



CARDINAL DIAGNOSTIC CONDITIONS CAUSING LATERAL ELBOW PAIN

Physiotherapy

**Pratibha Mary
Thomas***

Lecturer, Dr.M.V.Shetty College of Physiotherapy, Mangaluru, Karnataka.
*Corresponding Author

ABSTRACT

Lateral Elbow Pain is an extremely common clinical presentation among sports people and manual workers. The main purpose of this review article is to highlight succinctly important facets that include clinical history and evaluation of some of the cardinal conditions like lateral extensor tendinopathy, radial tunnel syndrome, posterior interosseous nerve entrapment, anconeus syndrome, elbow synovial fold syndrome, and referred pain that eventually attribute to lateral elbow pain.

KEYWORDS

lateral elbow pain, Lateral extensor tendinopathy, anconeus syndrome, synovial fold syndrome, referred pain.

INTRODUCTION

Lateral elbow pain, first described by Runge in 1873, has been known with different terms such as tennis elbow, epicondylitis, lateral epicondylitis, lateral elbow pain and epicondylalgia. The presence of pain in lateral elbow area best describes the condition of LE. The prevalence of LE in general population is about 1-3% between 30 and 64 years of age.

The history commonly includes forceful and repetitive gripping and painful weakness in the gripping activities. Pain is most commonly attributed to irritation of common extensor origin.

However, a range of potential sources for pain in LE involving structures within the elbow and cervical spine have been proposed. This article presents a landscape of conditions that manifests its clinical presentations as lateral elbow pain and focuses on clinical history, evaluation and diagnosis, shedding light on the understandings for healthcare personnel.

LATERAL ELBOW TENDINOPATHY-

LET is related to sport or arm work pain disorder. It is defined as a cause of pain in the lateral epicondyle that failed healing tendon response rather than inflammatory or may be degenerative. The most commonly affected structure is the origin of the extensor carpi radialis brevis. It is defined as a pathology at or near the lateral epicondyle of the humerus resulting in pain, tenderness, and functional limitations. Pain can be reproduced with one of the following ways: (1) palpation on the facet of the lateral epicondyle; (2) with the elbow in extension, resisted wrist extension and/or resisted middle-finger extension; and (3) gripping activities. A study conducted by Dones VCIII, Grimmer KA et al in which pain in the lateral elbow area was replicated using Cozen test, Mill test, Maudsley test and SMHGT to confirm presence of LE and recommends replicating lateral elbow pain using Cozen test and supports its inclusion in the diagnostic criteria suggested by the UK Health and Safety Executive Workshop. The Patient-Rated Tennis Elbow Evaluation questionnaire provides a quick, standardized, and easy quantitative description of functional disability and pain in LET patients.

Posterior Interosseous Nerve(PIN) Entrapment And Radial Tunnel Syndrome(RTS)

The radial tunnel syndrome and compression of the posterior interosseous nerve have been cited as causes of lateral elbow and upper forearm pain, particularly in those cases of tennis elbow not responsive to conservative treatment. Common sites of entrapment are the tendinous margin at the origin of the ECRB muscle the arcade of Froese of the supinator muscle and the distal border of the supinator muscle. The symptoms include deep, aching, diffusely localized pain around the lateral side of the elbow and dorsal side of the forearm that sometimes radiates to the hand. The pain is initiated and intensified by repetitive movements incorporating forearm pronation. Greater tenderness expected over the radial tunnel. Compression of the deep radial nerve by stretching the supinator muscle by pronating the forearm to end-range with the elbow extended is another part of the examination. During muscle force testing, the finger and thumb extensors may be found to be weak. The key is to determine the location of the increased pain during the test.

ANCONEUS SYNDROME-

Anconeus syndrome is described as irritation of the anconeus muscle or increased compartment pressure of the anconeus. This condition typically leads to lateral elbow pain and does not respond to conventional treatment for lateral epicondylalgia. In chronic compartment syndromes the pressure may be increased. It is well known that muscles with chronic compartment syndrome require an extended time for normalization of the pressure after exercise, but different pressures and intervals have been stated to be diagnostic of the syndrome. The diagnosis is established by recording intracompartmental pressure of the muscle and computed tomography.

