

Lateral elbow pain caused by anconeus compartment syndrome

A case report

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A carpenter presented with lateral elbow pain and bulging tenderness and impaired function of the anconeus muscle. Computed tomography showed enlargement of the muscle. The intracompartmental pressure was increased at rest, during and after exercise, and had a prolonged recovery time. The patient recovered immediately after fasciotomy of the anconeus muscle, and 6 months later he was still free from pain and intracompartmental pressures were normal.

Lateral elbow pain is commonly associated with lateral epicondylitis, entrapment of the posterior interosseous nerve, or intrarticular diseases of the elbow joint. Exercise-induced pain in the forearm due to a chronic compartmental syndrome of the extensor muscles has previously been described (Rydholm et al. 1983a, Kutz et al. 1985). We report the first case of lateral elbow pain due to a chronic compartment syndrome of the anconeus muscle, and successfully treated by fasciotomy.

Case history

A 45-year-old right-handed carpenter had had increasing pain in his left elbow for 10 months when admitted to our hospital. He had been diagnosed and treated nonoperatively as lateral epicondylitis without success. He had no pain at rest, but experienced lateral elbow pain and

muscular dysfunction during heavy work, and he had been unable to work for half a year. There was a slightly bulging mass and pronounced tenderness of the anconeus muscle. Pain was aggravated and reproduced by repeated extension of the elbow and pronation of the forearm. ESR and radiographs were normal, but CT revealed a slight swelling of the left anconeus muscle (Figure 1).

The intracompartmental pressure of the anconeus muscle at rest, measured with the wick catheter method (Mubarak et al. 1976), was 14 mmHg in the left arm, compared with 4 mmHg in the right arm. Upon exercise the pressure increased to a maximum of 130 mmHg and 30 mmHg, respectively. After exercise the pressure did not normalize within 4 min on the left side but within 0.5 min on the right side.

Fasciotomy was performed under local anesthesia. Peroperatively, the compartmental pressure was normal at rest, increased to 80 mmHg during exercise, and recovered slowly. A broad fasciotomy with excision of a 2-cm strip of the fascia was performed. After fasciotomy the pressure at rest was 0 mmHg, at work 30 mmHg, and recovered rapidly after exercise. Postoperatively, the patient was free from pain. Six months later, he was still asymptomatic and the intracompartmental pressures were normal.

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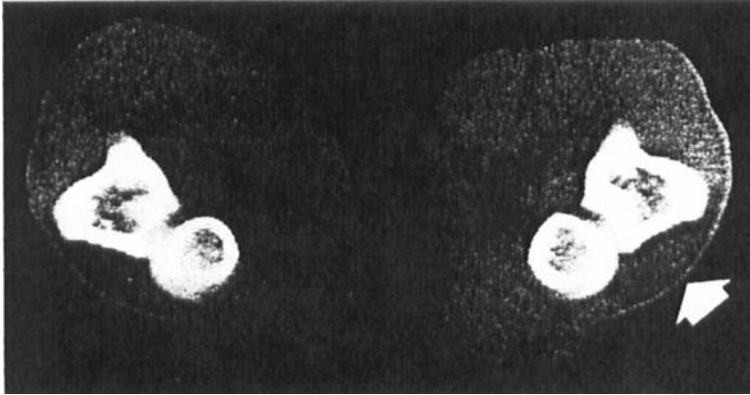


Figure 1. Computed tomography of the left and right forearm through the radial head at exactly the same level on both sides. Slice thickness, 5 mm. The anconeus muscle is larger on the left (arrow) than on the right side, but there is no definite difference in attenuation.

Discussion

Exercise-induced compartmental syndrome with acute onset in the second interosseous compartment of the hand (Reid and Travis 1973) and in the extensor muscles of the forearm (Tompkins 1977, Imbriglia and Boland 1984) has been reported. Chronic compartmental syndrome in the first dorsal interosseous muscle after strenuous activity has recently been reported (Phillips et al. 1986, Styf et al. 1987). We describe the first case of a chronic compartment syndrome in the anconeus muscle.

The muscle originates from the posterior region of the lateral humeral epicondyle and inserts on the olecranon and the proximal third of the ulna. Its main function is extension of the elbow joint and abduction of the ulna when the forearm is pronated (Basmajian and Griffin 1972, Gleason et al. 1985). The muscle is innervated by the radial nerve.

In the healthy forearm the intramuscular pressure is 2–11 mmHg. In chronic compartment syndromes the pressure may be increased (Mubarak et al. 1976, Rydholm et al. 1983a), but Wallensten (1983) reported normal pressures at rest in lower legs. In our case the pressure was slightly increased in the affected compartment.

In healthy compartments after exercise, the intramuscular pressure normalizes instantly or within 6 minutes (Rydholm et al. 1983a, Wallensten 1983, Reneman 1968). It is well known that

muscles with chronic compartment syndrome require an extended time for normalization of the pressure after exercise (Reneman 1968), but different pressures and intervals have been stated to be diagnostic of the syndrome (Hargens et al. 1977, Styf 1986, Rorabeck 1986). The different criteria for normal and pathologic values may be explained by variations in tissue pressure between different muscular compartments and by different techniques used. We found an almost momentary normalization of the pressure in the healthy compartment, but a recovery time exceeding 4 minutes in the affected compartment.

Swelling of a muscle compartment can be demonstrated with CT (Rydholm et al. 1983b). However, the CT findings are nonspecific, and recording of the intracompartmental pressure is necessary to establish the diagnosis.

In our patient a broad fasciotomy was necessary for optimal treatment because the intracompartmental pressure in the anconeus muscle was not normalized until a 2-cm strip was excised from the fascia.

We conclude that a chronic compartmental syndrome of the anconeus muscle should be considered as a differential diagnosis in cases with lateral elbow pain. The diagnosis is established by recording the intracompartmental pressure of the muscle and by computed tomography.

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