateral aspect of elbow. it affects 1 to 3% of general population. The study was outcome analysis of Percutaneous extensor tenotomy by using the bevel end of 18 Gauze needle.

Material and Methods: This was prospective study conducted at the department of OrthopaedicsIn Gandhi Medical College and hamidia hospital Bhopal from July 2019 to June 2021 on 20 patients who underwent percutaneous extensor tenotomy by using the bevel end of 18 Gauze needle. These patients who fails to respond by conservative treatment of duration 3 months underwent Percutaneous Extensor tenotomy. The outcome was evaluated according to rating of pain on visual analog scale.

Results: In our study 20 elbows underwent percutaneous extensor tenotomy out of Which 17 patient (85%) achieved complete relief from pain (VAS= 0) with 8 patients at 3 months, 6 patients at 4 months,1 patient at 5 months and 2 patients at 6 months with mean duration at which complete pain relief was achieved at 3.8 months, 3 patients did not improve and hence were lost to follow up after 3 months.

Conclusion: In our experience percutaneous extensor tenotomy of the epicondylar muscles for chronic lateral epicondylitis by using bevel end of 18 gauze needle has a high rate of favorable outcomes and is a viable treatment option after failed conservative management. Percutaneous extensor tenotomy is relatively simple to perform as a day care procedure. It can be considered in treatment protocols.

Keywords: Chronic lateral epicondylitis, percutaneous extensor tenotomy,

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Introduction

Pain from the lateral aspect of elbow was to begin with portrayed in 1873 by Runge F et al 1 And ever since at that point it was given distinctive names such As a tennis elbow, epicondylalgia, lateral elbow pain and lateral epicondylitis[1]. In 1883 the term “tennis elbow” to begin with showed up paper by HP major Portrayed as “Lawn Tennis elbow” Inflammatory cells are not found within the Tendon tissue subsequently, Nirschl et al Coined the term “Angio fibroblastic Tendinosis” to depict this condition . It’s common name, tennis elbow, is to Some degree offer misnomer since the condition is often work related [2].

The etiology and pathogenesis of tennis elbow is not known , but the condition Is considered to be an overuse injury of degenerative nature [3].

As of now, degeneration of the Origin of the extensor carpi radialisbrevis, Rehashed miniaturized scale injury and incomplete healing response has been Acknowledged as the cause of lateral epicondylitis. [4]

Criteria's for the diagnosis tennis elbow are; pain on palpation of the lateral Epicondyle and the common extensor origin, and pain in the common extensor Origin during resisted extension of the wrist or third finger, other tests are the Mill's test (the wrist pronated and radially deviated during extension), or chair Lifting test another method suggested to confirm the diagnosis is by testing the Maximum grip strength [5].

Conservative measures are attempted at first since symptoms in most patients Improve with time and rest. 90% of tennis elbow patient can be successfully Treated by non operatively [6]. Those who failed to respond to medical Management are considered for surgical treatment [7].

The literature depicts a variety of methods to treat lateral epicondylitis including Open debridement of the extensor carpi

radialisbrevis But Percutaneous release And arthroscopic debridement also, multiple alternative therapies have been Reported, including extra corporeal shockwaves therapy, autologous blood Injections, laser treatment and botulinum toxin injection.[8]

Distinctive surgical method for treating chronic lateral epicondylitis have been Accessible one of them is tenotomy of common extensor origin percutaneously. It could be a straightforward method with negligible complications good to Excellent result in most of The patients. Presently it is accepted that percutaneous tenotomy of extensor tendons and Scraping off the epicondyle region using bevel end of an 18 gauge needle Improved the healing process of degenerative tendon by converting a chronic Inflammatory conditions to an acute inflammatory condition which heals quickly and in this manner getting soothing the pain of chronic lateral Epicondylitis [9].

Material and methods

The study was conducted from July 2019 to June 2021 at our institution after getting ethical committee clearance and following were the inclusion and exclusion criteria and following were inclusions and exclusion criteria.

Inclusions Criteria

1. Patient with chronic lateral epicondylitis failed to relieve pain in spite of medical management from last three month.
2. Age between 18 to 60 years.
3. Patient who has failed to get relieved after injection of local steroid or PRP.

