



Impact of Movement with Mobilization and Triceps Eccentric Strengthening in Tennis Elbow: Case Report

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

ABSTRACT

Background: Tennis elbow can be caused by repetitive wrist and arm motions. Pain is the primary symptom. It usually occurs on the outside of the elbow and sometimes in the forearm and wrist. Treatment includes rest, pain relievers and physiotherapy.

Case Presentation: A 28years old male patient presented with a complaint of pain in outer side of the right side elbow. In subjective examination, He gave history of pain while playing tennis mainly in smashing the ball or passing shot, riding bike for more than 2kilometers, difficulty in holding objects sometimes as well. When this pain was unbearable to him he came to Physiotherapy department.

Treatment: A Treatment session initially started with Cryotherapy (Ice Pack) application for 5min. On lateral epicondyle of right elbow. Then Ultrasound 0.8 watt/Cm² for 7minutes given, these helped in pain reduction. After 2days patient is asked to follow the commands to perform Triceps strengthening along with wrist strengthening with the help of Half Kg Dumb bell. There was an effect on the reduction of the symptoms of the patient which were pain, reduce strength and limited range of motion of wrist in right hand. After 1week of treatment, we added Mobilization with

movement (Mulligan) technique at elbow joint. The same procedure was continued for 2 weeks after which patient's symptoms were minimized as to the day of assessment. Outcome measures used for the evaluation of the symptoms were NPRS Scale for Pain, Manual Muscle Testing (MMT) for Strength.

Conclusion: Triceps strengthening along with Mulligan technique for elbow joint was found to be effective in patients with severe pain and reduced strength.

Keywords: Triceps eccentric strengthening; mobilization; lateral epicondylalgia.

1. INTRODUCTION

Pain on lateral side of the elbow joint as a result of inflammation in the elbow extensor group of muscles is commonly known as "Tennis Elbow or lateral epicondylitis.

Strength training along with mobilization with movement technique helps to reduce pain and improve range of motion [1].

In this study patient came with the classical features of tennis elbow. We used few unconventional techniques as a part of our treatment along with traditional protocol [2]. We found that these techniques were effective in the patient [3].

2. CASE PRESENTATION

2.1 Patient Information

Patient is a 28 years old male athlete by profession. He plays for nearly about 4-5 hours/day in Tennis Court. Prolong bike riding; holding objects has become difficult for the patient. Patient's Primary complaint is pain in outer side of the right hand elbow since 4 months and Secondary complaint is of difficulty in holding objects in right hand, since 3 months. Pain of the patient is gradual and intermittent aggravated by playing Tennis especially while smashing or passing out and bike riding continuously for more than 2 kilometers and relived on rest and by using elbow support belt while playing or bike riding.

2.2 Clinical Findings

- Pain of the patient was 8 on NPRS.
- Tenderness was present around lateral epicondyle of right elbow joint.
- Swelling seen on the lateral side Fig. 1.
- Resisted isometrics were weak and painful for wrist muscles.
- Wrist joint range of motion were complete and pain free in both hands.

- According to Manual muscle testing (MMT) grade 3+ for wrist extensors and grade 4 for wrist Flexors.

3. DIAGNOSTIC ASSESSMENT

- There was no radiological diagnostic testing.
- Cozen's test and Mill's test was performed on the patient. Which found to be Positive as patient complains of Pain while performing this special test.

3.1 Diagnosis

Diagnosis was done on the basis of subjective and objective examination for Lateral Epicondylitis / Tennis elbow.

3.2 Prognosis

The physiotherapy treatment was more of strengthening training and patient's prognosis was considered to be good.

4. THERAPEUTIC INTERVENTION:

Triceps eccentric strengthening was performed with the help of half Kg dumb - bell, 10 repetitions given in 3 sets in one repetition 5 seconds hold was incorporated. The patient was asked to lying supine with knee flexed, holding the dumb bell in affected hand, supporting the elbow with the help of unaffected hand and now patients is trying to do elbow extension with 5 sec. hold, and same was repeated for 10 times in a set of 3.

In Mulligan technique patient is lying on his back, holding a gripper in affected hand now therapist wrap mulligan belt around elbow and asked the patient to squeeze the gripper while therapist was given the glide.

