

## A rare case of possible median nerve entrapment

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### ABSTRACT

Biceps brachii muscle is very variable. Biceps may be composed of one to five heads. Although the variations in the origin are plenty, there are a very few cases reported on the variations in the insertion of the biceps brachii muscle. In this report we present a variant biceps brachii muscle which gives an abnormal muscle fasciculus from its medial side which continues as a narrow tendinous slip and is inserted in to the medial supracondylar ridge of humerus. We discuss in this report, the possible median nerve entrapment due to the presence of such a variation. *Neuroanatomy; 2006; 5: 35–36.*

**Key words** [median nerve] [entrapment] [biceps brachii muscle] [abnormal insertion]

### Introduction

The most studied and reported upper extremity nerve entrapment problem is those related with median nerve. Among these, the most common one is the carpal tunnel syndrome. Because this condition is studied so often, clinicians may be too eager to assume the presence of carpal tunnel syndrome for any kind of median nerve compressions. Here in this report we discuss the possible median nerve entrapment in the cubital fossa by an abnormal tendinous slip from the biceps brachii muscle.

### Case Report

During the routine dissection for medical students, we found an abnormal insertion of biceps brachii muscle unilaterally in a male cadaver. The origin of this biceps brachii was normal. The muscle followed a normal course and most of the muscle fibres formed a round tendon and was inserted to the radial tuberosity of radius. But some of the fibres from the medial side below the level of the middle of the arm formed a separate muscle bundle and continued as a narrow tendinous slip. This slip soon divided into two- the lateral slip was found superficial to brachial artery and median nerve and the medial slip was deep to them. The lateral slip crossed the cubital fossa, merged with the fascial covering of the flexor carpi ulnaris and was found compressing the brachial artery and the median nerve. The medial slip curved medially and was attached to the medial supra-condylar ridge of the humerus (Figure 1).

### Discussion

The important variations of biceps brachii reported by Macalister as follows [1];

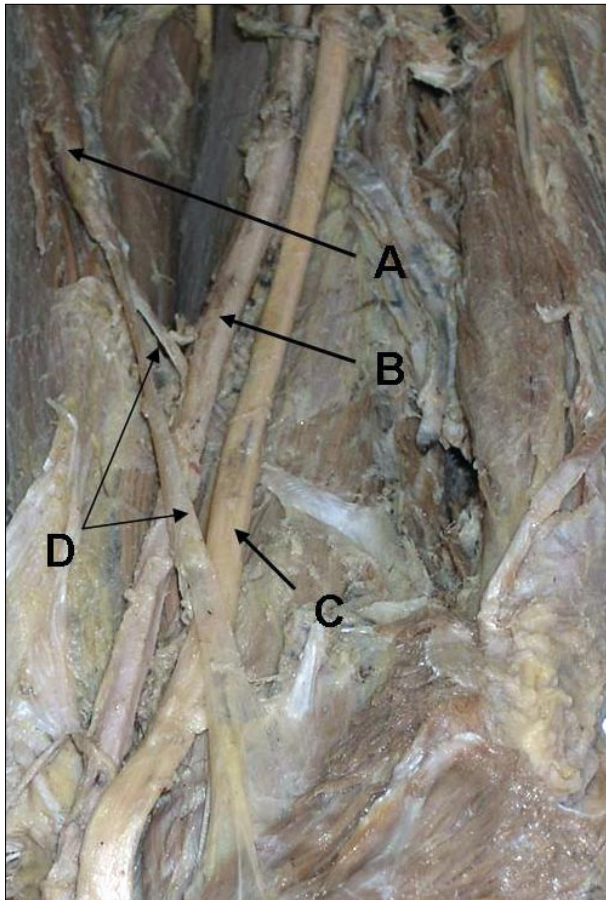
1. The muscle may be entirely suppressed,
2. The fascial insertion may be absent in one arm,
3. Long head arising from the capsular ligament,
4. Or from the bicipital groove,
5. Presence of a slip to the short head from the insertion tendon of pectoralis minor,
6. Presence of a third head arising directly from the brachialis muscle.

A separate slip from coracobrachialis continuous with the short head is described by Wood and Macalister. They also described a doubled coracoid head and this anomalous portion may join the main body of the muscle, or else it may unite with the normal coracoid head before that portion of the biceps joins the long head [1, 2].

Mori described various origins of the third or accessory head as follows: In 50 arms there were 10 (20%) arms with a third head of the biceps [3]. The origins of these additional heads were:

1. The distal portion of the deltoid tuberosity (4 arms, 8%),
2. Near the point of the humeral insertion of coracobrachialis (3 arms, 6%),
3. The terminal tendon of pectoralis major (2 arms, 4%).

The two other accessory heads are rare and take several different forms. When fully developed, they arise close together from the neck of the humerus, below the lesser tubercle and behind the pectoral tendon to which they



**Figure 1.** Anterior view of arm. Color version of figure is available online. (A: The extra muscle fasciculus from the biceps brachii muscle; B: Brachial artery; C: Median nerve; D: Tendinous slips from the extra muscle fasciculus)

## References

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may be more or less joined. The more lateral of the two slips joins the long head of the muscle, whereas the medial joins the short head [3].

In other instances (Spinner et al), the two heads of the biceps muscle may be totally separate or fused and either head may be absent. In the absence of the long head, the tendon may be found arising from the bicipital groove, one of the tubercles, the capsule of the joint, or the tendon of pectoralis major. The tendon may be doubled or it may be represented only by the aponeurosis [4].

The aponeurosis, which may be doubled, may compress the median nerve as found in the anterior interosseous nerve syndrome [1]. In the present case, Biceps brachii had an accessory muscle fasciculus which continued as a tendinous slip. This variation is different from the cases of doubling of bicipital aponeurosis. This may mimic the situation of the median nerve compression underneath the biceps aponeurosis. The sensory and motor signals will be almost identical, making it difficult to distinguish these two regions of entrapment without more specific physical examination, such as orthopedic special test and nerve conduction studies [3].

The median nerve carries both motor and sensory fibers. Therefore, compression of the nerve may create both sensory and motor deficit. The sensory symptoms are located primarily in the palm. They include pain, paresthesia, and numbness [1]. The median nerve and its branches innervate primarily the flexors of the wrist and fingers, as well as several muscles of the thumb. Motor problems from median nerve compression usually show up as weakness in grip strength or atrophy of the thenar eminence [1, 2].

Considering the entire length of the median nerve, there are numerous locations that median nerve entrapment may occur. It is very much essential to thoroughly evaluate the problem before coming to a conclusion about the presence of the popular compressive neuropathies.