



ORIGINAL RESEARCH PAPER

Physical Medicine

A SYSTEMIC REVIEW OF LATERAL EPICONDYLITIS

KEY WORDS: Tennis Elbow, Physiotherapy

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ABSTRACT

SUMMARY: Lateral epicondylitis, is also known as tennis elbow, is the most common syndrome in the elbow. It is a tendinopathy injury involving the extensor muscles of the forearm. These muscles originate on the lateral condylar region of the distal humerus. Over use of forearm muscles can result in inflammation of the tendons which join the forearm muscles on the outer side of the elbow. The forearm muscles and tendons become damaged from overuse. This leads to pain and tenderness on the outside of the elbow.

DEFINITION:

Lateral epicondylitis is a condition that causes pain and tenderness at the prominence on the outer part of the elbow. This condition occurs as a result of overusing forearm muscles that straighten and raise the hand and wrist. When tendinopathy, or fibre micro tearing, occurs at the muscles origins at there point of attachment at lateral condyle. In lot of cases, the insertion of Lateral Carpai radials brevis is involved. Only 3-5% of people are suffering from tennis elbow related injury. Contractile over load and chronically stress of tendon near the attachment on the humerus are the primary cause of epicondylitis.

Clinical features/symptoms/:

- Pain or tenderness on the outer side of the elbow.
- Pain when the wrist or hand is straightened.
- Pain worsened by lifting a heavy object or weight.
- Pain with making a fist, gripping an object, shaking hand or turning door handles.

Aetiology/epidemiology:

Lateral epicondylitis is an overuse injury that may result in hyaline degeneration of the origin of the extensor tendons. Overuse muscles and tendons of the forearm and elbow together with repetitive contractions or manual tasks can put too much strain on the elbow tendons. Mostly pain is located anterior and distal from the later epicondyle. Epicondylitis accure at least five times more often on the lateral rather than the medial aspect of the joint. It affects 3-5% of population, 35-50 year old most commonly being affected.

Cause of Lateral epindylitis:

(a) Inflammation: Present in earliest stage of the disease process.

(b) Microscopic tearing: Cause of microscopic tearing with the formation of angiofibroblastic hyperplasia in the origin of extensor carpi radialis brevis muscles. Histology of tissue sample shows collagen disorientation, disorganization, fibre separation, increased cellularity and neovascularisation with local necrosis.

(c) Degenerative process: The cause of lateral epicondylitis is more indicative of a degenerative process than an inflammatory process. The condition is degenerative with increased fibroblasts, vascular hyperplasia, protieoglycans and glycosaminoglycans and disorganized immature collagen. Epicondylitis is a degenerative condition in which increased fibroblastic activity and granulation tissue formation occurs within the tendon.

(d) Hypo vascularity: The region around the tendon is relatively hypo vascular and tendon unit is unable to respond

adequately to force transmitted through the muscle that is resulting in declining functional tolerance.

INVESTIGATIONS: The diagnosis is typically clinical. Some tests are recommended to rule out the other causes of the problem.

- **X-rays:** These may be taken to rule out arthritis, osteoarthritis dissecans, degenerative, changes and heterotopic calcification.
- **MRI Scan:** It can be used to confirm the diagnosis or to detect any structural abnormality, if suspected. It Provide the images of soft tissues including muscles and tendons when symptoms are related to the neck problem. If there is a herniated disc or arthritis in the neck, both these conditions produce arm pain, at this stage MRI reveals the thickening at the site and inflammation around the epicondyle.
- **Electromyography (EMG):-** EMG is used to rule out nerve compression. Many nerves travel around the elbow and the symptoms of nerve compression are similar to the tennis elbow.



Differential diagnosis:

- Radial tunnel syndrome
- Post interosseus nerve syndrome
- Elbow osteoarthritis
- Fractures
- Cervical radiculopathy
- Cervical disc disease

- Cervical myofascial pain
- Cervical spondylitis
- Fibromyalgia
- Medial epicondylitis
- Capitellar osteochondritis
- Triceps tendinitis
- Radiocapitellar osteoarthritis

Management: Is depends upon the severity of the symptoms-

- a) Medical treatment
- b) Surgical treatment

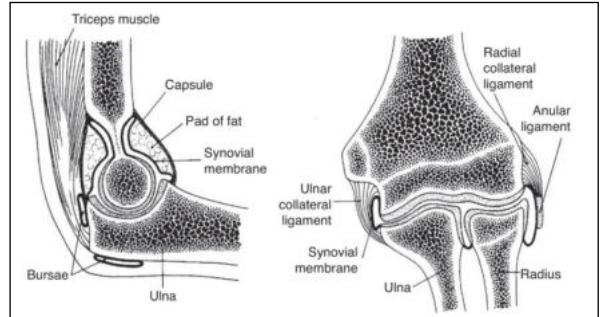
a) Medical treatment: approximately 80-90% patients have success with non-surgical treatment.

