Available online at www.rajournals.in

RA JOURNAL OF APPLIED RESEARCH
ISSN: 2394-6709
DOI:10.47191/rajar/v11i3.02
Volume: 11 Issue: 03 March-2025

International Open Access

Impact Factor- 8.553

Page no.- 90-93

The Role of Physical Medicine and Rehabilitation in the Management of Lateral Epicondylitis

Mehdi MECHTOUNE[1], Marouane DAIMI[2], Meryem AMMARI[3], Tarik HAMMANI[4], Abderrahmane JEMMOUJ[5], Saloua KHALFAOUI[6]

[1,2,3,4,5,6]Department of Physical and Rehabilitation Medicine, Faculty of Medicine and Pharmacy, Mohammed V Military Training Hospital, Rabat

ARTICLE INFO

Published Online:
06 March 2025

Corresponding Author:
Mehdi MECHTOUNE

ABSTRACT

Summary:

Lateral epicondylitis (LE), also known as tennis elbow, is a common pathology affecting between 1% and 3% of the general population, mainly due to involvement of the lateral epicondyle. The condition results from repeated traction on the tendon insertion of the short extensor carpi radialis muscle, often during sporting, domestic or professional activities. It begins with an initial collagen lesion, characterized by tendon microcracks, and can last from six months to two years. Treatment is based on cessation of the activity responsible, cold therapy, functional re-education and physiotherapy, while the efficacy of corticosteroid infiltration remains debated. New therapeutic approaches, such as platelet-rich plasma (PRP) and botulinum toxin injections, have emerged, but their place in treatment remains debatable. Surgery is considered when medical and physical treatments fail.

KEYWORDS: lateral epicondylitis; physiotherapy; rehabilitation.

I: INTRODUCTION

Lateral epicondylitis (LE) is a tendinopathy of the extensor muscles of the forearm, frequently caused by excessive or repetitive strain, particularly of the extensor carpi radialis brevis muscle, or by direct trauma to the lateral epicondyle. [1]

A. Epidemiology

This pathology is relatively common, affecting between 1% and 3% of the population. It mainly affects men and women between the ages of 35 and 54, with no gender difference. [2]

B. Pathophysiology

The tensile forces induced by repeated muscular contractions can cause microtrauma to the tendon concerned. When the natural healing mechanism fails, this leads to angiofibroblastic degeneration of the tendon, characteristic of lateral epicondylitis. [3]

C. Risk factors: Risk factors are mainly occupational, including keyboarding, piano playing, use of heavy tools, and repetitive pronation/supination of the wrists. LE is also common in racket sports (tennis) and throwing sports (baseball, javelin). [4]