Exclusion Criteria

1. Patient with chronic lateral epicondylitis failed to relieve pain in spite of medical management from last three month.
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3. Patient who has failed to get relieved after injection of local steroid or PRP.

Technique

1. Patient seated comfortably on chair and the forearm resting passively on an examination couch by the side elbow flexed at 90 degree and wrist Passively flex to around 60 degrees.
2. Lateral aspect of affected elbow prepared with 70% ethanol solution 10ML of 2% Lignocaine infiltrate by 30-gauge needle around the Common extensor origin (Fig. 2).
3. After the effect of local anesthesia an 18-gauge needle used to divide the Extensor origin at the sight of maximum tenderness the radial nerve

Protected by staying in the extensor origin (fig. 3).

4. The needle site Sealed by Band- aid and wrist brace application.
5. Postoperative analgesic given for several days, and wrist brace removed After pain resolved and normal activity of the limb resumed as quickly as Tolerated.
6. Follow up was done at 3 weeks, 6 weeks, 3 months and up to 6 months.
7. The result was evaluated according to rating of pain on visual analog Scale.
 - No pain – 0
 - Mild pain (1-3)
 - Moderate (4-6)
 - Severe Pain (7-10)



Figure 1: Clinical Image showing preparation of lateral epicondyle and infiltration with 2% lignocaine.



Figure 2: Showing Percutaneous extensor tenotomy with an 18 Gauze needle

Observation and results

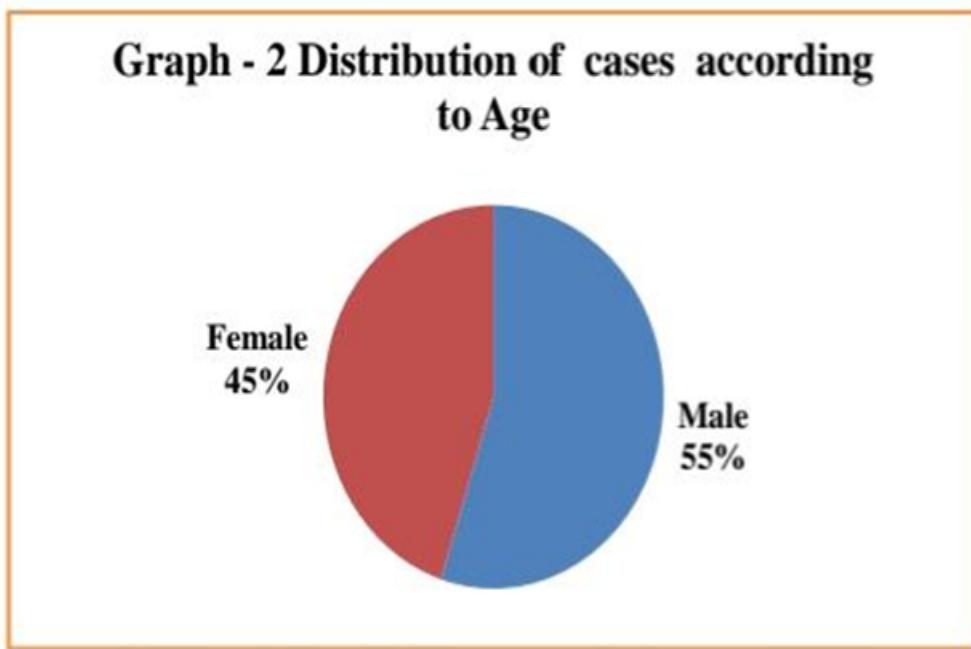
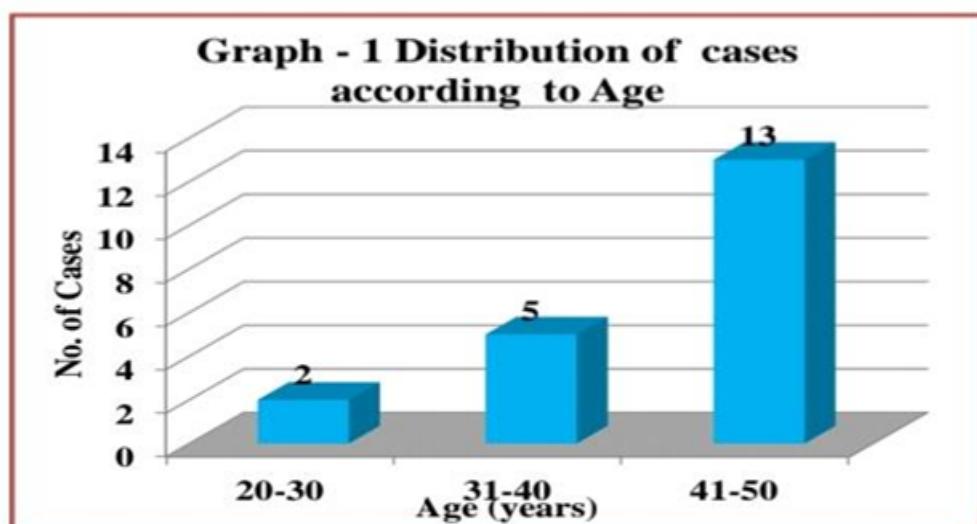
The following study was conducted in the department of orthopaedics and