- **Rest:** First step toward recovery to provide proper rest to the arm, by decrease participation or stop the sports and other heavy work activates of least 8 to 12 weeks.
- **Physiotherapy:** It can provide longer term relief by stressing and strengthening exercises for wrist and fore arm extensors. The aim is to reduce pain and improve functions. It includes elbow joint mobilization with movement exercise Physiotherapy management includes:-
 - Education/pain control advices and modification in activities.
 - Deep transverse frictions (DTF)
 - Mills manipulation (rupturing adhesions within the tenoosous junction)
 - Cyriax physiotherapy is a combination of DTF and Mills manipulation.
 - Exercise therapy- restore strength, stamina, mobility and reduce pain of musculoskeletal system.
 - Stretching improve the flexibility of the extensor group of muscles of the wrist and increase the range of motion of the wrist.
 - Eccentric exercises- is a combination of resistance (Load) + Velocity (Speed) + frequency of contraction.
 - Theraband exercises- exercise with small weight.
 - Flex bar exercises- hold and twist the flex bar by both hands.
 - Taping- useful for reducing pain and improving grip strength and functional performance.
- **Ultra sonography:** Is helpful in lateral epicondylitis. It has thermal and mechanical effects on the target tissues leading to increased Metabolism, circulation, extensibility to connective tissue and tissue regeneration. It is a form of extra corporeal shok wave therapy (ESWT), stimulate the healing response from damaged tissues.
- **Ultrasound and transcutaneous electrical nerve stimulation (TENS)-** Ultrasonography has thermal and Mechanical effect on the target tissue leading to increase metabolism, circulation, extensibility of connective tissues and tissue regeneration also. TENS may help to reduce the pain and stiffness.
- **Laser Therapy:** Low level laser therapy is a form of alternative medicine that uses laser Light of Low levels, is applied the skin surface of body, It decreasing pain or inflammation, promoting healing with prevent tissue damage.
- **Orthotic devices:** It is use to improve the function or deduce the pain.
 - a) Elbow Support.
 - b) Cold compression brace.
- **Braces/splints/straps:** They reduces the symptoms by resting the muscles and tendons. Braces work by applying pressure to muscles below the elbow by reducing pain and increase the ability to freely movement of arm and elbow. Braces and straps can limit the excessive stress on the tendons which attached to the outside of the elbow.
- **Medication:** NSAIDS offer a short term benefit 3 to 04 weeks pain relief. eg Acetaminophen, ibuprofen etc.
- **Steroid injection:** infection is given directly in to the painful area around the elbow. A local aesthetic may be given first to numb area and reduce the pain. steroid

injections are only likely to give short term relief and their long term effectiveness is poor (corticosteroid + lidocain)

- **Platelet-rich plasma (PRP):** is a biological treatment designed to improve the biologic environment of the tissue. This involve by obtaining a small sample of blood from the arm and centrifuging it or spinning it, to obtain platelets from the solution. Platelets are known for their high concentration of growth factors which can be injected into the affected area.

c) Surgical: is done by using a arthroscope, before surgery. We may get the same medicine as in open surgery to make you relax and to block pain. In this procedure, surgeon makes one or two small cuts on arm side and inserts the scope, removing diseased muscles and re-attaching healthy muscle back to the bone. Open surgery is usually perform in an outpatient surgery by repairing or removing dead muscles. It requires an overnight stay at hospital.



Complication:

- Recurrence of the injury with the overuse.
- Ruptures of the tendons with repeated steroid injections.
- Heterotrophic ossification
- Missed radial nerve entrapment syndrome
- Iatrogenic neurovascular injury
- Infections
- Missed concomitant pathology

Prognosis: Overall 90-95% of the patients with this disease will improve and recover with the treatment plan described previously. However about 5% of patient will not get better with the conservative treatment and will need surgery to repair, the injured muscle tendon unit around the elbow.

Summary: Lateral epicondylitis, commonly referred to as 'Tennis elbow' is related to excessive wrist extension. It is the most common overuse syndrome. Patient typically report pain over the lateral elbow that worsens with activity and improves with rest.

CONCLUSION:

Lateral epicondylitis is a painful condition affecting the tendinous tissue of the origin of the wrist extensor muscles at the lateral epicondyle of the humerus leading to the loose of function of the affected limb. Therefore, it can have a major impact on the patient's social and professional life.

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