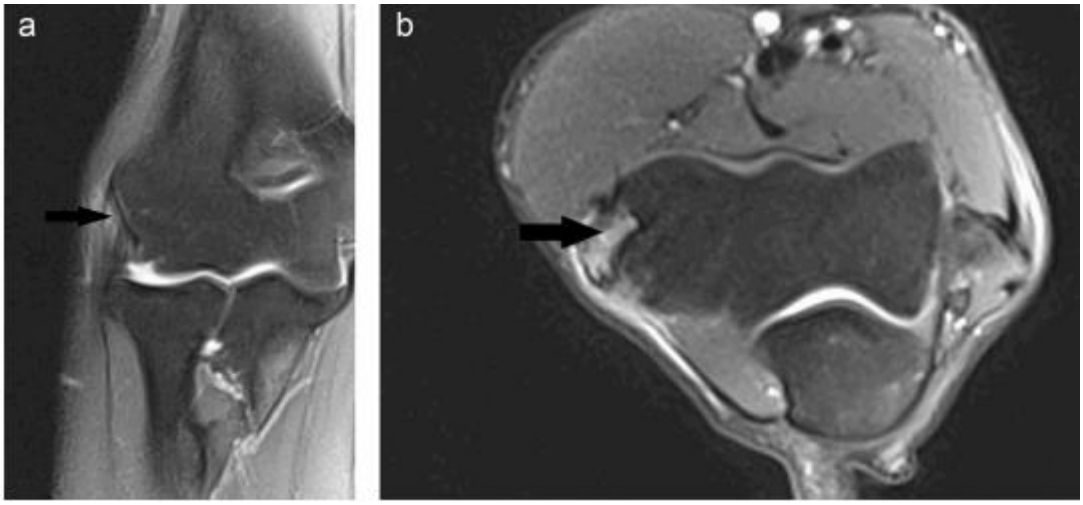
D. Diagnosis

The diagnosis of lateral epicondylitis is generally based on the history and clinical examination. [5] Pain localized to the lateral elbow suggests this diagnosis, with frequent irradiation to the distal forearm. Many patients report a loss of grip strength, affecting their daily activities and sports. Pain on palpation of the lateral epicondyle is a pathognomonic physical sign, as is tenderness of the epicondylar muscles just below this point. Pain on dorsal flexion of the wrist against resistance should also be sought [6]

Thomsen's test is considered positive if pain is felt at the lateral epicondyle when the wrist is extended against resistance, exerted by pressure applied to the back of the third metacarpal. The chair test, described by Gardner, involves attempting to lift a chair with the forearm pronated and the elbow extended, provoking pain localized to the lateral epicondyle [6]

Standard X-rays are generally normal, and rarely detect soft-tissue calcifications (intra-tendinous). However, it can help rule out joint pathology. Ultrasound confirms the diagnosis, specifying the location and severity of the lesion. [7] Magnetic resonance imaging (MRI) is more reliable and less operator-dependent than ultrasound, but also more expensive. On T2 images, a high signal is seen at the enthesis of the

epicondylar tendon. Extension of this signal into the adjacent soft tissues indicates the presence of peripheral edema. MRI can also be used to assess the presence and intensity of tendon fissures [8]



MRI of the elbow in frontal (a) and axial (b) sections. T2 fat suppression: partial fissure on the deep surface of the lateral epicondyle tendon with frank T2 hypersignal at the tendon-bone interface.[9]

II: PHYSICAL TREATMENT

A. Rehabilitation

The majority of lateral epicondylitis cases heal spontaneously without treatment, usually within 1-2 years. [10] It is common to recommend rehabilitative treatment as the first approach for lateral epicondylitis. Among the most frequently used exercises, stretching programs are widely prescribed, although the scientific literature on this subject is limited. In their literature review and meta-analysis, Bisset et al. fail to make clear recommendations on the use of stretching. [10] On the other hand, certain mobilization techniques, such as mobilization with movement, Mill-type manipulation and regional mobilization, appear to be beneficial. Eccentric strengthening of the epicondylar muscles also shows positive effects. Cullinane et al. recommend this rehabilitative approach, supported by two high-quality studies which show that patients who have undergone this strengthening program achieve better results than those who have not.[10]

Deep transverse friction (DFT) massage, initially supported by Cyriax, has been little studied. In a randomized controlled trial by Ahmed et al. a four-week treatment period compared 12 sessions of transverse friction with a corticosteroid injection. Although subjective and objective markers improved in the corticosteroid-treated group after six weeks, there was no difference between the two groups at 12-month follow-up. The authors conclude that friction massage is no more effective in treating tennis elbow than corticosteroid injection [11]

B. Cryotherapy:

Cryotherapy can be effective in reducing local pain through a mechanism known as pain control theory. In addition, cryotherapy causes vasoconstriction of superficial blood vessels, and may thus reduce any chemical pain that may be present. More specifically, ice massage has been shown to be effective as part of a multimodal program to treat tendinopathy, and is recommended by the authors as the clinician's first choice when not contraindicated. [12]

B. Ultrasound:

The combined results of four randomized controlled trials showed no significant difference in the probability of short-term improvement (up to 12 weeks) between ultrasound and placebo (RR 1.3, 95% CI 0.9 to 1.9). The conclusions of previous systematic reviews remain unchanged: ultrasound does not appear to be more effective than placebo in relieving pain or improving general condition in the short term. [13]

