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Parts of Treatment to Pain Reaction

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Abstract

Pain assessment and reassessment are required to provide optimal postoperative pain care. Pain assessment helps determine whether pain management is adequate, whether analgesic or analgesic dose changes are required, whether changes in the postoperative pain management plan or additional interventions are warranted, and in the case of difficult to manage pain whether specialty consultation or other measures are needed. Because pain is inherently subjective, patient self-report is the primary basis of all pain assessments.

Keywords: Post-operative pain; Epicondyle; Pain assessment; Tissue modulation; NSAID; Muscle-tendon

Introduction

Plain radiographs may demonstrate sclerotic changes along the medical epicondyle in cases of long standing disease. Lateral X-ray is also necessary to rule out alternate diagnoses including medial epicondyle fracture, elbow arthritis, and deformity. Ultrasound has been described to identify tendon degeneration and areas of hypo-echoic tissue. Ultrasound can also be used as an adjuvant for guided injections or tissue modulation. MRI is most sensitive and will demonstrate additional damage to the ulnar collateral ligament and ulnar nerve. EMG/NCV adds specificity to the diagnosis and is indicated when ulnar nerve pathology is suspected. Mainstay of treatment is non-operative management of medial epicondylitis [1]. This includes rest, NSAIDs, and physical therapy. This has been reported to be effective in treating symptoms. Rehabilitation exercises should emphasize stretching of the CFT. This includes wrist supination and extension with the elbow hyper extended. Progressive eccentric strengthening constitutes restoration of the muscle-tendon unit. If a patient does not improve with non-operative treatments, steroid injections and night splinting can be considered. Steroids provide short term relieve of symptoms, specifically pain. However, these effects may not endure long-term [2].. Additionally, the side effects should not be disregarded, including atrophy of the skin and subcutaneous fat tissue with exacerbation of symptoms. ECSWT has been reported as a potential option for definitive treatment of tendinopathy. It was originally introduced to medicine for kidney or common bile duct stone disintegration. Its medical uses have been expanded to include tendinopathy, but the information is currently limited regarding efficacy. ECSWT may be a good alternative when steroid injections are not a viable option.

Discussion

In patients with newly diagnosed medial epicondylitis, initial ESWT is effective for treating symptoms. However, when compared to steroids, steroids provide better initial relief. In other studies, including a randomized control in the setting of lateral epicondylitis, ECSWT proved no improvement when compared to placebo. This may highlight the natural improvement of symptoms frequently seen with medial epicondylitis. Other injections have been described in the non-operative treatment of medial and lateral epicondylitis including platelet-rich-plasma and prolotherapy. PRP is an autologous biological blood-derived product with concentrated platelet-derived growth factors that would ideally enhance healing. In comparison to steroid injections, PRP has shown to be more efficacious in the long term improvement of symptoms in lateral epicondylitis [3]. This finding was also seen in other kinds of tendinopathy. Prolotherapy refers to injecting an irritant, usually hyperosmolar dextrose ormorhuate sodium directly surrounding a tendon or into a joint space. This has thought to initiate healing from the secondary growth factors from an induced inflammatory response. In chronic tendinopathies promising results of efficacy of treatment with results up to a year have been reported. There are number of open surgical options for the treatment of medial epicondylitis. The following procedures are commonly employed and the indications are based on the co-pathologies. It is critical that additional pathologies outlined previously are not neglected. The surgical treatment of those conditions can be included within the scope of any of the procedures described. Simple percutaneous release has shown good results and can be performed in the office setting. However, it runs the risk of complete detachment of the flexor pronator origin and damage to the MABC and ulnar nerve [4]. The procedure can be supplemented with ultrasound guidance. The results of medial epicondylectomy are fairly predictable in the setting of Type IA medial epicondylitis. The elbow is exposed via a small medial incision and care is taken to protect superficial nerves. The CFU is split along the lines of its fibers and the medial epicondyle is exposed. The medial conjoint tendon and the zone of the origin of the FCR and the humeral head of the PT are developed. The degenerative tissue is removed and a portion of the medial epicondyle is removed as necessary. Care must be taken to not cause iatrogenic subluxation of the ulnar nerve in this process or subluxation of the medial triceps [5]. Some authors have advocated suture anchor repair of the flexor pronator mass. More commonly, the flexor pronator can be repaired over the removed degenerative tissue through bone tunnels. The medial epicondyle is exposed in the same fashion as in procedure II, but the ulnar nerve is fully exposed via a release of the Osborne's ligament. The medial inter-muscular septum is released at the origin of the FCU to ensure full decompression of the ulnar nerve. Simple oblique

