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Research Article

A CASE STUDY ON LATERAL ELBOW TENDINOPATHY

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ABSTRACT

Lateral Elbow Tendinopathy (LET), or Tennis Elbow, is a common musculoskeletal condition affecting many patients. This is one of the conditions which has been treated with various approaches ranging from conservative Physical therapy treatment modalities to steroid injections. All of these treatment approaches have shown symptomatic relief to the patients but long term benefits are less documented.

A single case study design has been used to investigate the effect of a novel Physical therapy technique on pain and dysfunction which is the hall mark of tennis elbow. Identifying and correcting stability dysfunction is an important component in managing musculoskeletal pain. The management of this stability dysfunction around elbow is described in this case study.

INTRODUCTION

Lateral elbow tendinopathy (LET), or tennis elbow, presents as pain due to tendinopathy of the common extensor tendon at the lateral epicondyle. It is most prevalent in the working-age population, generally affecting the dominant limb of both men and women. Traditionally, LET is considered to be the result of recurrent mechanical overuse or overloading at the lateral elbow whereby the ability of the tendon to repair itself is overwhelmed and ultimately fails. Subsequently, this leads to microscopic tears of the tendon and an immature, abnormal reparative response.[1] Although the disorder is considered self-limiting, with 89% of patients recovering within 1 year,[2] refractory cases have been known to last for several years and are often associated with functional disability and an inability to work. It may become resistant to many of the conservative therapies available, including rest, physical therapy, bracing, and extracorporeal shockwave therapy (ESWT)[3,4,5] as well as injection of corticosteroid, hyaluronic acid, autologous blood, platelet-rich plasma, or autologous tenocytes. Currently, nonoperative treatments do not target the underlying pathology of the condition, and this may contribute to the lack of significant long-term benefit of available interventions.

Case Study

We would like to present a case of one such resistant Lateral Elbow Tendinopathy which failed all the possible conservative treatments, but responded to Local and Global stabilizer muscle recruitment and strengthening within 10 sessions.

60 year old male patient, Gastro-Enterologist and Endoscopy specialist since past 25 years, reported with Right Elbow pain and stiffness (especially at night) since 6 months. Patient had taken medications and Physical Therapy in the form of Ultrasound, Extra-corporeal shockwave therapy, Dry needling, strengthening of elbow and wrist muscles and Taping. All of the conservative therapies that he did gave him temporary relief but the problem would recur once the therapy was stopped.

On examination, he was found to have Grade 2 tenderness at lateral epicondyle and swelling around right Brachioradialis muscle. His elbow range of movement was full, but end-range flexion-extension was painful. Forearm movements of pronation-supination were also painful at end range. Cozen's test was positive on right side, confirming the condition of Tennis Elbow. Gross muscle testing for elbow and wrist muscles yielded fair strength. Patient could not perform elbow flexion-extension with forearm pronated, forearm pronation-supination tests of identifying movement dysfunction around elbow. He also failed the tests for assessment of recruitment of local stabilisers of elbow- Anconeus and Pronator Quadratus.

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His score on PRTEE (Patient related Tennis Elbow Evaluation) scale pre treatment was 67, with reported Pain as 32 and Functional Disability as 35.

Following a detailed assessment of the local and global stability function and identification of the stability dysfunction (in terms of site and direction), rehabilitation process was planned based on the key principles proposed by Comerford & Mottram[6]: Control of the neutral joint position, Retraining dynamic control of the direction of the stability dysfunction, and Rehabilitating global stabilizer control through range.

The treatment regime of the patient included Teaching of neutral position of elbow and controlling the neutral position through retraining Anconeus (Local stabilizer of elbow) through exercises and also through low intensity TENS with 5HZ frequency, 200uS pulse duration and with minimally perceptible intensity for ½ an hour, retraining Pronator Quadratus (Local stabilizer) through exercises and retraining global stabilizer(brachialis, the superficial fibres of anconeus, superficial ulnar fibres of supinator) control through range, every alternate day. The local muscles were worked upon for 10 seconds hold for 10 repetitions and global muscle training was given for 15-20 repetitions, twice a day as a home programme. On completion of the treatment i.e., after 10 sessions, patient reported tremendous relief in his pain and stiffness. His PRTEE score at the end was found to be 15, with pain score as 7 and functional disability as 0. The patient has completed this treatment 8 months back and till date has been using his right upper limb for all his daily and occupational requirements without any recurrence of pain and stiffness.

DISCUSSION

Thus, this case highlights the clinical situations in which movement dysfunction is a major contributing factor to musculoskeletal pathology of mechanical origin i.e., static loading or holding pain, overuse pathology (low force repetitive strain or high force / impact repetitive strain), recurrent pain patterns and chronic pain[7]. These presentations are commonly seen in patients with elbow and forearm pain[8]. Movement dysfunction can present in two ways[7]. It can present as dysfunction at an articular level, which is assessed as abnormal articular translational motion. The dysfunction can also present at a myofascial level in functional movements, which is observed as abnormal myofascial extensibility and recruitment. This results in abnormal functional or physiological movements. Articular and myofascial dysfunction commonly occur together. This articular and myofascial dysfunction has significant clinical implications in patients who present with pain, disability and dysfunction around the elbow and forearm.

Local and global muscles systems are required for efficient stability function. The local muscles are deep and are responsible for control of articular translation and inter-segmental motion. Their activity is independent of direction and is often anticipatory to movement to provide protective stiffness during motion. These muscles do not change length significantly during normal functional movements. The global muscles, on the other hand, are responsible for alignment and range of motion. They change length significantly during functional movements, with concentric shortening to produce range of motion, isometric cocontraction to maintain position or alignment and eccentric lengthening to decelerate movement and protect against excessive range of motion. All the global muscles are direction dependent and as such are influenced by antagonistic muscle activity. Neither the local or global muscle systems in isolation can control functional stability.

The loss of ideal local or global control may result in abnormal stress or strain being imposed on the joint, the supporting soft tissue structures, the related myofascial tissue or neural tissue. As a result of this dysfunction, pain and pathology may occur[7,9]. Although pain and dysfunction are related, the pain may resolve but the dysfunction will often persist[10,11]. This predisposes to increased incidence of recurrence.

Hence, a deeper understanding of the movement system will help the physical therapist to treat the movement dysfunctions effectively and prevent recurrence. The use of local and global muscle system in treatment aids in targeting the underlying pathology, thus facilitating faster recovery and improved function in most of the musculoskeletal conditions, if used judiciously.

Conflict of interest statement

The Authors claim that the work presented in the case study is the original work and there is no conflict of interest.

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