C. Shock waves:

Several trials comparing the effect of extracorporeal shock waves (ESWT) in the treatment of lateral epicondylitis have been reported. In 2001, Crowther et al. compared ESWT with steroid injections, and in 2002, Haake et al. compared ESWT with placebo. No benefit of ESWT was observed. Perlick et al. compared ESWT with surgery for lateral epicondylitis, observing 73% good and excellent results for surgery versus 43% for ESWT. Recently, Yao et al. noted that, although current clinical evidence supports the beneficial effects of ESWT on pain and function, the available randomized controlled trials are not sufficient to prove its superiority over other treatment options. [14]

D. Laser:

Dundar et al. studied the effects of high-intensity laser therapy (HILT) with pulse emissions at a wavelength of 1064 nm, a peak power of 3 kW, a high fluidity of 360-1780 mJ/cm², and a frequency of 10-40 Hz. Three groups were compared: one group received a placebo laser (device disconnected), another used only an orthosis, and the third received a combined laser and orthosis treatment. The results showed that the laser and orthosis groups showed significant

improvements in grip strength, pain intensity, degree of disability and quality of life. [15]

III: INTERVENTIONAL INJECTION THERAPY

A. Corticosteroids

In persistent cases, the option of therapeutic injections may be considered. However, the efficacy of corticosteroids in the treatment of epicondylitis remains limited, providing mainly short-term benefits. This is because the pathophysiology of this condition is more closely linked to angiofibroblastic hyperplasia than to a true inflammatory process. Nevertheless, many practitioners use steroid injections as a complement to rehabilitation, which remains the central element of treatment.[16]

B. PRP (Platelet Rich Plasma)

Recent research has suggested that PRP may promote tendon regeneration thanks to its high concentration of growth factors and cytokines, which act directly at the healing site. These findings suggest a specific mechanism of action. In addition, several studies have demonstrated that PRP can enhance angiogenic factors and stimulate tendon cell proliferation. [17]

C. Botulinum toxin

A recent study involving the administration of botulinum toxin to the extensor digitorum communis (ECRB) muscle under electromyographic (EMG) guidance revealed an analgesic effect through inhibition of pain transmission, as well as improved healing results for tendon injuries. This is thought to be due to reduced tension at the enthesis and increased muscle blood flow.[18]

IV: SURGERY

When a patient fails to respond to 3-4 months of conservative treatment, and all other options have been explored, surgical consultation is usually considered. Several surgical techniques can be performed. The two most frequently performed procedures are debridement of chronic inflammatory tissue at the lateral epicondyle and tenotomy of the common extensor muscles. [19]

After surgery, patients begin a rehabilitation program similar to that followed in non-operative treatments. In the first six weeks, the aim is to regain full range of motion in the wrist and elbow, while beginning a light strengthening program while the tissues heal. From the sixth week onwards, the strengthening program is intensified, with particular emphasis on pronation and supination of the forearm, then on combined wrist movement and gripping too.[19]

V: CONCLUSION

Elbow tendinopathies are mainly dominated by lateral epicondylitis. Repetitive movements in the context of domestic, sporting or professional activities are at the origin of tendinopathies due to progressive alteration of the tendinoperiosteal complex at the level of the muscular insertion. This pathology can lead to functional disability, and has considerable economic repercussions, particularly in the context of occupational diseases. Treatment is essentially based on comprehensive rehabilitation in physical and rehabilitation medicine, with surgery as a last resort in the event of persistent or no functional improvement.

