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Effective Conservative Treatment of Medial Epicondylitis with Physical Therapy–A Case Study

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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Case Study

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ABSTRACT

Background and Purpose: Like other common tendinopathies, there is debate as to whether medial epicondylitis and tendinitis treatment should focus on inflammation or degeneration management. This case study demonstrates the effectiveness of physical therapy when both are addressed.
Case Description: A patient with bilateral medial epicondylitis and tendinitis recovered with physical therapy directed at both inflammatory and degenerative elements. Soft tissue manipulation, phonophoresis, and electrical stimulation were utilized at areas detected by microcurrent injury detection. Therapeutic exercise in the clinic and home were also utilized.
Outcomes: In 11 treatments, strength increased from 4/5 to 5/5 or 5-/5. Pain decreased from 8/10 to 0/10 on Verbal Numerical Rating Scale (VNRS). Patient experienced full return to ADLs, no pain or restrictions.
Discussion: Three aspects were unique to this case. First, soft tissue manipulation was used to palpate and remodel degenerative tissues. Second, microcurrent injury detection mapped out specific areas of injured tissues. Finally, modalities were applied to these specific areas, which changed from the flexor tendon and muscle to the proximal cubital tunnel. Used together, the patient experienced full recovery in a timely manner. This case suggests that tendinitis may be a combination of degenerative and inflammatory elements which should both be addressed in a treatment plan.

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1. INTRODUCTION

Medial epicondylitis is an inflammation of the insertion of the common flexor tendon in the forearm where it attaches to the medial epicondyle of the humerus, and the term is commonly used to described tendinitis of the common flexor tendon as well [1]. Although less common than lateral epicondylitis, it is still commonly seen with repetitive activity, and more common in women aged 45-64 [1,2].

However, despite the prevalence of this and other tendinitis conditions, there has been much debate as to the etiology of tendinitis and whether it is an inflammatory or degenerative condition [3,4,5,6,7,8]. Though the name suggests an inflamed tendon, much research has suggested degeneration, [4,5,6,7] while more recent publications suggesting an inflammatory component is present as well [3,8]. Treatments then can vary on whether a clinician believes in the degenerative or inflammatory model. If it is inflammatory, treatment can be as simple as oral anti-inflammatory medication or bracing for correction of biomechanics to take pressure off the tendon [9,10]. If it is degenerative, then treatment options involve soft tissue work such as deep transverse friction to remodel the degeneration, surgery or platelet-rich plasma injections [11,12,13,14].

Manipulation to the wrist has also shown some promise with lateral epicondylitis despite not being directly part of the elbow complex [15]. Also complicating medial epicondylitis is the ulnar nerve, where the tendinitis increases the risk of cubital tunnel syndrome, a neuropathy of the ulnar nerve [16]. The purpose of this case study is to demonstrate the effectiveness of a combination therapy approach for tendinitis, addressing both inflammatory and degenerative components, as well as an objective measurement to measure progress, all in a demographically typical patient.

2. CASE

The patient was a thin 59 year old female diagnosed with bilateral medial epicondylitis and tendinitis by her primary care provider. Symptoms began insidiously, but she thought they could be a result of her work. She was referred from her orthopedist to physical therapy after experiencing this pain for several weeks. Severe pain in her elbows increased during her work in a food store requiring cutting cheese and other foods, or at the beginning of the day. Although limiting, she was able to continue working by gritting through the pain and by taking breaks. Pain extended down her forearms bilaterally, but there was no numbness or tingling. Along with her elbow, the patient reported an extensive medical history including knee arthritis and unexplained weight loss, with cancer, inflammatory bowel disease, and other systemic inflammatory conditions ruled out by ongoing testing. The patient was not taking any anti-inflammatory medication.

On initial evaluation, pain was 8/10 on the verbal numerical rating scale (VNRS), with pain significantly impeding her work, and wrist flexor strength was 4/5 bilaterally, again limited by pain. Microcurrent injury detection [17,18,19,20] was also utilized, which demonstrates significantly decreased conductance over injured tissue [17,18,20], and demonstrates strong correlation to other objective measurements of injury such as blood tests and diagnostic ultrasound [17,18]. On the patient, decreased microcurrent conductance was detected on the medial side of both upper extremities, from the muscles of the flexor group in the mid forearm to proximal to the medial epicondyle on the humerus, with the left side extending a distance of 20 centimeters both above and below the medial epicondyle, and the right side 20 centimeters below and 15 centimeters above.

