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Lateral elbow tendinosis:

a review of diagnosis and management in general practice

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INTRODUCTION

Lateral elbow tendinosis (LET), commonly known as tennis elbow, lateral epicondylitis, or lateral epicondylalgia, carries significant disease burden of 2.5 to 3.5 per 1000.[1,2] Affecting the extensor tendons on the lateral aspect of the forearm, this condition is most commonly seen in middle-aged patients with a peak incidence between 40 and 50 years.[3] There is a higher prevalence among those working in high-risk industries (involving loaded and repeated gripping and/or wrist extension activities)[2,4] and players of racquet sports.[3] The majority of cases are self-limiting, with up to 80% improving within 12 months,[3,4] although LET can result in considerable individual morbidity, substantial healthcare resource utilisation, and lost time from work.[1,5]

The most commonly implicated of the extensor tendons is the extensor carpi radialis brevis (ECRB), and, although traditionally thought of as an inflammatory process, more recent histological examination suggests LET is a tendinosis. The combination of excessive loading in the context of individual risk factors — age, occupation, hobbies, or previous injury — causes the transition from normal tendon through to degenerative tendinosis.[3,5,6]

DIAGNOSIS

LET classically presents with insidious pain localised to the lateral epicondyle of the elbow with radiation down the extensor aspect of the forearm, with a precipitant history.[3,5] Smoking and obesity are significant risk factors.[5] In racquet sports predisposing factors may include the one-handed backhand, a heavy racquet, and too small grip size.[3]

On clinical examination there is tenderness on palpation of the tendinous insertion at the lateral epicondyle. Cozen's, Maudsley's, Mill's, and grip strength tests may assist in diagnosis (Box 1).[3,5,7]

An important differential diagnosis to consider is osteoarthritis of the radiocapitellar joint, where pain on palpation of the joint line with reduced range of elbow pronation and supination are predominant features. Range of motion is not affected in LET. Other differentials include cervical radiculopathy, radial tunnel syndrome (compression of the posterior interosseous nerve), and osteochondritis dissecans.[2,5,8]

LET is a clinical diagnosis and therefore radiological investigation is seldom required and reserved for those who fail to improve. Where there is suspicion of radio-capitellar osteoarthritis or other bony pathology, X-ray is the first-line investigation.[5,8]

MANAGEMENT

The literature supports exercise-based rehabilitation as the cornerstone to successful management, with other

Box 1. Clinical tests for diagnosis of lateral elbow tendinosis[1,5,7]

Clinical test	Description	Outcome
Grip strength	Assessment of grip strength using hand-held dynamometer	Positive if grip strength reduced
Cozen's	Resisted wrist extension with elbow extended and forearm pronated	Positive if pain reproduced
Maudsley's	Resisted extension of the middle finger	Positive if pain reproduced
Mill's	Passive wrist plantar flexion with elbow extension stretching the extensor tendons	Positive if pain reproduced

