Introduction

Cubital tunnel syndrome is the second commonest compression neuropathy in the upper limb.\textsuperscript{1} Surgical compression is often successful but a proportion of patients fail to respond or develop recurrent symptoms.\textsuperscript{2} Treatment of this group is difficult as repeated decompressions or transposition of the nerve do not always lead to a successful outcome.\textsuperscript{3} It is thought that scarring around the nerve may be a factor and treatment should be directed towards preventing recurrent scarring around the epineurium.\textsuperscript{4}

In our tertiary referral hand and nerve unit we have used a porcine submucosa extracellular matrix (AxoGuard® Nerve Protector, Axogen Inc, Alachua, FL) as an epineurial wrap with or without medial epicondylectomy for recurrent or intractable cubital tunnel syndrome.

Figure 1: The AxoGuard® Nerve Protector aims to serve as a protective barrier to cicatrix formation around the epineurium. (Image courtesy of Hospital Innovations UK)

Methods

10 patients with recurrent or persistent ulnar nerve symptoms at the cubital tunnel following previous cubital tunnel surgery underwent revision surgery at our regional peripheral nerve unit between October 2015 and September 2016. The mean patient age was 57.

All patients had undergone at least one previous procedure. This was usually an in situ decompression (5 patients) but 4 patients also had an anterior submuscular transposition and 1 had undergone a medial epicondylectomy (ME).

Revision surgery included decompression, neurolysis and nerve wrap using the 70 x 40mm AxoGuard® nerve wrap. 8 patients underwent medical epicondylectomy for an unstable nerve or excessive tension during intraoperative elbow flexion.

Records were retrospectively analysed. MRC motor grade, sensory function on a visual analogue scale (VAS) and the patient rated ulnar nerve evaluation (PRUNE) scores were recorded pre-operatively and at each subsequent follow up visit.

The mean follow up was 10 months.

Results

Figure 2: The typical intra-operative appearance was that of epineurial scarring with tether points that prevented normal gliding during elbow flexion and extension.

Figure 3: Final appearance following medial epicondylectomy and nerve wrap.

Table 1 outlines the results with the latest examination findings and PRUNE scores compared to pre-operative values.

All patients demonstrated improved PRUNE scores of varying degrees. Two patients\textsuperscript{*} did not record a pre-operative PRUNE score. No patient showed worsening sensory or motor function.

One patient required early re-exploration for haematoma under the wrap causing acute nerve compression. Although most patients have incomplete resolution of symptoms there have been no recurrences at latest follow up.

Conclusions

Revision cubital tunnel surgery using the AxoGuard® wrap as an adjunct may improve ulnar nerve symptoms in recurrent or recalcitrant cases. Although current follow up remains limited, our experience suggests that recurrence rates may also be reduced.

References