Case 7501

Cubital tunnel syndrome due to anconeus epitrochlearis muscle
Published on 20.05.2009

DOI: 10.1594/EURORAD/CASE.7501
ISSN: 1563-4086
Section: Musculoskeletal system
Case Type: Clinical Cases
Authors: Moutinho R, Sampaio R.
Patient: 21 years, male

Clinical History:
A 21 year old male with intermittent pain in the medial side of the left elbow and hand paresthesia, while playing tennis.

Imaging Findings:
A 21 year old male presented with intermittent pain in the medial side of the left elbow and hand paresthesia in the ulnar nerve distribution of 3 months duration, while playing tennis. There was neither history of elbow trauma nor any sign of ulnar nerve subluxation or dislocation during elbow ?exion and extension.
An MR examination was performed using the routine protocol at our institution for elbow pain that encompasses T1-weighted fast spin echo images in all 3 planes, fat-satured (FatSat) proton density-weighted sequences in axial and coronal planes and a gradient echo T2*-weighted sequence in the sagittal plane.
A surface coil and a 1.0 open MR scanner were used to obtain all images.
An accessory muscle - anconeus epitrochlearis - was demonstrated on the postero-medial aspect of the elbow. The ulnar nerve was swollen and oedematous in the cubital tunnel, with oedema of the perineural fat, findings consistent with ulnar neuropathy secondary to intermittent compression of the nerve by the anconeus epitrochlearis muscle.

Discussion:
Second only to carpal tunnel syndrome, cubital tunnel syndrome is the most frequent compressive neuropathy of the upper limb in young adults. Ulnar nerve compression in the cubital tunnel can have different causes, including space occupying lesions in the cubital tunnel (synovial cyst, synovial tumour or osteophytes), trauma (elbow fracture or dislocation, activity related repetitive microtrauma), cubitus varus or valgus, overuse syndrome, tourniquet paralysis, congenital anomalies (accessory muscle), local swelling due to metabolic or endocrine disease (pregnancy, acromegaly, thyroid disease, amyloidosis, pseudotumoral calcinosis), and systemic diseases (rheumatoid arthritis, systemic erythematous lupus, scleroderma) [1].

The anconeus epitrochlearis muscle is a supernumerary muscle that takes the same course as the cubital tunnel retinaculum in the postero-medial aspect of the elbow, running superficial to the ulnar nerve from the inferior surface of the medial epicondyle to the medial cortex of the olecranon. As the elbow moves from extension to flexion, the cross-sectional area of the cubital tunnel decreases and the anconeus epitrochlearis muscle may compress the ulnar nerve in the cubital tunnel [2]. Besides, the anconeus epitrochlearis muscle may compress the nerve as it contracts and its thickness increases. The cubital tunnel retinaculum is thought to be the remnant of the anconeus epitrochlearis. The reported prevalence of the anconeus epitrochlearis from cadaveric studies is 11%. The anconeus epitrochlearis can be identified at US or, more accurately, at MR imaging [3].

In our patient, the anconeus epitrochlearis muscle was best seen on axial images, where the relationship between
the ulnar nerve and adjacent structures could be better demonstrated (Fig 1). We think that in our case the anconeus epitrocleares muscle was the cause of the patient's ulnar neuropathy.

Initial treatment for acute and subacute ulnar neuropathy at the elbow is nonsurgical. Rest and avoidance of pressure on the nerve may suffice. If symptoms persist, activity modification, splint immobilization, NSAIDS, infiltrations and physical therapy can be tried. For chronic neuropathy associated with muscle weakness, or for neuropathy that does not respond to conservative measures, surgery is usually necessary - incision and splitting of the accessory muscle is usually enough to obtain ulnar nerve decompression and resolution of the symptoms [4].

Our patient used to be a heavy tennis player and complained mainly of exercise triggered elbow pain without significant hand paresthesias. For treatment he stopped playing tennis and underwent physical therapy and is doing better.

**Differential Diagnosis List:** Cubital tunnel syndrome due to anconeus epitrochlearis muscle

**Final Diagnosis:** Cubital tunnel syndrome due to anconeus epitrochlearis muscle

**References:**


Description: Axial T1W image (TR 533 ms / TE 20 ms) shows the anconeus epitrochlearis muscle (large arrow) extending across the cubital fossa from the medial cortex of the olecranon (?) to the medial epicondyle (arrowhead). Ulnar nerve (small arrow). Origin:
Description: Axial FatSat PDW image (TR 2000 ms / TE 30 ms) shows the accessory or anomalous anconeus epithroclearis muscle (large arrow) and abnormal high signal intensity of the ulnar nerve due to oedema (small arrow). Origin:
**Description:** Axial FatSat PDW image (TR 2000 ms / TE 30 ms) shows the accessory or anomalous anconeus epitroclearis muscle (large arrow) and abnormal high signal intensity of the ulnar nerve due to oedema (small arrow). **Origin:**
Description: Coronal T1W image (TR 450 ms / TE 20 ms) shows the enlarged ulnar nerve (arrow).

Origin:
Description: Coronal T1W image (TR 450 ms / TE 20 ms) shows the accessory or anomalous anconeus epitroclearis muscle (arrow). Origin:
Description: Coronal FatSat PDW image (TR 1800 ms / TE 30 ms) shows the abnormal high signal intensity of the ulnar nerve (arrow). Origin:
Description: Sagittal T1W image (TR 400 ms / TE 20 ms) shows the anconeus epitrochlearis muscle (large arrow) just posterior to the ulnar nerve (small arrow). Origin:
Description: Sagittal gradient echo T2* image (TR 410 ms / TE 13 ms) shows abnormal high signal intensity of the ulnar nerve (small arrow) anterior to the accessory muscle (large arrow). Origin: