

CHAPTER 2

REVIEW OF RELATED LITERATURE

Lateral epicondylitis is the common cause of pain at the elbow region.¹ Many conditions have been postulated as causing lateral epicondylitis. Typically, repetitive and cumulative injury produces the pathological changes: force overload may be intrinsic, by muscle contraction, or extrinsic, by traumatic stretching: occasionally, the cause is direct trauma.⁵ Over-exertion of the extensor muscles of the wrist due to gripping and twisting movement prior to the onset of the symptoms was verified in 70% of patients. Lateral epicondylitis occurred in the dominant arm in 95%. In 35% the disease was considered to be caused by work, in 8% by playing tennis, in 27% by other leisure activities and in 30% no cause was found. No particular job dominated among the patients. There was no statistically significant difference between the prevalence in white- and blue-collar workers.² There is also some anecdotal and epidemiological evidence to suggest that wrist flexion and extension contribute to the onset of both medial and lateral epicondylitis, although it is difficult to separate the effects of wrist movements from other factors.²⁰ The risk may be increased when doing unusual tasks.² It is not uncommon for patients to develop symptoms after either adopting a new activity or increasing the duration or intensity of an established one.⁹

The most common complaints of individuals with lateral epicondylitis are pain and decrease grip strength. Initially the patients usually present with symptoms reflecting the underlying inflammatory process. Consequently, pain to palpation at involved site, increase warmth, and at times swelling characterize the initial physical finding. If left unaddressed, changes that include muscle atrophy and degeneration at the musculotendinous junctions and bony insertions will predispose to recurrent injury.⁹ But no signs of inflammation of the tendon and peritendon have been found in the chronic cases which have been treated by surgery.²¹ The common features of the surgical specimens included vascular proliferation and hyaline degeneration; fibroblastic proliferation and calcific debris were also regularly seen.^{22 23} Doran found vigorous reactive change with new bone formation and remodeling in 8 of 20 of his

specimens.²⁴ But these chronic cases finding may not reflect that of earlier lesions. Unfortunately, biopsy of early acute cases of tennis elbow is unlikely ever to be feasible.¹

Lateral epicondylitis is often associated with prolong disability.²⁵ A variety of different prognostic factors were measured in the studies but only one study specifically analyzed prognostic factors. Site of lesion, history of recurrence and prior occurrence appeared to be predictive of poorer outcome. The pain distal to epicondyle and shorter than or equal to 1 month in duration were good prognostic factors. There was not sufficient evidence to suggest that age, compliance with rest, preintervention pain score, gender, or hand dominance are predictive of outcome.⁷ Those with longstanding symptoms usually demonstrated a more refractory response to rehabilitation than those with symptoms of a more acute onset. The patients with greater than 10 degree of wrist extension or flexion loss as compared to opposite side responded more slowly to therapy than those without motion loss. The side to side grip strength difference of 50% or more also correlated with more severe involvement.⁹

More than 40 possible treatments have been proposed including various types of conservative treatment and surgical treatment in resistant cases.^{1 8} Common conservative treatments are pain-relieving medication (18-35%), local injection of steroid (14%-38%) and physiotherapy (28-30%).³ The treatment is divided into three stages. The initial phase is directed toward reducing inflammation. The second phase emphasizes return of normal muscular strength and endurance, and is designed to prevent recurrence. Phase three involves functional rehabilitation designed to return the patient to the desired level of activity.^{9 26} Surgical treatment is reserved for recalcitrant cases that have failed minimum 6-month course of conservative treatment and 3 steroid injections after excluding other differential diagnoses.^{9 26} Verharr JAN et al found that corticosteroid injection was more effective than Cyriax physiotherapy. They recommended it because of its rapid action, reduction of pain and absence of side effects.¹¹ The choice and dose of corticosteroid was studied in 1991 by Sinclair RPH et al. They compared 10 mg. triamcinolone with 25 mg. hydrocortisone and with 2 ml 1% lignocaine. Within the first 8 weeks, pain relief was greater for triamcinolone than hydrocortisone although the difference were not statistically significant. When they

compared between 10mg. triamcinolone and 20mg. triamcinolone. Improvement of pain was similar. Post-injection worsening of pain occurred in approximately half of all steroid treated patients.¹³ The steroid injection treatment presented a typical pattern, with symptoms relieved quickly by 2 weeks and then deterioration for many patients at 3 months, indicating a tendency to recurrence.¹² Two reviews of corticosteroid injections concluded that there was insufficient evidence to support its use in treating lateral epicondylitis, but the methodological quality of most trial was poor.^{3 14} One randomized pilot study comparing oral naproxen and a single betamethasone injection was carried out in 21 patients. No apparent difference in effect could be noted at an evaluation after 2 weeks' treatment.²⁷ Recent study in general practice showed that local steroid injection was more effective than naproxen. Recovery or improvement was report in 92% in steroid injection group and 57% in naproxen group, but they had many cointerventions (35%-38% in each groups) and 34% of contamination in naproxen group. 7.5% of patients in naproxen group discontinued the study because of gastrointestinal side effects. They concluded that a two week course of a standard non-steroidal anti-inflammatory was no better than placebo.¹⁵ And now we have new generation of NSAIDs; COX-2 inhibitors which has lower GI side effects and better tolerability but has the same efficacy to control pain and inflammation in osteoarthritis and rheumatoid arthritis.¹⁶⁻¹⁹ Simon et al. studied a randomized controlled trial compare between celecoxib and naproxen in rheumatoid arthritis patients. Improvement of signs and symptoms were similar in both groups. The incidence of endoscopically determined gastroduodenal ulcers in placebo-treated patients (4%) was not significantly different with celecoxib-treated patients (4-6%, $p>0.40$). In contrast, the incidence in naproxen-treated patients was 26%, significantly greater than either placebo or celecoxib-treated patients ($p<0.001$).¹⁹ But there is no study of COX-2 inhibitors in case of lateral epicondylitis. So we conduct study to compare efficacy between COX-2 inhibitors (Celecoxib 200mg/day) and local corticosteroid injection.