International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Effects of Manual Release Technique of ECRB Tendon and Ultrasound Pulse Mode Combination Therapy in Tennis Elbow Pain Relief in Chronic Condition: A Case Study

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Abstract

Tennis elbow or lateral epicondylitis is a common painful musculoskeletal condition that causes pain and tenderness on the lateral side of the elbow.

It can affect people in different types of occupations like racket sports (badminton and tennis) and other occupations including manual laborers , security guards and housewives. Physiotherapy plays a crucial role to diagnose and conservative treatment for the condition. The treatment methods may include modalities like ultrasound , laser , infrared therapy and manual exercises like strength exercise , eccentric exercises , tendon release technique and myofascial release.

These methods provide pain relief , increase efficiency in work and prevent recurrence.

1. Introduction and Background

Tennis elbow also known as lateral epicondylitis is a common musculoskeletal condition mainly characterized by pain and reduced function of the forearm including lifting weight and gripping. It is due to repetitive strain on the extensor carpi radialis brevis tendon. Chronic cases mostly show poor response to conventional treatment methods.

Objective: The aim of the study was to evaluate the effects of combined ECRB tendon release technique and Ultrasound pulse mode therapy on pain relief and functional improvement in patient with chronic tennis elbow condition.

Epidemiology: Tennis elbow (lateral epicondylitis) affects 1 to 3 % of the adult populations , is more common in individuals over 40 years and linked to repetitive forearm movements and gripping with occupation and smoking as significant risk factors with an annual prevalence of 10 to 30 cases per 1,000 adults.

Socioeconomical status : manual laborers face higher risks due to repetitive motions and forceful exertions, leading to significant work-related absences, substantial treatment costs, and economic burdens from work disability.

2. Scope of the topic

Physiotherapy is the most commonly used primary intervention. Physiotherapy has a wide and significant scope in the management of tennis elbow (lateral epicondylitis). It addresses not only pain but also functional limitations, pain relief and long-term prevention.

1. Pain Relief and Symptom Control

Physiotherapy plays a vital role in reducing discomfort and improving tolerance to daily and sports

activities, helping patients perform movements with less strain on the affected joint.

2. Functional Recovery

The goal is to restore the ability of the individual to perform daily tasks such as writing, typing, gripping, lifting .

3. Prevention of Recurrence

By focusing on lifestyle modification, posture correction, and activity-specific education, physiotherapy helps prevent future episodes and reduces the long-term burden of the condition.

3. Case description and assessment :-

Name of the patient :- XY
Age :- 50 years
Gender :- Male
Occupation :- security guard

The patient comes with pain on the lateral side of the elbow on the right hand. There was tenderness present on the lateral side of the elbow.

He was not able to lift weight , discomfort during repetitive tasks.

During the examination he said that he had pain for the last 6 months.

No history of previous trauma and any kind of accidents.

He had an injury during his regular exercise activity , after that he took some medicine like pain killer and ointment like move and volini.

All these things provided him instant relief from pain and swelling but there was no permanent cure.

After a few months he started noticing that there is tenderness present on the lateral side of the elbow and he feels sharp pain during activities like opening the door knobs , gripping any object , holding his gun for a long time. Slowly he started feeling pain while lifting his cup of tea.

Later he came to the hospital with pain.

After examination and doing special tests like " cozen's test , Maudsley's test , mill's test " tennis elbow condition gets confirmed.

Subjective Assessment
Pain: Localized, sharp
Duration: >12 weeks
VAS: 7/10
Aggravating: gripping, lifting
Relieving: rest
Objective Assessment
Observation
Posture: Normal
Gait: Normal
Body type: Endomorphic
Palpation
Tenderness: Grade 2 at lateral epicondyle
Pain on resisted wrist extension
Range of Motion
Elbow: Full ROM (pain present)

Wrist: Pain on extension
Forearm: Full ROM
Strength Assessment
Grip strength: Reduced
MMT: Grade 4/5

4. Uniqueness of the study :-

— Patient come with pain.
My primary physiotherapy approach was manual therapy and use of modality. Release of ECRB tendon combined with Ultrasound pulse mode. While focusing on these 2 approaches I also provide Infrared radiation therapy and TENS for pain relief. — Along with some strengthening exercises ,
— started with gentle ROM exercise , slowly progressed to isometric exercise.
Then the patient started exercising through a therapeutic band and dumbbell with a weight of 1 kg that increased up to his previous strength of 4 kg.
— Tenderness of grade 2 was present on the patient's elbow , so release of the ECRB tendon was worth it to decrease the tenderness and combining it with Ultrasound pulse mode helped reduce pain.

Intervention (Treatment Protocol)

The patient underwent a combined physiotherapy program:
Manual Therapy
ECRB tendon release technique
Electrotherapy
Pulsed Ultrasound Therapy
TENS
Infrared Therapy
Exercise Therapy
Gentle ROM exercises
Isometric strengthening
Progressive resistance exercises
Theraband
Dumbbells (1 kg → 4 kg progress)

5. Result:

- After 1 week of treatment, the patient was able to do his daily life tasks like holding his gun or opening the door knobs.
- His grip strength increased.
- He achieved his full ROM with no pain.

Elbow flexion and extension with no pain.
Forearm supination and pronation full ROM with no pain.
Wrist flexion and extension full ROM with no pain.
Pain on Visual analog scale (VAS) was reduced to 2 from 7.
MMT after the treatment 5
Tenderness has been reduced
The overall strength of the Forearm has increased.

6. Discussion

— Tennis elbow or Lateral epicondylitis is a painful inflammatory condition.
In which tenderness over the elbow is present that makes daily life tasks a bit uncomfortable.
Different types of methods have been used to treat and enhance the healing process .
Physiotherapy methods are found useful to treat the condition with different techniques.
Use of manual release of tendon with pulse mode of ultrasound modality is very useful to treat and enhance the healing.

Limitations

— Despite the use of physiotherapy techniques for treatment some limitations must be addressed.
The effects of treatment can be very according to severity of the condition.
Depending on the patient's age , degree of condition , their socioeconomic status and overall health.
The treatment's accuracy is further limited by reporting of pain , general activities and advantages of particular physiotherapy intervention.
Single case study
Short duration of follow-up
Subjective pain reporting variability
No long-term outcome tracking

7. Conclusion

Treatment given

- Manual release of ECRB tendon technique
- Ultrasound pulse mode therapy
- Infrared radiation therapy
- TENS
- Gentle ROM exercise
- Isometric exercises
- Strengthening exercises with a therapeutic band and dumbbell with the weight of 1 kg that increases up to his previous strength of 4 kg.

Improvement of patient :-

- Pain reduces to minimum
- improvement in doing daily life tasks like ,

Shaking hands ,
Opening the door knobs ,
Holding his gun for long time ,
Lifting objects with palm ,

- No pain while gripping any object
- Continue his previous routine life.

Keywords: Lateral epicondylitis , ECRB tendon release technique manual , pulsed ultrasound therapy , physiotherapy management.

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