ELBOW SYNOVIAL FOLD SYNDROME-

Elbow synovial fold syndrome, or posterolateral impingement can be clinically confused with epicondylitis, frequently delaying appropriate diagnosis. Plica syndrome arises from an injury, such as a direct blow, repetitive microtrauma, and overloading, a twisting force that stretches the plica, or some other pathologic elbow condition that incites an inflammatory reaction. The symptoms mimic epicondylitis and therefore require careful evaluation. On examination, pain is usually located postero laterally, not along the lateral epicondyle or extensor tendon origin. Plicae may cause lateral elbow pain even before the development of locking or catching symptoms. Flexion-pronation test should lead the examiner to consider the possibility of a pathologic synovial plica.

REFERRED PAIN DUE TO CERVICAL RADICULOPATHY-

Radiculopathy that occurs at the C6 or C7 level or both may cause referral of pain into the lateral elbow area. C6 and C7 radiculopathy results in weakness and dysfunction of the wrist and finger extensor muscles particularly the ECRB muscle. Overuse injury to the weakened ECRB tendon that occurs more frequently with everyday activities is likely to initiate lateral extensor tendinopathy. The C6 and C7 radiculopathy also may cause weakness of multiple wrist and finger extensor muscles, resulting in an imbalance of the wrist and finger extensor and flexor muscles during any functional use.

CONCLUSION

Lateral elbow pain is the most common chronic musculoskeletal pain condition affecting the elbow. A plethora of clinical conditions are believed to cause lateral elbow pain. This study focused on highlighting some of the most cardinal conditions which are most commonly overlooked. However, there are not much researches done on cervical radiculopathy and relationship with lateral elbow pain, which indeed can be considered as a scope for further research.

REFERENCES-

1. Abrahamsson SO, Sollerman C, Söderberg T, Lundborg G, Rydholm U, Pettersson H. (1987). *Lateral elbow pain caused by anconeus compartment syndrome a case report.* Acta Orthop.;58(5):589-591
2. Antuna SA, O'Driscoll SW. (2001). *Snapping plicae as associated with radiocapitellar chondromalacia.* Arthroscopy; 17:491-495.
3. Assendelft W, Green S, Buchbinder R, Struijs P, Smidt N. (2003). *Tennis elbow.* BMJ. 327:329-32.
4. Awaya H, Schweitzer ME, Feng SA, et al. (2001). *Elbow synovial fold syndrome: MR imaging findings.* AJR; 177:1377-1381.
5. Berglund KM, Persson BH, Denison E. (2008). *Prevalence of pain and dysfunction in the cervical and thoracic spine in persons with and without lateral elbow pain.* Man Ther.; 13:295-9.

