

PROCESSUS SUPRACONDYLOIDEA HUMERI WITH CONCOMITANT COMPRESSION OF THE MEDIAN NERVE AND THE ULNAR NERVE

PER B. THOMSEN

Department of Orthopaedic Surgery, Hjørring Hospital, Hjørring, Denmark.

Compression of the median nerve and the ulnar nerve due to the anatomical anomaly processus supracondyloidea humeri is a rare condition. A case of combined median and ulnar nerve compression is described. Diagnostics and treatment are discussed in the light of the present case history and those described in the literature. The conclusion is that the treatment should be subperiosteal resection of the process together with the origin of the pronator teres muscle.

Key words: supracondylar process; anatomical variation; nerve compression; median nerve; ulnar nerve; operative treatment

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Processus supracondyloidea humeri (PSH) is a well-known congenital and often hereditary anatomical variation which in the European population occurs with a frequency of approximately 1 per cent (Terry 1930).

Due to its anatomical location PSH may in rare cases result in compression of the median nerve, the ulnar nerve and the brachial artery. In the literature, 13 cases have been described of definite symptomatic compression of the median nerve due to PSH (Barnard & McCoy 1946, Gantert & Alzheimer 1956, Goulon et al. 1963, Kessel & Rang 1966, Mandruzato 1938, Moraes 1950, Mumenthaler 1961, Solieri 1929); there have been four cases of compression of the ulnar nerve (Fragiadakis & Lamb 1970, Goulon et al. 1963, Mumenthaler 1961) as well as one case with combined compression of the median and the ulnar nerve (Mumenthaler 1961).

The purpose of this paper is to describe a case of combined compression of the median and the ulnar nerve.

CASE REPORTS

A 20-year-old female clerk was referred to the department in October 1974 after 6 months with symptoms of right-sided compression of the ulnar nerve and, to a lesser extent, of the median nerve as well, without any history of injury. The symptoms consisted of paraesthesia and dysaesthesia in all five fingers. Furthermore, there were symptoms of hypersensitivity to cold, increased sweating, a feeling of rigidity and slightly reduced strength.

The symptoms were aggravated by use of the hand and fingers, particularly during pronation of the forearm, but they also continued as resting phenomena after working for some length of time. There was also pain along the inside of the upper arm, and gradually the symptoms began to interfere with the patient's work.

On examination she had light dysaesthesia of all fingers, but no atrophy or paresis of the hand muscles. Five centimeters proximal to the

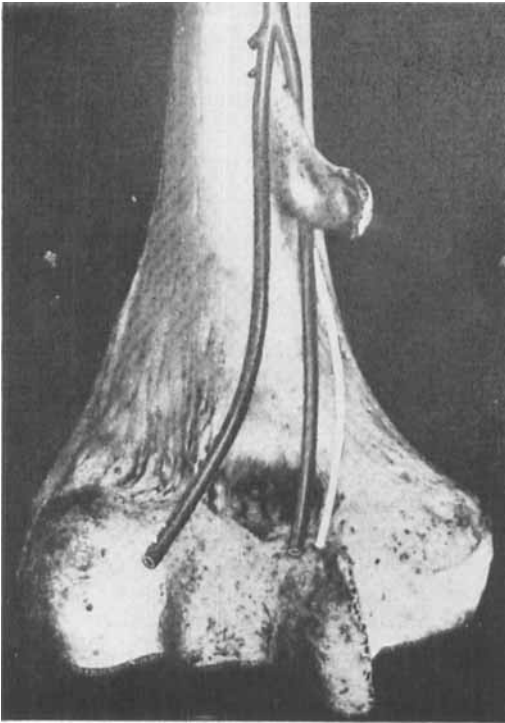


Figure 1. The supracondylar process, the position of the median nerve and the brachial artery and branches (From Köhler & Zimmer 1967).

medial epicondyle a pressure-tender bony prominence could be felt, and pressure in this area caused paraesthesia in all of the hand. There was normal pulsation. Roentgenograms of the right elbow and upper arm showed a 15 mm long processus supracondyloidea humeri. At operation a distended median nerve and brachial artery were found passing beneath the process from behind and continuing profound to the part of the pronator teres muscle which originated from the process. The ulnar nerve passed behind the brachial artery and behind the process, but close to the latter. The nerves were found to be slightly succulent and greyish. The bony process was chiselled subperiosteally and removed along with the connecting part of the pronator teres muscle allowing the artery and nerves to pass without stretching. There were no symptoms at all after 3 weeks, but after 2 months the patient complained of recurrence of the symptoms of ulnar nerve compression in the right arm. At objective examination the only symptom appeared to be percussion paraesthesia released from the upper edge of the cubital tunnel. A simple decompression of the ulnar nerve was carried out and the nerve was found

to be without changes. The previous field of operation was explored but osseous recurrence or cicatricial changes as the reason for the ulnar compression were not found.

