



## Case Report

# Anconeus epitrochlearis muscle resulting in cubital nerve compressive neuropathy: Two case reports

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## ABSTRACT

**Background:** The anconeus epitrochlearis muscle is an anatomical variant prevalent in amphibians but unusual in humans. In favorable cases, this muscle provides protection to the cubital nerve but can result in neuropathy due to compression of the cubital nerve.

**Case Description:** We present two cases with different clinical manifestations but both did not respond to conservative treatment. We opted for a surgical decompression where the anconeus epitrochlearis muscle was found intraoperatively, and the muscle fibers were dissected.

**Conclusion:** Considering the presence of the muscle variant is the key point to intraoperatively achieve a complete dissection of the muscle fibers of the anconeus epitrochlearis muscle variant and obtain the decompression of the cubital nerve with satisfactory postoperative results.

**Keywords:** Anatomical variant, Anconeus epitrochlearis muscle, Compression, Cubital nerve, Neuropathy

## INTRODUCTION

Compressive neuropathy of the cubital nerve is the second most common compression due to entrapment after carpal tunnel syndrome. In common situations, cubital nerve compression can be static, between the cubital tunnel retinaculum and Osborne's ligament, specifically between the two heads of the flexor carpi ulnaris, or dynamic compression when the nerve has an inconsistent location outside the ulnar groove. The ulnar nerve sensory innervates the anterior and posterior surfaces of the fifth finger and the ulnar half of the fourth finger.<sup>[6]</sup> Neuropathy due to cubital nerve compression can be caused by entrapment of nerve roots from the cervical spine and entrapment from the brachial plexus.<sup>[2]</sup> The anconeus epitrochlearis muscle is an anomalous anatomical variable causing cubital nerve compression described in the cases to be reported, and this muscle originates in the medial epicondyle of the humerus arching over the cubital nerve and inserts into the olecranon. Its presence is unusual in humans but frequent in amphibians, reptiles, and some mammals. In favorable situations, the presence of this anatomical variant affords protection to the cubital nerve.<sup>[9]</sup>

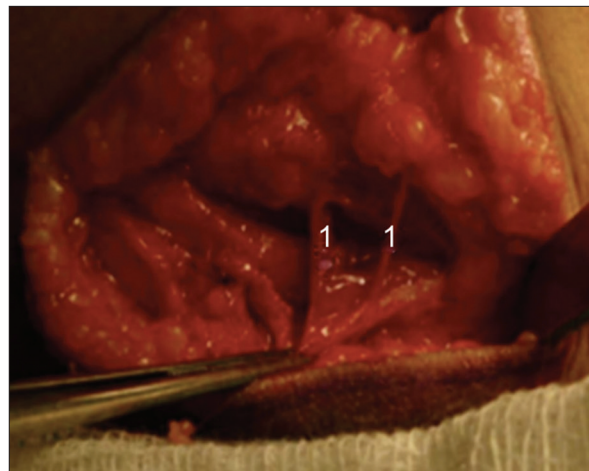
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## ILLUSTRATIVE CASES

### Case 1

A 14-year-old female patient who works in high effort tasks comes for examination due to bilateral paresis of the hands. Physical exploration showed severe hypertrophy in the hypothenar eminences of both hands and decreased articular strength in metacarpophalangeal flexion and interphalangeal extension. An electrical study showed a drop of conduction potentials at the elbow region bilaterally with predominance on the left side, which confirms the diagnosis of bilateral ulnar compression at the level of the epitrochlear canal. The patient was submitted to bilateral surgical decompression of the ulnar nerve. Intraoperatively, muscle fibers were recognized at the superior border of the insertion of the flexor carpi ulnaris corresponding to the anatomical anomalous variant anconeus epitrochlearis [Figure 1].<sup>[10]</sup>



**Figure 1:** Cubital tunnel, left side. In the dissection of the flexor carpi ulnaris, is evidenced muscle fascicles of the anconeus epitrochlearis.<sup>[10]</sup> The number 1 on the image makes reference to the muscle fascicles of the anconeus epitrochlearis.

### Case 2

A 53-year-old male patient comes to the consultation for a clinical picture of paresthesia in the right hand with hyperalgesia with 3 months of evolution after a lumbar narrow lumbar canal surgery. The patient mentioned that his pain increased as an electric shock. Electromyography confirms the diagnosis of cubital nerve compression. There was no response to conservative treatment, so surgery was indicated. Intraoperatively, muscle fibers from the anconeus epitrochlearis muscle variant were identified compressing the cubital nerve, and they were liberated [Figure 2].



**Figure 2:** Decompression of the ulnar nerve by dissection of muscle fibers of the anconeus epitrochlearis.

## DISCUSSION

Entrapment neuropathies are pathologies that are frequently seen in the neurosurgeon's medical office, among which ulnar nerve entrapment neuropathy is the second most common neuropathy.<sup>[9,10]</sup> Compression of this nerve can be caused by various adjacent structures along its course, but the most frequently compromised site is at the level of the elbow.<sup>[7,9,10]</sup> There are multiple causes of ulnar nerve compression; among them, we find muscular variants, such as the presence of the anconeus epitrochlearis muscle, which was found to be present in our reported cases. This muscle is present in only 1–34% of the human population, and is more prevalent in animals.<sup>[4,10]</sup> Initially described by Schafer *et al.*<sup>[13]</sup> as an accessory muscle of the elbow, it is currently known that its function in our population is limited and it is known that if it develops, it could be a cause of nerve compression.<sup>[3,4,9,10,13]</sup> Due to its exceptional presence, not all physicians and surgeons take it into account when diagnosing the cause of ulnar nerve entrapment.

Studies in various countries around the world have reported cases of neuropathy due to ulnar nerve entrapment secondary to the presence of the anconeus epitrochlearis muscle.<sup>[1,4,5,8,9]</sup> They describe an earlier presentation of the disease,<sup>[4]</sup> as evidenced in our first described case. They also describe a faster symptomatic progression,<sup>[8,11,12]</sup> like the one we reported in our second case. Therefore, it should be noted that when we are dealing with cases with early-onset and rapidly progressive ulnar nerve compression symptoms, the anconeus epitrochlearis muscle must be considered as one of the possible causes of nerve entrapment. In this way, if the patient does not improve with conservative management and is a candidate for surgery, we could benefit from our diagnostic suspicion, by previously carrying out correct surgical planning.

## CONCLUSION

Despite its low prevalence, the presence of epitrochlear anchorius muscle should be considered by doctors when the patient does not recover from conservative treatment. Considering the possibility of finding the muscle variable, it is possible to act efficiently and quickly, being able to obtain the best surgical result without less motor deficit due to compression in the postsurgical period of the patients.

## Declaration of patient consent

Patients' consent not required as patients' identities were not disclosed or compromised.

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## Conflicts of interest

There are no conflicts of interest.

## Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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