Treatment consisted of myofascial release, stretching, forearm muscle strengthening, carpal and radio-ulnar mobilization and manipulation, electrical stimulation set at symmetrical biphasic 7 hertz, for 10 minutes at a motor level stimulus, and ice. The specific myofascial release technique was a soft tissue manipulation technique developed by the author. To begin, soft tissue structures, such as fascia or tendon, are palpated for mobility restrictions in three dimensions. After palpation, treatment is conceptually similar to a joint manipulation. First, adjacent soft tissue structures are brought to tension with a winding motion. Then, the soft tissue restriction is released with a short amplitude thrust motion. Thrust are repeated until mobility restrictions are released, generally 10-30 thrusts in different planes. This serves to both release physically by freeing restrictions within the tissue, as well as neurologically through

stimulation to fast adapting mechanoreceptors, such as Pacinian corpuscles.

After the first session, treatments included ultrasound phonophoresis with Volteren (diclofenac) anti-inflammatory ointment prescribed by the patient's MD. Modalities were directed onto areas previously detected by microcurrent injury detection and listed above. Overall, the patient was seen in the clinic for 11 treatments over 17 weeks, less than once a week. This was due to the patient's other medical appointments creating both time and financial difficulties for her.

After 5 treatments, the right arm demonstrated progress, with pain reduced to 2/10. By the 6th visit, few complaints remained in the right arm, and strength was 5/5, significantly more than the left. However, the left arm did not progress as rapidly. After 9 treatments, pain was still flaring to 6/10 with her work activity, demonstrating some improvement, but still experiencing significant pain, and strength still 4/5. Microcurrent injury detection was utilized once again, detecting injury at the medial arm, along the line between the biceps and triceps where the ulnar nerve lies, the proximal portion of the cubital tunnel. After one treatment, with myofascial release and modalities focused on this area, pain decreased to 3/10. After one more treatment, few complaints remained in either arm, strength was 5-/5 in the left arm, and the patient reported that she could perform activities of daily living with little discomfort. Due to her lack of complaints, the patient decided to cease physical therapy at this time and focus on her other health concerns.

3. DISCUSSION

Conceptually, if tendinitis were solely inflammatory, treatment of a tendinitis would be simple. Using a machine that detects an inflamed, injured tendon followed by ultrasound to push in an anti-inflammatory medication should result in relief. If tendinitis were solely degenerative, then soft tissue work to create remodeling should result in rapid recovery. However, if tendinitis involves both degenerative and inflammatory components, then a combination of anti-inflammatories and soft tissue work would result in improved outcomes compared to utilizing just one. This was the case for the right arm, where relief occurred over six treatments, even the continuation of aggravating activities. This relief occurred much faster than 12 treatments over 4 weeks per previous research with soft tissue work [14], and the mixed results from phonophoresis and NSAIDs [3,6,10]. However, as pain is a subjective sensation transmitted through nerves, similar symptoms can result from completely different causes. This was the case for the left arm. However, despite being a different anatomical tissue, the same treatments resulted in pain relief and elimination of the decreased microcurrent conductance associated with tissue injury.

This case illustrates two other beneficial approaches. First, the identification of the specific injured area with microcurrent conductance allows for proper application of the anti-inflammatory through phonophoresis and direction for other modalities. Though this was not initially necessary as the pain area was identical to the detected injured area, and also where it would be expected, this proved important in the latter treatments due to the emergence of a secondary condition. Also there is evidence that directing other modalities to specific injured areas can improve injury recovery [19]. Secondly, ulnar nerve irritation was masked by a severe tendinitis in this case. Microcurrent conductance demonstrated its value by quickly and accurately identifying the nerve irritation in the absence of nerve symptoms like numbness or tingling. Finally, although not novel, this case shows that the combination of physical therapy with medication can result in excellent outcomes.

In terms of the etiology of tendinitis, this case supports the idea that that there may both inflammatory and non-inflammatory degenerative components to the condition [3]. Resolution of pain and return of strength occurred rather quickly when soft tissue work to remodel degeneration was combined with anti-inflammatory medication when there were no complicating factors. It is possible that nerve irritation may also possess both a degenerative and inflammatory component as that recovered quickly when both were addressed in treatment.

4. CONCLUSION

This case demonstrates the potential for successful treatment of tendinitis with physical therapy, along with the potential for future research addressing nerve irritation as a co-morbidity to other orthopedic conditions. Also, the benefits of microcurrent injury detection were demonstrated in its detection of a nerve irritation

co-morbidity. The patient in this case also experienced rapid relief despite the presence of other health problems. Finally, soft tissue manipulation was shown to be an effective treatment for medial epicondylitis and tendinitis.

CONSENT

All authors declare that written informed consent was obtained from the patient for publication of this case report and accompanying images.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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