Same procedure was followed for 10 times for 2 weeks.

4.1 Follow-Up and Outcomes

Outcomes used were NPRS Scale, Manual Muscle Testing (MMT).

Effect of mulligan technique was found to be effective in reducing pain and Triceps strengthening was good to improve strength.

After 1week of treatment, Pain was 4 on NPRS and strength for wrist extensors were grade 3 and grade 4 for wrist flexors.

And after 2 weeks of treatment, Pain was 2 on NPRS and Strength increases to grade 5 for wrist flexors and grade 4 for wrist extensors.

4.1.1 Intervention adherence and tolerability

Patient was Cooperative and was adhered to the treatment.

4.1.2 Adverse and unanticipated events

There is absence of any adverse and unanticipated events.

4.1.3 Strength associated with the case report

Treatment approach used can be effective in the patient having pain as well as reduced grip strength, hence in order to relive the symptoms of such patient's triceps eccentric strengthening and Mulligan technique can be incorporated.

4.1.4 Weakness associated with the case report

Insufficient number of treatment sessions. As the patient discontinues the treatment session due to some unavoidable circumstances in home.

4.1.5 Scientific rationale

Tennis elbow is a condition in which pain on lateral epicondyle is seem.it is due to lesion affecting the tendinous origin of common wrist extensors. when this condition became chronic muscles ultimately leading to muscle fatigue. Diagnosis is done on the basis of site of pain, reduced grip strength and patient complain of pain while performing special test (Cozen's and Mill's Test).

As an interrelation of scapular muscle strength and elbow joint movement, triceps eccentric

strengthening was used in this case as triceps strength can help to improve the grip strengthening.

Movement with mobilization(Mulligan) technique is used in this case as it is found to decrease the symptoms like pain and improves the range of motion of the joint as it is applied by therapist in active physiological movement in available end range to the patient and helps to correct the positional fault.

4.1.6 Patient perspective

The patient shared his perspective that compared to the day 1, he found his elbow pain was reduced to 4 on NPRS Scale from 8, After 2week of treatment and his pain reduced by 2 on NPRS along with improvement in strength of wrist as well as triceps.

5. DISCUSSION

Normal functioning of the body hinders by the structural damage in order to improper movement, overuse of the muscles or joints.as muscles are most frequently undergoes in excessive fatigue and may cause some leading symptoms like weakness, fatigue and pain [4].

While performing the movement's energy travel in the direction to proximal to more distal segment. Any small change in the scapular region may affects the elbow joint [5]. Hence in tennis elbow patient's it's very important to treat or strengthen the scapular muscles mainly Triceps.as weakness in grip strength may be because of scapular muscle weak strength, as it is associated with close kinetic relation between both proximal as well as distal segments [6]. Hence to strengthen the triceps muscle may improves the grip strength in tennis elbow.

Along with this, many studies were found mulligan technique is useful to eliminate the symptoms like pain, reduced range of motion in patients with Tennis elbow [7].

If we start Mulligan technique application in painful condition, it seem the much more effective to gain the lost range of motion and to reduce pain [8]. Ravi Shergil et al. A study conducted have concluded that ultrasound application in patient's had symptoms of tennis elbow and they found around 80-95% of cases can be managed by conservative therapy.



**Fig. 1. Shows the swelling on the lateral aspect of the forearm
Table 1. For NPRS and MMT**

Sessions	NPRS	MMT	
		Wrist Extensors	Wrist Flexors
Day 0	8	3+	4
Weak 1	4	3	4
Weak 2	2	4	5

6. CONCLUSION

The present study examined the effect of Movement with mobilization technique and triceps strengthening in reducing the symptoms of Tennis elbow when functional activities of the patient were found to be difficult to perform. We have used the scale NPRS as the outcome measure so that we can have clear picture about the pain patient is having as well as we can give the same idea to the patient, so that we can achieve the patient's compliance towards the rehabilitation program. Also we have used the scale of MMT that is manual muscle testing mainly used for the assessment of the strength of the muscles.

CONSENT

Informed consent had taken from the patient.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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