

Autologous Blood Injection for Lateral Epicondylitis of Elbow

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ABSTRACT

Objective To determine the outcome after autologous venous blood injection in patients with lateral epicondylitis of elbow.

Study design Descriptive case series.

Place & Duration of study Ayub Teaching Hospital Abbottabad and Saidu Teaching Hospital Swat, from August 2014 to March 2015.

Methodology Patients having lateral epicondylitis of elbow were selected from the outdoor department. Two ml of autologous venous blood was drawn from the contralateral antecubital fossa of the patient and slowly injected into the site of maximum tenderness. Patients were advised to continue their normal daily activities and followed up at 2nd, 4th, 8th and 12th weeks post-procedure for assessment of intensity of pain using VAS pain score and Nirschl staging.

Results There were 38 males and 61 females with ratio of 1:1.6. The mean age was 40.91±8.21 year. The mean pre-injection Visual Analogue Score (VAS) and Nirschl score were 6.9±1.2 and 6.0±0.9. At follow up it decreased to 0.9±1.0 and 1.5±1.1 respectively.

Conclusion Autologous blood injection is an effective way to treat patients of epicondylitis of elbow especially in refractory cases

Key words Autologous blood injection, Lateral epicondylitis, Tennis elbow.

INTRODUCTION:

Lateral epicondylitis is a common disorder characterized by pain and tenderness over the lateral side of elbow and weakness during gripping.^{1,2} It is commonly associated with obesity, smoking, and physical loading during activity, as well as playing tennis.³ It is prevalent in 1% to 3% in the general population aged between 45 to 54 year.⁴

The term lateral epicondylitis is a misnomer because

it is primarily a disorder due to degeneration in common extensor origin tendon rather than inflammatory process. Maffuli et al recognized that tendinopathy is a clinical diagnosis while tendinitis or tendinosis terms should be reserved only after histopathological examination has been carried out.⁵ A cadaveric study by Bales et al showed two zones of hypovascularity in the region of lateral epicondyle, one between the lateral epicondyle and the supracondylar ridge and the other on the deep surface of common extensor tendon 2-3 cms distal to lateral epicondyle.⁶ This is probably the area where the degenerative changes set in. Tennis elbow disorder is common in occupations which involve repetitive forearm rotational activities. It has been estimated that only 5-10% of cases occur in tennis players.⁷

Treatment can be conservative or surgical.^{8,9}

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Nonoperative treatment is successful in resolution of symptoms in 90% of the patients. The remaining 10% who do not respond to conservative treatment are labeled as resistant or refractory cases.¹⁰ Autologous blood injections are thought to work by initiating an inflammatory response and delivering nutrients and components necessary to promote the healing process.^{1,4} Only few studies have evaluated the injection of autologous blood for lateral epicondylitis as a treatment modality. The objective of this study was to evaluate the efficacy of autologous blood injection for the treatment of lateral epicondylitis.

METHODOLOGY:

This study was done at the Department of Orthopedics at Ayub Teaching Hospital Abbottabad and Saidu Teaching Hospital Swat, from August 2014 to March 2015. Patients from 15-60 year of age, of either sex having lateral epicondylitis of elbow not improving with other conservative measures for the last 6 months were selected through non probability consecutive sampling. Patients having coexisting arthritis or arthralgia or coexisting other pathology or having steroid injection during the last three months were excluded from the study.

A detailed history was taken including demographic data (age, sex, address and hand dominance). Examination was done along with investigations to rule out other causes of pain. An informed consent was taken from the patients regarding willingness for the procedure and using their data for research. Pre-procedure baseline VAS pain score and Nirschl staging of lateral epicondylitis were calculated. Two ml of blood was taken from contralateral vein. The elbow of affected side was flexed to 90° with the palm facing down. The anatomical bony landmarks were identified. Under aseptic precautions the needle was introduced proximal to the lateral epicondyle along the supracondylar ridge, and gently advanced into the undersurface of the extensor carpi radialis brevis while infiltrating. A small adhesive sterile dressing was applied. Patients were advised to rest the upper limb for three days, with no restriction of activity after that. Follow up was done at 2nd, 4th, 8th and 12th week post-procedure for assessment of intensity of pain. Mean decrease was calculated by subtracting the post-procedure VAS pain score from the baseline VAS pain score in all the patients.

The data collected was entered and analyzed using SPSS version 16.0. The variables were analyzed using simple descriptive statistics; calculating mean and standard deviation for numerical values like

age, baseline VAS pain score, Nirschl score and post-procedure VAS pain score and post injection Nirschl score. Frequencies and percentages were calculated for qualitative variables like gender. Outcome in terms of pain relief was assessed using a visual analogue scale and the Nirschl staging system.¹⁰ The Nirschl staging system consists of seven phases in ascending order of severity of pain.

RESULTS:

Ninety nine patients of lateral epicondylitis of elbow were included in this study. There were 61 females (61.61%) and 38 males (38.39%). Male to female ratio was 1:1.6. There were 21 (21.21%) patients in the age group 15-35 years, 49 (49.49%) patients in age group 36-50 year. The mean age was 40.91±8.21 year. Right elbow was involved in 63 and left elbow in 36 patients. Pre injection and post injection VAS score for pain are given in table I and II. The Nirschl staging decreases with time (table III).

Table I: Pain Assessment on Visual Analogue Scale

Pre Injection VAS	Number (n)	Percentage
5-7	36	36.36
8-10	63	63.64
Post injection VAS		
1-4	88	88.89
5-7	11	11.11
Total	99	100

Table II: Mean Visual Analogue Scale Score for Elbow Pain

Duration	Score
Pre injection	7.8±1.2
Post injection 2 weeks	5.3±1.4
Post injection 4 weeks	3.6±1.2
Post injection 8 weeks	2.1±1.1
Post injection 12 weeks	0.9±1.0

Table III: Mean Nirschl Staging

Duration	Score
Pre injection	6.0±0.9
Post injection 2 weeks	5.9±1.2
Post injection 4 weeks	3.0±1.0
Post injection 8 weeks	2.2±1.2
Post injection 12 weeks	1.5±1.1

DISCUSSION:

Pain due to lateral epicondylitis severely affect the quality of life especially in those who have to use repeatedly the wrist and elbow joints. There is an important relationship between the occupation

and epicondylitis. In our study the maximum people affected were between 36-50 year. The mean age was 45.2 year. The frequency was less in males as compared to females. The dominant arm involved was right side. This is comparable with another study where mean age was 42.9 year and right elbow was more frequently involved.¹¹ Ozturan study had same frequency of gender distribution.¹²

Jindal et al compared autologous blood injection with steroid injection. After autologous injection the VAS score decreased from 5.88 ± 1.83 to 1.52 ± 1.26 after 6 weeks while the Nirschl staging decreased from 4.52 ± 1.23 to 1.40 ± 1.22 after same follow up period. They also concluded that autologous blood injection was better than corticosteroid injection in relieving symptoms. The same findings were not found in other studies where similar comparison was made.^{11,14} In our study no comparison was made with autologous blood injection but pain scores decreased from pre injection levels.

A study by Gani also concluded that autologous blood injection for lateral epicondylitis significantly reduced the symptoms. They also used VAS and Nirschl staging system and follow up was for eight months. At the final follow up, pain score improved from 3.3 to 1.2 ($p < 0.05$). Nirschl score at the final follow up ranged from 2 to 4 (mean 2.1). This was a significant improvement ($p < 0.05$). They also concluded that there was no significant change in symptoms between patients receiving single injection and those who received second injection after failure to achieve desired response from the first injection.¹⁴

There are certain limitations of this study. There was no comparison group so it was difficult to establish soundness of the outcome. No statistical test was used to find out significance of the results. Follow up was of short duration so long term outcome can not be established.

CONCLUSION:

Autologous blood injection is an effective way to treat patients of lateral epicondylitis as demonstrated by decrease in VAS pain score.

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Conflict of Interest:

The authors declare that they have no conflict of interest.

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