There was an instant relief after this intervention. However, 6 weeks later gradually increasing ulnar nerve compression symptoms recurred, little by little, with release of percussion paraesthesia from the area around the previous PSH. Eight months after the second operation an ante-position of the right ulnar nerve was carried out and compressing cicatricial fibrosis was found around the ulnar nerve for a distance of approximately 4 cm just distal to the previous PSH.

After the latter operation the symptoms disappeared gradually, and at a follow-up examination 4 months later the patient had been back to full-time work for 3 months. From time to time there had been only very brief, par-

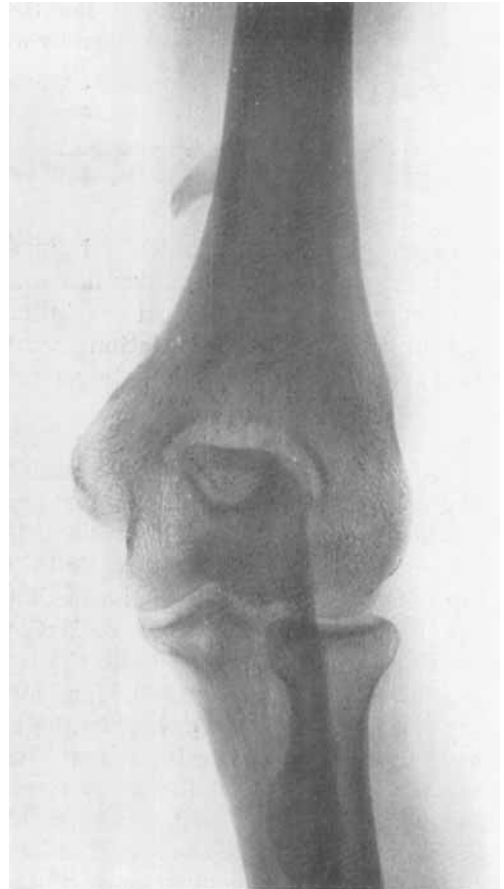


Figure 2. X-ray of the right humerus in our patient, showing the supracondyloid process.

aesthesia-like sensations in the fourth finger which had not interfered with her work. Objective examination showed no difference between the two upper extremities and there was no sign of osseous recurrence.

DISCUSSION

Symptomatic nerve compression caused by PSH is, according to the literature, exceedingly rare and consequently it might be overlooked even if the diagnosis is relatively easy.

Compression of the median nerve is much more frequent than compression of the ulnar nerve, most likely because the ulnar nerve, as described by Goulon et al. (1963), rarely takes a course which brings it in direct contact with PSH.

The diagnosis is based on non-traumatic median or ulnar nerve compression related to a palpable and roentgenologically apparent beak-like prominence in an anteromedial position on the distal humerus. It is characteristic that the symptoms are aggravated by lower arm pronation as described by Barnard & McCoy (1946), which was also the case in the patient presented here. Among others Kessel & Rang (1966) have described compression of the brachial artery or, in cases of a high division of this artery, of the ulnar artery, giving ischaemic pain in the forearm and the hand—"forearm claudication". In the patient presented here, there was peroperative indication of light compression of the brachial artery, but no symptoms of "forearm claudication".

According to most authors, the treatment of PSH consists of operation with subperiosteal resection of the process and the part of the pronator teres muscle

which originates from it. Subperiosteal chiselling is necessary in order to avoid recurrence of PSH, as in the case presented by Solieri (1929).

The reason why the present patient had to be operated upon three times was the fact that besides symptomatic PSH she developed both compression of the ulnar nerve in the cubital tunnel and postoperative perineural fibrosis.

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Correspondence to: Per B. Thomsen, Sdr. Boulevard 160, DK-5000 Odense, Denmark.