

CASE REPORT

EFFECTIVENESS OF ECCENTRIC EXERCISE IN TENNIS ELBOW - A SINGLE CASE REPORT

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BACKGROUND

Lateral epicondylitis/lateral epicondylalgia, or tennis elbow or lateral elbow tendinopathy (LET) is a common pathology of both athletes and non-athletes, affecting 1 to 3 % of the population at large (Howitt, 226). This condition is most often associated with overuse or a repetitive stress, as opposed to an acute inflammatory reaction. Tennis elbow is a degenerative or failed healing tendon response characterized by the increased presence of fibroblasts, vascular hyperplasia, and disorganized collagen in the origin of the extensor carpi radialis brevis (ECRB), the most commonly affected structure (Stasinopoulos, *et al.* 2013)

It is generally a work related or sport related pain disorder usually caused by excessive quick, monotonous, repetitive eccentric contractions and gripping activities of the wrist. The dominant arm is commonly affected, with a prevalence of 1–3% in the general population. Although tennis elbow occurs at all ages, the peak prevalence of lateral epicondalgia is between 30 and 60 years of age. The proportion of those afflicted by tennis elbow is not influenced by the sex of the patient, but the disorder appears to be of longer duration and severity in females (Stasinopoulos, *et al.* 2013).

Wide arrays of therapeutic managements are used in practice for tennis elbow. Eventually, few of them rest on scientific evidence and none have really been proven to be more effective than the others. The choice of treatment options for this condition is even more controversial. There are many treatment options available to the clinician, but their use is often based on anecdotal evidence (Stasinopoulos, *et al.* 2013).

Eccentric exercise (EE) has been well established and effectively used in the management of tendinopathies in multiple regions of the body. Tennis elbow is also a tendinopathy that primarily affect ECRB muscle at its origin. The aim of this report is to describe the use and the effects of EE exercise programmes in the treatment of tennis elbow.

CASE DESCRIPTION

A 38 year old house wife, right hand dominant walked in with complaints of pain in the outer side of her right elbow as well as on the outer bony point. The pain was bothering her since couple of weeks and was

interfering with house hold activities. She could only do certain household activities for five minutes after which she was forced to take a break till the pain subsides. She could find some relief with ice pack application and NSAID's (Non Steroid Anti-Inflammatory Drug) but much to her dismay the relief was short lived. She had undergone one week physiotherapy before with Interferential Current (IFT) and Ultra Sound Therapy (UST), and the pain was relieved for a short period of time.

CLINICAL IMPRESSION:

There is no history of trauma or event which triggered her problem. The pain was gradual in onset, dull aching and progressive in nature, was rated 8/10 in intensity on Numeric Pain Rating Scale (NPRS) (0 being no pain and 10 being the worst pain). Upon inspection there was tenderness over the lateral epicondyle and common extensor origin. The function was evaluated by taking the grip strength using a digital hand held dynamometer, which was 18 Kg for right hand and 35 Kg for left hand. Cozen's test (resisted wrist flexion from a flexed elbow and pronated/extended wrist position) was positive. Mill's test, (passive extension of the elbow from a flexed elbow, pronated forearm and flexed wrist/finger position) was also positive and conclusive for the diagnosis. The findings of subjective and objective assessment fitted with lateral epicondylitis.

DESCRIPTION OF REHABILITATION AND RATIONALE

Two week of Eccentric Exercise was given to the patient with other traditional therapeutic modalities. The exercise consist two phases; phase I: the complete forearm rest on a table with wrist out, palm facing the floor. A 2 Kg dumbbell was given the the hand and instructed the patient to passively extend the wrist with unaffected hand. Hold this position for two second.

In phase II the patient had asked to slowly release the wrist into flexion with the dumbbell in hand. After five second rest the exercise was repeated in following regimen; 15 repetitions, three sets for two sessions per day, for two weeks.

The literatures suggest that eccentric exercise effectively "lengthened" the muscle-tendon complex resulting in structural remodeling of the tendon with hypertrophy and increased tensile strength of the tendon.

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Eccentric exercise may also provide neuromuscular benefits through central adaptation of both agonist and antagonist muscles; therefore, EE may provide both structural and functional benefit during tendinopathy rehabilitation (Page, 2010).

PROGNOSIS

There was a significant improvement in the symptoms after two weeks of treatment. Post treatment evaluation after three weeks reported a 1/10 intensity of pain on NPRS. The grip strength has improved to 33 Kg for right hand and 35 for left hand. The patient could do her house hold activities for more that 30 minutes without any signs and symptoms.

DISCUSSION

This report presents an excellent example of clinical practice of a novel technique on the light of strong evidences. Understanding and applying the positive effects of eccentric exercises in patients with tennis elbow would pave immediate and sustained relief to the patient. This technique is a home based, self administered and inexpensive treatment compared to clinically base therapeutic modalities. This case report gives an insight to

the benefits and applicability of eccentric exercises in patients with tennis elbow. The author recommends the clinical application of the technique in future for patients coming with tennis elbow.

FUTURE RECOMMANDATIONS

The study was a single case design and no statistical evaluations were introduced. This report gives the beneficial response of a technique in a single patient. Generalization of the results should be brought up through studies with large number of population.

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