A Third Head Of Biceps Brachii Muscle

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ABSTRACT

Biceps brachii with additional third head of origin was found in a seventy two year old male donated cadaver. This head was originating from the deltopectoral fascia. Presence of this additional head will be important for surgeons.

1. Introduction

The biceps brachii is a large fusiform muscle of the flexor compartment of the arm. It is the only flexor muscle that crosses the shoulder as well as the elbow joints. Normally biceps has two heads of origin. The long head is proximally attached to the supraglenoid tubercle and adjacent portion of glenoidal labrum. The short head arises from the tip of the coracoid process of scapula along with the coracobrachialis. Both bicipital tendons lead into elongated bellies which, though closely applied, can be separated within 7cm or so of the elbow joint where they end in a flattened tendon. It is inserted into the posterior rough part of the radial tuberosity. Here a bursa separates the tendon from the smooth anterior area of the radial tuberosity. The tendon has a broad medial expansion the bicipital aponeurosis descending medially across the brachial artery and fuses with the deep fascia of forearm flexors[1].

In present case, we found an additional head of the biceps brachii muscle on the left side.

2. CASE STUDY

During routine dissection of the upper limb for the undergraduate students, a third head of biceps brachii was found in a seventy two year old male donated cadaver on the left side. Its short and long heads had normal origins. The third head had a tendinous origin from the deltopectoral fascia at the lower end of deltopectoral groove (fig.1). This head was found to fuse with common belly formed by the long and short heads of the muscle. It was supplied by a branch from the musculocutaneous nerve. The biceps brachii on right side was found to be normal.

3. DISCUSSION

Three different origins have been described for the third head of the biceps brachii: (1) from the humeral shaft inferior to and in common with the insertion area for the coracobraclialis; (2) a brachial origin in which the muscle originated distally from the medial humeral shaft, adjacent to and in common with the brachialis muscle; (3) a dual origin in which the medial fibres originated from the short head of biceps brachii and the lateral fibres from the deltoid fascia and the insertion area of this muscle[2].

In the present case, third head was arising from the deltopectoral fascia which is one of the rarely reported finding.

Biceps brachii muscle is known to show wide range of variation in terms of morphology. Incidence of variations on biceps brachii is more in males comparative to females[2, 3].

According to study by Mamatha, et al the presence of number of additional heads and their details of attachments were studied. They observed presence of supernumerary heads of biceps brachii in 6 (15%) cases, in which having three heads was observed in five cases (12.5%) and four heads in one case (2.5%). In one case, they noticed bilateral incidence with three heads on left side and four heads on right side[4].

Kumar et al reported that the two heads of the biceps arose from its usual position but the anomalous third head arose from the anterior limb of the 'V' shaped insertion of the deltoid muscle on the humerus. The third head was found to fuse with the common belly of the muscle well before the bicipital tendon and its aponeurosis[5]. The incidence of third head of biceps was merely 2.3% in the study conducted by Cheema et al in north Indian population[6].
Vinnacota concluded that the incidence of supernumerary heads of biceps brachii ranges from 9.1% to 22.9%. Out of this the third head is reported in 7.5% to 18.3% cases[7].

Several authors have studied racial variation in different populations like South African blacks 20.5%, south African whites 8.3%, Nepalese 10.2%, Columbian 37.5% and Brazilian blacks 9% and Brazilian whites 20%[2,3,8,9].

Presence of third head of biceps brachii muscle might increase its kinematics i.e. it may increase the power of flexion and the supination component [5]. This extra head is also likely to cause compression of surrounding neurovascular structures and may not cause unusual displacement of fractured segments [10]. This also will be useful component of flap surgery [11].

**Fig 1 shows three heads of biceps: 1- Long head , 2- Short head and 3- third head**

4. REFERENCES:


