Ulnar nerve entrapment at the elbow by persistent epitrochleoanconeus muscle

Case report

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A case of ulnar nerve entrapment in the cubital tunnel by persistent epitrochleoanconeus muscle is reported. The anatomy of the anomalous muscle is outlined, and previous cases are briefly summarized.

KEY WORDS · ulnar nerve entrapment · cubital tunnel syndrome · epitrochleoanconeus muscle

Ulnar nerve entrapment at the elbow is quite a frequent occurrence, and may be due to various factors, including trauma, osteoarthritis, occupational compressions, and deformity of the elbow. An unusual case of compression of the ulnar nerve by a persistent epitrochleoanconeus muscle is presented.

Case Report

This 17-year-old girl had a 3-month history of pain in the right elbow and medial part of the forearm. The pain was associated with paresthesias in the ulnar side of the palm, the little finger, and the ring finger, and the patient noticed a progressive difficulty in fine movement. There was no history of specific trauma.

Examination. The hypothenar and interossei muscles were wasted and weak, and the medial side of the palm and the last two fingers were numb. Electromyographic examination of the adductor pollicis, abductor digitii minimi, and flexor carpi ulnaris muscles demonstrated fibrillation potentials at rest, with reduced voluntary motor activity.

Motor nerve conduction velocity was 75 m/sec in the elbow-to-wrist portion of the ulnar nerve, 58 m/sec in the axilla to elbow portion, and 16 m/sec in the cubital groove. Sensory nerve conduction velocity was 63 m/sec in the elbow-to-wrist portion, and 16 m/sec across the elbow. Motor and sensory distal latencies were both normal.

Operation. A small, partially fibrotic muscle was found in the medial cubital region. It joined the caput humerale with the caput ulnare of the flexor carpi ulnaris muscle and covered the cubital groove. The anomalous muscle was identified as a persistent epitrochleoanconeus muscle. The muscle was detached from the olecranon, which revealed below it an ischemic compressed ulnar nerve (Fig. 1). Through the microscope, there appeared to be a rapid return of the circulation in the nerve with relief of the compression.

Postoperative Course. One month later, neurological examination showed: 1) a persistent sensory deficit in the ulnar side of the palm and in the little finger and ring finger; 2) persistent atrophy of the hypothenar eminence and interossei muscles; and 3) improvement of the fine finger movements. Electromyographic examination of the adductor pollicis, abductor digitii minimi, and flexor carpi ulnaris muscles showed improvement of voluntary motor activity, particularly in the adductor pollicis. Motor conduction velocity in the cubital groove tract was 25 m/sec. The value of 16 m/sec of the sensory conduction velocity in the olecranon groove remained unchanged.

Discussion

The epitrochleoanconeus muscle is normally present at the elbow joint in various animals, including primates. When persistent in man, it is considered anomalous. According to earlier anatomists,
Ulnar nerve entrapment

FIG. 1. Diagram showing the anatomical details found at surgery. a = ulnar nerve; b = epitrochleoanconeus muscle; c = flexor carpi ulnaris muscle (c' = humeral head, c" = ulnar head); and d = triceps muscle.

it may be found in 25% of human beings. In more recent investigations, the persistence of this muscle has been reported with different rates: Bando found 45 cases in a series of 157 patients, Clemens found one in 100 patients, and Mumenthaler found 10 among 56 patients.

The epitrochleoanconeus muscle may present in different sizes and shapes, and is located over the cubital groove, extending from the origin of the humeral head to the origin of the ulnar head of the flexor carpi ulnaris muscle. Spinner considered it an extension of the medial portion of the triceps muscle, but it is always innervated by the ulnar nerve. According to Testut, the fibrous ligament that forms the roof of the cubital groove is a remnant of the epitrochleoanconeus muscle.

The clinical importance of this anomalous muscle as a factor in ulnar nerve entrapment at the elbow has been stressed only recently. Wachsmuth and Wachtman successfully treated 16 cases of epitrochleoanconeus muscle compression of the ulnar nerve with myotomy and anterior transposition of the nerve. Two similar cases were reported by Kurihara, et al., eight cases by Chalmers, and one by Hirasawa, et al. In the latter two series, as in our patient, good results were obtained by resecting the muscle, without transposition of the ulnar nerve.

References

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Manuscript received December 30, 1980. Accepted in final form June 2, 1981.

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