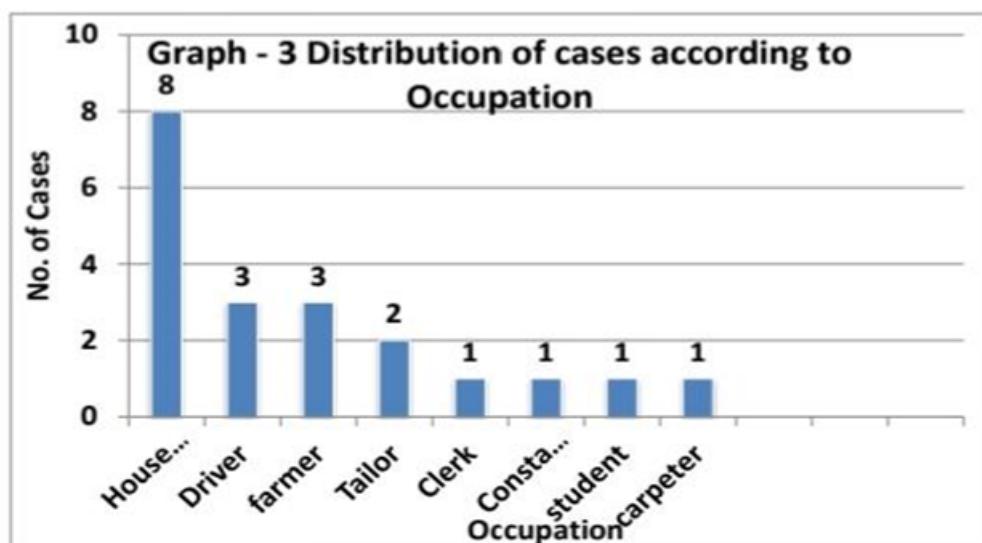
Traumatology, Gandhi medical college & hamidia hospital, Bhopal from July 2019 to June-2021 with follow up at 3 weeks, 6 weeks, 3 months and up to 6 Month.

Average age at presentation was 40.9 years. Range of age was from 18 to 60 years. Maximum incidence was in the age group of 41 to 50 years (graph 1) and 55%

patient were male and rest 45% were female (graph 2)

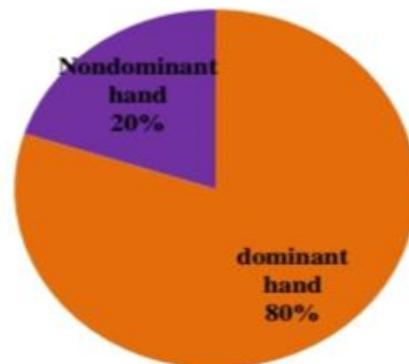
In present study 40% patient were house wife, 15% patient were driver, 15% patient were farmer , 5% were student, 5% were constable, 10% Were tailor, 5% was clerk and 5% was carpenter by occupation. (graph 3)