6. Bisset LM, Vicenzino B. (2015). *Physiotherapy management of lateral epicondylalgia*. J Physiother; 61: 174-181 [PMID:26361816.DOI:10.1016/j.jphys.2015.07.01]
7. Cannon DE, Dillingham TR, Miao H, et al.(2007). *Musculoskeletal disorders in referrals for suspected cervical radiculopathy*. Arch Phys Med Rehabil;88:1256-1259.
8. Commandre FA, Taillan B, Benezis C, et al.(1988). *Plica synovialis (synovial fold) of the elbow: report on one case*. J Sports Med Phys Fitness; 28:209-210.
9. Coombes BK, Bisset L, Vicenzino B. (2015). *Management of Lateral Elbow Tendinopathy: One Size Does Not Fit All*. J Orthop Sports Phys Ther; 45: 938-949 [PMID:26381484 DOI: 10.2519/jospt.2015.5841]
10. Crawford GP.(1984). *Radial tunnel syndrome*. J Hand Surg [Am];9: 451-452.
11. Ebbets J.(1971). *Autonomic pain in the upper limb*. Physiotherapy;57:270-279.
12. Fernandez-Camero J, Fernandez-de-las-Penas C, Cleland J. (2008). *Immediate hypoalgesic and motor effects after a single cervical spine manipulation in subjects with lateral epicondylalgia*. Journal of Manipulative and Physiological Therapeutics;31(9):675-81.
13. Gangatharam S.(2019). *Anconeus syndrome: A potential cause for lateral elbow pain and its therapeutic management—A case report*. J Hand Ther;7-9.
14. Gunn C, Milbrandt W.(1976). *Tennis elbow and the cervical spine*. CMA Journal;114:803-809.
15. Hargens AR, Mubarak S J, Owen C A, Garetto L P, Akeson W H. (1977 July). *Interstitial fluid pressure in muscle and compartment syndromes in man*. Microvasc Res; 14(1):1-10.
16. Harrington JM, Carter JT, Birrell L, et al. (1998). *Surveillance case definitions for work related upper limb pain syndromes*. Occup Environ Med; 55: 264-271.
17. Hong QN, Durand MJ, Loisel P.(2004). *Treatment of lateral epicondylitis: where is the evidence?* Joint, Bone, Spine; 71:369-73.
18. Kalb K, Gruber P, Landsleithner B.(1999 Sep). *Compression syndrome of radial nerve in the area of supinator groove. Experience with 110 patients*. Handchir mikrochir plastchir; 31(5):303-310.
19. Kraushaar BS, Nirschl RP.(1999). *Tendinosis of the elbow (tennis elbow). Clinical features and findings of histological, immunohistochemical, and electron microscopy studies*. J Bone Joint Surg Am; 81: 259-278 [PMID: 10073590]
20. Levin KH, Maggiano HJ, Wilbourn AJ.(1996). *Cervical radiculopathies: comparison of surgical and EMG localization of single-root lesions*. Neurology;46:1022-1025.
21. Lister GD, Belsole RB, Kleinert HE.(1979). *The radial tunnel syndrome*. J Hand Surg [Am];4:52-59.
22. Maigne R. (2006). *Diagnosis and Treatment of Pain of Vertebral Origin*. 2nd ed, Taylor and Francis Group, LLC.
23. Mubarak S J, Hargens A R, Owen C A, Garetto L P, Akeson W H. (1976 Oct). *The wick catheter technique for measurement of intramuscular pressure. A new re- search and clinical tool*. J Bone JointSurgAm;58(7): 1016-20.
24. Ostrowski D, Gilula L. (1992). *Mixed sclerosing bone dystrophy presenting with upper extremity deformities: a case report and review of the literature*. Journal of Hand Surgery;17B:108-12.
25. Palmer K, Walker-Bone K, Linaker C, Reading I, Kellingray S, Coggon D, et al. (2000). *The Southampton examination schedule for the diagnosis of musculoskeletal disorders of the upper limb*. Ann Rheum Dis;59:5-11.
26. Portilla Molina AE, Bour C, Oberlin C, et al.(1998). *The posterior interosseous nerve and the radial tunnel syndrome: an anatomical study*. Int Orthop;22:102-106.
27. Reneman R S. (1968). *The anterior and lateral compartment syndrome of the leg*. Mouton Co., The Hague.
28. Roles NC, Maudsley KH.(1972). *Radial tunnel syndrome: resistant tennis elbow as nerve entrapment*. J Bone Joint Surg Br;54:499-508.
29. Rorabeck C H.(1986 July). *Exertional tibialis posterior compartment syndrome*. Clin Orthop;(208):61-4.
30. Ruch DS, Papadonikolakis A, Campolattaro RM.(2006). *The posterolateral plica: a cause of refractory lateral elbow pain*. J Shoulder Elbow Surg; 15:367-370.
31. Rydholm U, Werner C O, Ohlin P. (1983 May). *Intracompartamental forearm pressure during rest and exercise*. ClinOrthop;(175):212-5.
32. Sarhadi NS, Korday SN, Bainbridge LC. (1998). *Radial tunnel syndrome: diagnosis and management*. J Hand Surg [Br];23:617-619.
33. Shiri R, Viikari-Juntura E, Varonen H, Heliövaara M. (2006). *Prevalence and Determinants of Lateral and Medial Epicondylitis: A Population Study*. Am J Epidemiol; 164:1065-74.
34. Spinner M. (1968). *The arcade of Frohse and its relationship to posterior interosseous nerve paralysis*. J Bone Joint Surg Br;50:809-812.
35. Steinmann SP, Bishop AT.(2000). *Chronic anconeus compartment syndrome: A case report*. J Hand Surg Am;25(5):959-961.
36. Styf J, Korner L, Suurkula M. (1987 March). *Intramuscular pressure and muscle blood flow during exercise in chronic compartment syndrome*. J Bone Joint Surg (Br);69(2):301-5.
37. Valentin C Dones III et al. (2014). *The Sensitivity of the Provocation Tests in Replicating Pain on the Lateral Elbow Area of Participants with Lateral Epicondylalgia*. Journal of Case Reports and Clinical Research Studies, 1(1): 1.
38. Vicenzino B, Wright A. (1996). *Lateral epicondylalgia I: epidemiology, pathophysiology, aetiology and natural history*. Phys Ther Rev; 1:23-34.
39. Werner CO. (1979). *Lateral elbow pain and posterior interosseous nerve entrapment*. Acta Orthop Scand Suppl;174:1-62.