

CASE REPORTS

ULNAR NERVE ENTRAPMENT BY ANCONEUS EPITROCHLEARIS LIGAMENT

William H. C. Tieng and Jason Kelly

Department of Plastic and Reconstructive Surgery

Cork University Hospital

Wilton, Cork, Ireland, UK

Received 12 July 2011; Revised 12 August 2011; Accepted 16 August 2011

ABSTRACT

Ulnar nerve entrapment at the elbow is the second most common upper limb entrapment neuropathy other than carpal tunnel syndrome. There have been many causes identified ranging from chronic aging joint changes to inflammatory conditions or systemic disorders. Among them, uncommon anatomical variants accounts for a small number of cases. Here, we report our experience in managing ulnar nerve entrapment caused by a rare vestigial structure, anconeus epitrochlearis ligament, and provide a brief review of the literature of its management.

Keywords: Ulnar Nerve Entrapment; Anconeus Epitrochlearis Ligament; Cobelt Tunnel Decompression.

INTRODUCTION

Ulnar nerve entrapment at the elbow is the second most common nerve entrapment neuropathy in the upper limb other than carpal tunnel syndrome in young adults.¹ Most of the causes can be attributed to old elbow trauma, arthritis, recurrent nerve subluxation, metabolic or systemic disorder, overuse syndrome, and external compressive force due to anatomical variations such as arcuate ligament of Osborne and hypertrophic medial head of triceps or in our case, the presence of anconeus epitrochlearis ligament (AEL).^{1–3} Although compression by anconeus epitrochlearis muscle (AEM) has been described in the literature, it is uncommonly encountered in practice.² It is a phenomenon which particularly occurs in athletes where the muscle is well developed, or due to performance of repetitive, unaccustomed activity.^{1–4} Here, we described a ligament with vestigial AEM that caused ulnar nerve entrapment in a non-athletic patient, and a

brief review of literature of current management of ulnar nerve entrapment caused by this ligament.

CASE

A 33-year-old, right-handed housewife presented to our clinic with a nine-month history of intermittent paraesthesia over her left little finger and ulnar border of ring finger. She also complained of associated mild weakness for two months. On examination, the symptoms were elicited with elbow flexion after 20 seconds. There was also tenderness and positive Tinel's sign over the groove between her olecranon and medial epicondyle of the humerus. Other examinations were otherwise unremarkable.

In surgery, the ulnar nerve at the elbow was explored through a curvilinear incision, and a thickened fibrous structure, which ran between medial epicondyle of humerus to olecranon, was

Correspondence to: Dr. William H. C. Tieng, Faculty of Medicine and Health Sciences, University Sarawak Malaysia (UNIMAS), Lot 77, Sekaten 22 Kuching Town Land District, Jalan Tun Ahmad Zahid Muazu, 93150 Kuching, Sarawak, Malaysia. E-mail: wilhct@yahoo.com



Fig. 1. After ligamentotomy and myotomy, the ulnar nerve (large arrow) was seen as flattened by the overlying anomalous epicondlearis ligament (retracted by forceps). The small arrow indicates the olecranon.

seen to overlay the nerve snugly. The width of the fibrous ligament was 1 cm and consisted of rudimentary muscular component on its deep surface (Fig. 1). Due to its minimal bulk, the ligament was fully divided to reveal a compressed ulnar nerve underneath. Careful examination of ulnar nerve showed flattening of its fascicles and thickening just proximal to the entrapment. During intraoperative elbow manipulation, no sign of nerve dislocation or other compressive causes were identified. The wound was closed uneventfully. At nine months follow-up, the patient's symptoms had resolved.

DISCUSSION

Anconeus epicondlearis muscle, which is a congenital accessory muscle, arises from the medial epicondyle of humerus and inserts onto the olecranon process of the ulna. It can be found in normal elbows with an incident of between 4% to 34%.^{4,5} Although its prevalence is nearly equal in both sexes and equilateral in both upper limbs, the anomalous AEM has been reported to be more developed in men and on right upper limb.⁵ It has a tapering rectangular dimension with an average

size of 7×3 cm and up to 2 cm thick.^{6,7} Due to its considerable size and vascularity, many authors have described its use either as a pedicled flap to cover elbow defect or as free flap.^{6,8}

Although other authors had reported the association between AEM hypertrophy or edema with ulnar nerve entrapment, our case was due to a tight AEL, which consisted of barely a millimetre thick fibrous tissue that exerted external compression on the ulnar nerve. Other reported cases of hypertrophied AEM measured up to 2 cm thick.^{6,7} Unlike the surgical intervention as advocated by Masear *et al.*, which involved excision of hypertrophied AEM, we believe that in the case where only AEL is present, it is sufficient to carry out simple ligamentotomy and myotomy as a decompression procedure.⁵ The patient remained asymptomatic at nine months follow-up.

References

- Boero S, Sciesz FM, Catena N, Pediatric cubital tunnel syndrome by anconeus epicondlearis: a case report, *J Shoulder Elbow Surg* 18(3): e21–e23, 2009.
- Hodgkinson PD, McLean SR, Ulnar nerve entrapment due to epitrochle-anconeus muscle, *J Hand Surg Br* 19(6):706–708, 1994.
- O'Hara JJ, Stone JH, Ulnar nerve compression at the elbow caused by a prominent medial head of the triceps and an anomalous epitrochlearis muscle, *J Hand Surg Br* 21(1):133–135, 1996.
- Hirayama T, Sawaiura H, Sakakida K, Entrapment neuropathy due to bilateral epitrochleacousus muscles: a case report, *J Hand Surg* 4(2):181–184, 1979.
- Masear VR, Hill JP Jr, Cohen SM, Ulnar compression neuropathy secondary to the anomalous epitrochlearis muscle, *J Hand Surg* 13(5):720–724, 1988.
- Hwang K, Han JY, Chang IH, Topographical anatomy of the anconeus muscle for use as a free flap, *J Reconstr Microsurg* 20(8):631–636, 2004.
- Almquist EE, Necking L, Bach AW, Epicondylar resection with anconeus muscle transfer for chronic lateral epicondylitis, *J Hand Surg* 23(4):723–731, 1998.
- Nishida K, Iwasaki N, Mizami A, Anconeus muscle flap for the treatment of soft tissue defects over the olecranon after total elbow arthroplasty, *J Hand Surg Eur Vol* 34(4):538–539, 2009.