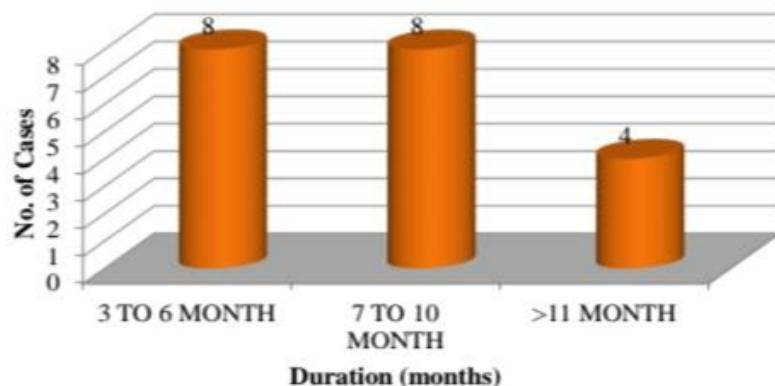


The dominant upper limb was predominantly involved in 16 cases (80%) Out of 20 cases (Graph 4). Average duration of symptoms was 7.65 months ranging from 3 to 12 Months (Graph 5).

Graph - 4 Distribution of cases according to status of arm



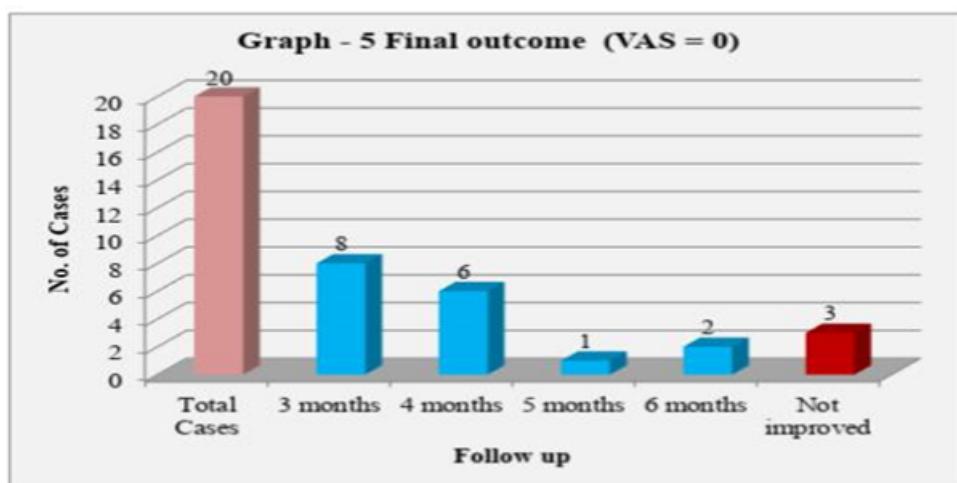
Graph - 5 Distribution of cases according to Duration of symptoms (months)



In our study 20 elbows underwent percutaneous extensor tenotomy out of which 17 patient (85%) achieved complete relief from pain (VAS= 0) with 8 patients at 3 months, 6 patient at 4 months, 1 patient at 5 months And 2 patient at 6 months with mean duration at which complete pain (Table 1, Graph-5).

Table: 1 Final outcome according to complete pain relief with zero VAS.

Follow up	No. of Cases	Percentage
3 months	8	40%
4 months	6	30%
5 months	1	5%
6 months	2	10%
Total	17	85%
Mean duration		3.8 months



Discussions

The present study was done in department of orthopaedics and traumatology, gandhi medical college & hamidia hospital, Bhopal. 20 cases of chronic lateral epicondylitis were treated by percutaneous extensor tenotomy using bevel end of 18 gauze needle.