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epicondylectomy is a more extensive removal of the medial epicondyle that can be performed for decompression of the ulnar nerve. The continuum between simple fascial release and epicondylectomy is based on surgeon judgment and preference. The result of simple epicondylectomy alone in athletes has not been shown to be reliable. The nerve is maintained in its position unless it demonstrates evidence of anterior subluxation, in which case an anterior transposition may be indicated. Considerable evidence exists that in the setting of an index procedure for decompression of the ulnar nerve, there is no difference in simple release versus a more extensive transposition procedure. The medial epicondyle is exposed and debrided with minimal release of the CFT as described in procedure I. The ulnar nerve is fully exposed and released, then transposed anteriorly. A fascial sling is used to maintain the ulnar nerve in an anterior position over the flexor pronator fascia. The CFT is repaired over the medial epicondyle as described in Procedure I. When the ulnar nerve is unstable, the transposition is clearly indicated. Care must be taken to release all sites of compression including the Arcade of Struthers, the inter-muscular septum, Osborne's ligament, and the flexor carpi ulnaris. The standard technique of sub-muscular anterior nerve transposition requires the nerve to be positioned underneath the elevated flexor pronator mass [6]. The concern for this technique is the potential pressure of the restored flexor pronator mass on the ulnar nerve. The technique of flexor pronator Z-lengthening provides the benefits of a muscular protective layer over the anterior positioned ulnar nerve without the negative effects of scarring and excessive pressure on the nerve created by the standard sub-muscular transposition. The medial head of the triceps may develop a pattern of snapping spontaneously or after surgery. The mechanical symptoms of subluxation can cause pain in isolation. Subluxation of the ulnar nerve can mimic triceps subluxation and should be distinguished. The medial head of the triceps can also cause compression of the ulnar nerve with hypertrophy as seen in weight lifters or in patients with an accessory epitrochleanconeus muscle. Resection of the anconeus epitrochlearis has shown to resolve the symptoms. The medial ante-brachial cutaneous nerve can be an independent source of medial elbow pain with neuropathic symptoms of paresthesia, hypersensitivity, or burning. The MABC can also be present in concert with ulnar neuritis. MABC entrapment has been described after prior surgical procedures, and particular attention must be given to this possibility after prior cubital tunnel release [7]. The presentation can also mimic snapping medial triceps with mechanical catching of the nerve with elbow motion. There are many potential causes of medial elbow pain. As such, it is important to include a differential diagnosis. In addition, it is not uncommon for more than one diagnosis to be present at the same time and management must be inclusive of these different elements to be optimal. The flexor pronator muscle tendon unit can be a source of pain with overuse. Athletes experience high stress during the acceleration phase of throwing. Repetitive stress can result in micro tears at the interface of the PT and the FCR. Common sites of strain include the humeral head of the PT, the FCR and the FCU. The ulnar nerve is frequently involved in the diagnosis of ME and has a major impact on the prognosis, especially with surgical treatment [8]. Cubital tunnel is seen frequently in occupational settings much like medial epicondylitis. The diagnosis of Cubital Tunnel syndrome is made based on clinical symptoms of medial elbow pain with sensitivity in the ulnar nerve distribution [9]. Physical exam findings include a positive Tinel's at the elbow, decreased sensation on Semmes-Weinstein testing, and a positive MacKinnon Test. The Scratch Test can be used to determine the location of compression. This is done by scratching differential locations and then resisting shoulder external rotation. Loss of shoulder external rotation strength is considered positive. Motor changes manifest with weakness of interosseous hand muscles, adductor pollicus, and the ulnar lumbrical muscles. EMG/NCV can be confirmatory, but can be negative even in the presence of disease. Attention should also be given to a proximal site of nerve compression. C6 and C7 radiculopathy have been shown to predispose to medial epicondylitis resulting from muscle weakness. Injury to the ulnar collateral ligament of the elbow may result in isolated symptoms of pain or frank instability complaints. The UCL is the primary restraint to valgus stress to the elbow. This diagnosis should be considered in the setting of prior elbow dislocation and in overhead athletes such as baseball pitchers who expose the elbow to extreme valgus stress while throwing [10]. Valgus instability in degrees of extension and a positive Milking Test or Moving Valgus Stress Test along with MRI findings of disruption typically at the ligaments origin are confirmative. Successful reconstruction for the symptomatic patient has been reported with the classical Tommy John procedure.

Conclusion

Typical symptoms are pain along the origin of the common flexor tendon with repetitive wrist flexion, pronation, and valgus stress. Patients may complain of night pain and pain at rest. Clinical presentation shows hyperextension of the wrist or pronation with wrist flexion against resistance can reproduce symptoms along the medial epicondyle. Testing of the cubital tunnel involves elbow flexion and direct pressure on the ulnar nerve. It is important to evaluate for any sensory loss in the ulnar digits or intrinsic weakness in more severe cases..

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Conflict of Interest

None

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