CONFLICT OF INTEREST: none

REFERENCES

1. L. Landesa-Piñeiro and R. Leirós-Rodríguez, "Physiotherapy treatment of lateral epicondylitis: A systematic review", *J. Back Musculoskelet. Rehabil.* vol. 35, no 3, pp. 463-477,May 2022, doi: 10.3233/BMR-210053.
2. Vesselin Karabinov, Georgi P Georgiev" Lateral epicondylitis: New trends and challenges intreatment ". World J Orthop . 2022 Apr 18;13(4):354–364. doi: 10.5312/wjo.v13.i4.354
3. S. D. Howitt, "Lateral epicondylosis: a case study of conservative care utilizing ART® and rehabilitation".
4. Alexandre Dumusc and Pascal Zufferey "Tendinopathies of the elbow"DOI:10.53738/REVMED.2015.11.465.0591
5. Rachel E Kessler, Michael S Day and Timothy F Tyler " Predictive value of magnetic resonance imaging in outcomes of nonsurgical treatment of lateral epicondylitis" doi: 10.1016/j.jseint.2021.11.01
6. Hubert Lenoir, Olivier Mares, Yacine Carlier " Management of lateral epicondylitis "Orthop Traumatol Surg Res. 2019 Dec;105(8S):S241-S246. doi: 10.1016/ j.otsr ..2019.09.004
7. Mouna Sghir, Takieddine Elhersiand Anouer Abdallah "Epidemiological profile of lateralepicondylitis in rehabilitation settings". Pan Afr Med J. 2020 Aug 11; 36:265. doi: 10.11604/pamj.2020.36.265.21403
8. Daniel M Walz, Joel S Newman " Epicondylitis: Pathogenesis, Imaging, and Treatment "Radiographics. 2010 Jan;30: 167-84. doi: 10.1148/rg.301095078.
9. Albert Haddad" Tendinopathies of the elbow "Revue du Rhumatisme Monographies Volume 79, Issue 2, April 2012, Pages 64-71 doi: 10.1016/j.monrhu.2012.01.002.
10. Hubert Lenoir, Olivier Mares et Yacine Carlier" Prise en charge des épicondylites latérales " Revue de Chirurgie Orthopedique et Traumatologique, 2019-12-01, Volume 105, Number 8, Pages S45 - S51, Doi: 10.1016/j.rcot.2019.09.005.
11. Anam F Pathan, H V Sharath " A Review of Physiotherapy Techniques Used in the Treatment of

Tennis Elbow" Cureus. 2023 Oct 26; 15(10): e47706. doi: 10.7759/cureus.47706.

12. J. M. Day, A. M. Lucado, and T. L. Uhl, "A COMPREHENSIVE REHABILITATION PROGRAM FOR TREATING LATERAL ELBOW TENDINOPATHY," Int. J. Sports Phys. Ther, vol. 14, no. 5, pp. 818-829, Sep. 2019, doi: 10.26603/ijspt20190818.
13. L. M. Bisset and B. Vicenzino, "Physiotherapy management of lateral epicondylalgia", J. Physiother. vol. 61, no. 4, pp. 174-181, oct. 2015, doi: 10.1016/j.jphys.2015.07.015.
14. S. Defoort, L. De Smet, P. Brys, K. Peers, and I. Degreef, "Lateral elbow tendinopathy: surgery versus extracorporeal shock wave therapy", Hand Surg. Rehabil. vol. 40, no. 3, pp. 263-267, June 2021, doi: 10.1016/j.hansur.2020.12.008.
15. S. R. Uttamchandani and P. Phansopkar, "Conservative Management of Lateral Epicondylalgia: A Review", Cureus, May 2024, doi: 10.7759/cureus.59875.
16. K. M. Lin, T. S. Ellenbecker, and M. R. Safran, "Rehabilitation and Return to Sport Following Elbow Injuries," Arthrosc. Sports Med. Rehabil. vol. 4, no. 3, pp. e1245-e1251, June 2022, doi: 10.1016/j.asmr.2022.01.012.
17. J. R. Y. Wong, E. Toth, K. Rajesparan, and A. Rashid, "The use of platelet-rich plasma therapy in treating tennis elbow: A critical review of randomised control trials", J. Clin. Orthop. Trauma, vol. 32, p. 101965, Sept. 2022, doi: 10.1016/j.jcot.2022.101965.
18. G. M. Kim, S. J. Yoo, S. Choi, and Y.-G. Park, "Current Trends for Treating Lateral Epicondylitis," Clin. Shoulder Elb. vol. 22, no. 4, pp. 227-234, Dec. 2019, doi: 10.5397/cise.2019.22.4.227.
19. T. L. Sevier and J. K. Wilson, "Treating Lateral Epicondylitis": Sports Med. vol. 28, no. 5, pp. 375-380, 1999, doi: 10.2165/00007256-199928050-00006.