The average age of patients in this series was 40.9 years with age group ranged from 18 to 60 years, maximum number of cases occurred in the age group of 41-50 years (65%). In our study slight male predominance i.e. 11 were male and 12 were female was noted .In a study by, Grundberg et al [10] mean age at presentation were 43 years, 13 were male and 17 were female. PD dunkow et al

[11]reported a mean age of 46 years at presentation, In there study 11 were male and 12 were female out of 23 patients. Lakhey et al [9] reported a mean age of 48.3 years at presentation. Balaliskonstantine et al [12] reported mean age at presentation were 48 years in their study, 11 were male and 35 were female. Vipinsharma[13] reported mean age at presentation was 41.74 years. Female were affected more than male in there study.

In present series dominant upper limb was predominantly involved in 16 cases (80%) out of 20 cases. In a study by Grundberg et al [10] reported dominant elbow affected in 29 cases out of 32 cases. Eiriksolheim et al [14] reported dominant elbow involvement in 71% cases.

Balaiiskonstantine et al[12] reported 38 patients involved dominant upper limb out of 52 patient. Vipinsharma et al [13] dominant limb was involved in 86% of patient. It is evident from this series that dominant side is more frequently involved.

In present study 40% patient were house wife, 15% patient were driver, 15% patient were farmer , 5% were student, 5% were police constable, 10% were tailor, 5% was clerk and 5% was carpenter by occupation. PD dunkow et al [11]reported manual workers were 14 and 8 were non manual worker in their series of 23 patient. Balaliskonstine et al [12] reported professional heavy manual work (farmers, butchers and waiters) at the percentage of 69.5% and Only 8.7% were related to sports and games. Vipinsharma et al [13] 73% of females were house wives exposed to household work and manual activities while 40% of males were manual workers.

In present study average duration of symptoms was 7.65 months ranging from 3 to 12 months. In a study by, Grundberg et al [10],reported average duration of symptoms was 18 months. Lakhey et al [9], reported mean duration of symptom 14.9 months. Eiriksolheim et al [14] reported mean duration of symptoms was 13 months. So present series has comparatively lesser average duration of symptoms.

Management of chronic lateral epicondylitis is an issue which has greatly interested researchers and surgeons as to which treatment is the most effective [15]. Percutaneous tenotomy of common extensor origin was first done by loose in 19627. In a study by, Grunberg et al [10] studied 32 patients of tennis elbow who were managed by extensor tenotomy, 90.6% of patients reported excellent and good results at 26 month follow up. PD dunkow et al [11] studied 23 elbows reported that no patient who were dissatisfied, 9 who were satisfied and 14 who were pleased by percutaneous tenotomy. Lakhey et al [9] reported in

there study, 21 elbows out of which 42.9% had an excellent outcome, 33.3% had good, 19% had satisfactory and 4.8% had poor outcomes. Balaiiskonstantine et al [12] Reported excellent and good results at a percentage of 88.2% at the two months follow up, 94.3% at the four-month follow up and 92.3% at the six-month follow up. Vipinsharma et al [13] studied 30 elbows They were managed by percutaneous tenotomy they reported that , on assessment of NRS, DASH, Oxford score all the scores were significantly decreased at 3 month and 6 month in patients undergoing percutaneous tenotomy. In our study 20 elbows underwent percutaneous extensor tenotomy by using bevel end of 18 gauze needle, on assessment by VAS score 85% patient (17Cases) achieved complete relief from pain (VAS=0) with mean duration of follow up at 3.8 months, 15% patient (3Cases) did not improve and hence were lost to follow up after 3 months. When conservative treatments fail to resolve the symptoms, a surgical procedure is a treatment of choice. Various methods are available the percutaneous tenotomy of the common extensor origin is a easier technique, can be performed under local anaesthesia on outdoor patient basis with more consolation for the understanding and take off a scarcely discernible scar. The percutaneous extensor tenotomy in chronic lateral epicondylitis offers favourable outcome.[16] A good determination of the patients ought to be carefully done, taking after the criteria sketched out within the paper.

Conclusion

In our experience percutaneous extensor tenotomy of the epicondylar muscles for chronic lateral epicondylitis by using bevel end of 18 gauze needle has a high rate of favourable outcomes and is a viable treatment option after failed conservative management. Percutaneous extensor tenotomy is relatively simple to perform as

a day care procedure. It can be considered in treatment protocols.

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