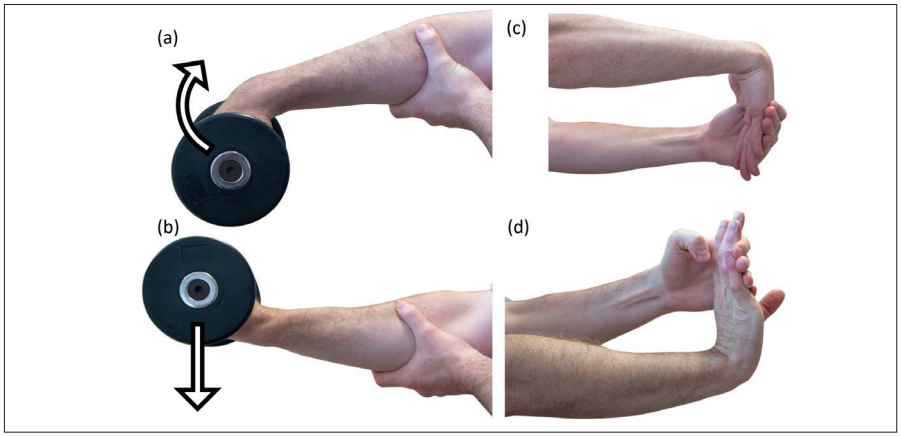

Figure 1. Example home exercise programme for lateral elbow tendinosis. (a) and (b) demonstrating concentric and eccentric forearm exercises: raise weight up for 3 seconds (a) and lower for 5 seconds (b), complete 10–15 repetitions and three sets, and progress by increasing weight and/or repetitions. (c) and (d) demonstrating flexion (c) and extension (d): wrist stretches with straight elbow, holding each stretch for 15–30 seconds and three sets.

treatments seen as adjuncts to facilitate rehabilitation, resolve pain, and encourage tissue healing.[3,4]

Exercise-based rehabilitation should include a progressive graded loading programme to facilitate strengthening of the forearm extensor muscles. Aims should include improving strength and endurance capacity, normalising forearm muscle flexibility, and improving coordination. Pain should be minimised during rehabilitation exercises and increases in load carefully progressed in a graded fashion.[3] This can be delivered through a GP-guided home exercise programme (Figure 1), signposting to educational resources and/or through referral to physiotherapy. A recent survey of UK-based practitioners including orthopaedic surgeons, sport and exercise medicine physicians, and experienced physiotherapists found that 81% recommended exercise-based physiotherapy as the first-line intervention in cases of greater than 6 months' duration.[2]

Activity modification and relative offloading should be achieved through identification of predisposing factors such as occupational activity or sport, and patient-specific recommendations aimed at reducing load (volume, intensity, frequency) and increasing recovery time. This might focus on activity modification, amending duties or relative rest in the first instance depending on the patient's presentation and circumstances.

Improving pain to facilitate rehabilitation is essential. Management strategies may include: topical non-steroidal anti-inflammatory medication for short-term relief of pain; taping or strapping (aiming to offload the common extensor origin tendon to reduce pain); and counterforce brace devices.[3,5] Physical therapy treatments including soft-tissue therapy (mobilisation, transverse frictions, and/or massage) may be helpful adjuncts in the short term.[2]

A multi-arm trial comparing physiotherapy, 'wait and see', and steroid injection demonstrated significantly better outcomes from 6 weeks for those in the physiotherapy arm. Importantly, patients who received physiotherapy sought significantly less other treatment compared with both corticosteroid injection and wait-and-see approaches.[4]

The literature demonstrates that corticosteroid injections, despite significant short-term improvement in symptoms (>80% success rate), are associated with high recurrence rates (>62%) and a significant delay in recovery.[3,4] Worryingly, 22% of patients who would have otherwise improved with a wait-and-see approach, failed to do so because of corticosteroid injection.[4,6] These long-term harmful effects, as well as associated side effects including skin decolouration, fat atrophy, and muscle wasting, must be taken into consideration by both patients and their doctors.[1,3–5] A recent cost-effectiveness analysis from Australia concluded that corticosteroid injections were not a cost-effective treatment for LET and that physiotherapy should be the mainstay of treatment. Corticosteroid injection has the additional negative effect of cancelling out the positive benefit of physiotherapy intervention.[1]

Patients with persistent pain and disability, recalcitrant to rehabilitative management, are candidates for secondary care referral to a sport and exercise medicine clinician. Further management options include autologous blood injections, platelet-rich plasma injections, and extracorporeal shockwave therapy.[3,5,9] Operative options include open, percutaneous, and arthroscopic approaches; however, there is no evidence to support a specific technique. A recent prospective, randomised, double-blinded, placebo-controlled clinical trial found that the surgical excision of the degenerative portion of the ECRB offers no additional benefit over and above placebo surgery.[10]

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