

# UNUSUAL FIBROUS BAND IN THE BRACHIUM – A PROBABLE REMNANT FROM THE RARE CHONDROEPITROCHLEARIS MUSCLE

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## ABSTRACT

An unusual fibrous band in the medial brachial region was found during routine anatomical dissection of the left upper limb of a 67-y-old female cadaver. This interesting structure started from the posterior layer of the pectoral major fascia. The fibrous band emerged from the lower border of the pectoralis major close to its humeral attachment, it then crossed obliquely downwards and posteriorly the medial brachial region and finally it was attached to the medial epicondyle of the humerus. Most probably, this fibrous structure represents a remnant from the chondroepitrochlearis - a variant muscle that is rarely observed in man. Because this fibrous band has very close relations to the brachial vessels and the median and ulnar nerves in the arm, in certain circumstances it may probably cause neurovascular compression.

**Key words:** *arm region, aberrant fibrous band, chondroepitrochlearis, neurovascular entrapment, clinical significance*

## INTRODUCTION

Along their course in the arm, the median and ulnar nerves and brachial vessels are usually not overlapped by any muscular or tendinous structures (13). The well-known entrapment neuropathies of the median and ulnar nerves are commonly found distally at several points from the elbow region to the wrist (1,3,13,14). Nevertheless, there are few reports of muscular or musculoaponeurotic variant structures in the arm, possibly producing clinical symptoms

of neurovascular compression (1,13). Herewith, we report such an intriguing aberrant structure.

## CASE REPORT

During routine anatomical dissection of the left upper limb of a 67-y-old caucasian female cadaver from the autopsy material available at the Department of Anatomy, Histology and Embryology of the Medical University of Sofia, an unusual fibrous band in the brachium was observed (Fig. 1). It was a narrow structure, with a width of 2.5 mm, but running obliquely along the whole brachium. This aberrant structure started with several slips from the posterior layer of the pectoralis major fascia. Then it emerged from the lower border of the pectoralis major muscle close to its humeral attachment, it crossed obliquely downwards and posteriorly the medial brachial region and it finally inserted to the medial epicondyle of the humerus. From the most proximal to the most distal attachment, the fibrous band showed a length of 32.7 cm. Along its course through the arm, this aberrant fibrous structure crossed the brachial artery and vein and the median

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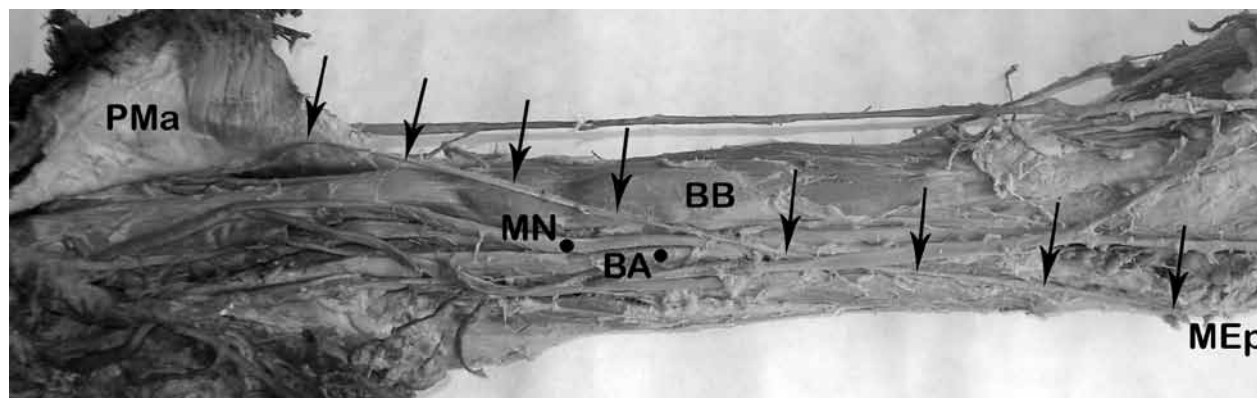
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nerve in the middle of the arm. In the distal part of the arm, the ulnar nerve was found between the fibrous band and the medial head of triceps brachii. Because of its characteristics, most probably, this fibrous structure represents a connective tissue remnant from the chondroepitrochlearis - a variant muscle that is rarely observed in man (2,4,6,8,11).

extremely rare cases, the whole embryonic anlage of the chondroepitrochlearis can be replaced by fibrous tissue and an aberrant fibrous slip, such as the reported here, may be present.

The presence of chondroepitrochlearis muscle in livings can create different clinical problems such as functional deficit in abduction, compression



*Fig. 1. Photograph of the aberrant fibrous band (arrows): PMa – pectoralis major muscle; BB – biceps brachii muscle; MEp – medial epicondyle; MN – median nerve; BA – brachial artery*

## DISCUSSION

According to many authors, the chondroepitrochlearis belongs to the pectoralis major anomalies (2,10). It is a rare unilateral or bilateral muscular structure with variable origin and insertion. This aberrant muscle may arise from the pectoralis major muscle, some ribs or costal cartilages, or the aponeurosis of the external oblique muscle (5,6,10,11). It may be inserted into the medial epicondyle of the humerus, the brachial fascia, the medial intermuscular septum or medial aspect of the humerus (2,4,6,8,11,12). According to Loukas et al. (8), this variant muscle may be renamed as “thoracoepicondylaris”, a term which more accurately reflects its origin and insertion. Despite described as muscle or muscular bundle, in fact, a longer or shorter part of the chondroepitrochlearis may be tendinous. There are descriptions of a compound variety of the muscle having a long distal tendinous part (4) and also a digastric variety with an additional middle tendon (9). Concerning its origin, Landry et al. (7) concluded that the absence of the tendon twist of the pectoralis major is associated with the presence of chondroepitrochlearis. As an extension of this view, we suggest that in some

of the axillary neurovascular structures, ulnar nerve entrapment or simply cosmetic deformities (4,8,11,12). Despite having no proper action, in some arm movements the reported variant fibrous slip may stretch over the median nerve and brachial vessels in the middle of the arm or over the ulnar nerve in the distal part of the arm thus causing neurovascular compression syndromes. Therefore, it may have clinical importance and be of particular interest to orthopedic surgeons, vascular surgeons and neurologists.

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