Case Report

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Biceps Anatomical Aberration in a Cadaveric Study

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Abstract

In a routine cadaveric dissections in a cadaver the short head of Biceps Brachii tendon (SHBT) showed bifurcated in attachment with the belly of the Pronator Teres muscle seen along with its usual course of attachment with the radial tuberosity. This was seen bilaterally on both the upper limbs in the same body during the anatomical dissection. Here the biceps brachii was originating from the long head from the supraglenoid tubercle from the capusular joint and the short head from the coracoid process of scapula.

Keywords: Biceps Brachii and Pronator Teres Muscle; Extrarticular Insertion; Cadaver.

Introduction

In the upper extremity the anterior compartment forms the flexor group muscles of which along with the coracobrachialis the Biceps Brachii plays a major role in flexing the arms and the elbow joint. It compensates the action with the Triceps Brachii the posterior compartment muscle of the brachium which forms the extensors.

It is a large fusiform muscle of that compartment [3,8] and a primary supinator of the forearm. Biceptal aponeurosis, a triangular band formed from the deep fascia originates from the biceps tendon. This aponeurosis gives protection to the cubital fossa. A third head is also reported seen posterior to the brachial artery [8].

It originates from long and short heads from supraglenoid tubercle and coracoids process of scapula respectively.

And both the heads converge with the two belles and gets inserted into the posterior part of the tuberosity of radius bone [9].

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Fig. 1: Rt. Side Arm

Figure 1 shows Biceps Brachii in the front of forearm and the Cubital fossa below.

Red arrow shows the LHBT inserting into the radial tuberosity.

Green arrow shows the SHBT and its extrarticular insertion was seen in the pronator teres muscle which is the medial border of Cubital Fossa (Fig. 1).

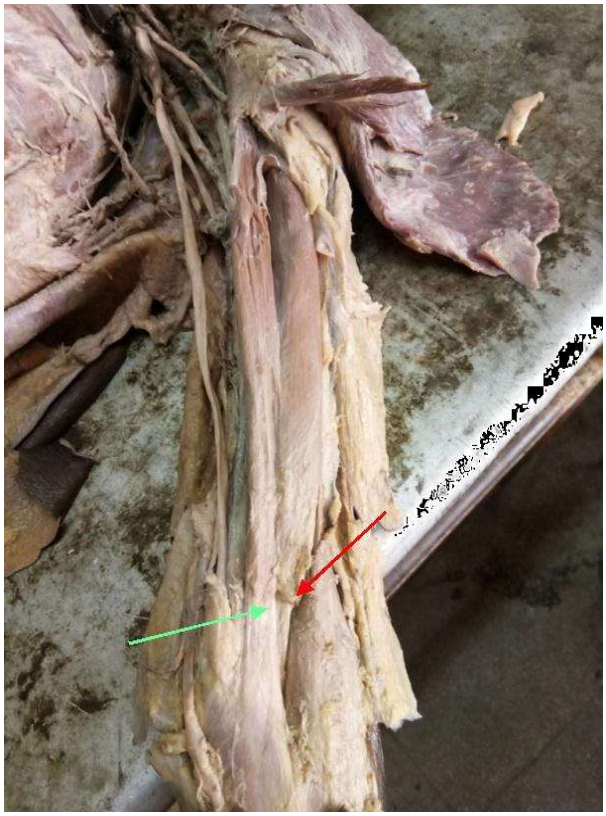

Fig. 2: Lt. Side Arm

Figure 2 shows Biceps Brachii in the front of forearm and the Cubital fossa below.

Red arrow shows the LHBT inserting into the radial tuberosity.

Green arrow shows the SHBT and its extrarticularinsertion was seen in the pronator teres muscle which is the medial border of Cubital Fossa (Fig. 2).

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In the year 2016 a male cadaver was procured to the Dept. of Anatomy, National Institute of Homoeopathy for the dissection purpose regarding teaching and training the undergraduate students which was procured from the R.G. Kar Medical College through the Director of Medical Education. It is know that such anatomical aberration may be seen due to any congenital or as anatomical anomalies. The short head of Biceps Brachii and the long head originated from their respective course but this extrarticular insertion was seen in the pronator teres muscle for the SHBT but the LHBT got inserted into the tuberosity of radius as usually. The arterial and nerve supply was normal.

Discussion

Different origin was noted in some case studes like The supernumerary head was a bulky muscle belly and originated from the medial lip of the intertubercular groove [1]. The absence of the long head of the biceps (LHB) tendon as reported in the fourth case of bilateral congenital anamaly of the LHB tendon under clinical studies conducted by using Ultrasonography (US) and magnetic resonance (MR) when the patient experienced anterior shoulder pain at rest that exacerbated with overhead activities. The pain was moderate for months but worsened in the last few weeks, specially seen after sports activity in another study by Rego Costa and et al. [6].

In one particular study 74 cadavers were dissected and observed in one year based on its variations in shape and insertion of the Biceps Brachii were found in 10 out of 74 cadavers (13,5%). In which 20 arms of the 10 cadavers, 14 had variations, thus, in 148 analyzed arms, only 9,4% varied. Bilateral variation occurred in 4 arms, and 2 of them were symmetric. Eight different types of variations were found in Brazilians as per Denize Augusto da Silva and others [4].

Bergman, Thompson and Afifi reported that the two heads of biceps brachii muscle may be totally separate or fused and either head may be absent. In the absence of long head, the tendon may be found arising from the bicipital groove, one of the tubercles of humerus, the capsule of then shoulder joint or the tendon of pectoralis major [2]. In a similar study by Hyman and Warren too came across an extra-articular origin of the long head of biceps brachii [7]. Sharadkumar Pralhad Sawant and others observed that in undergraduate dissections a male donated cadaver showed that the short head of the biceps brachii muscle got inserted into the radial tuberosity of the radius separately. The long head got inserted into the radial tuberosity and bicipital aponeurosis though the orgin was as usual [5]. In a detailed study by Subhalakshmi Wahengbam and others in a 35 adult cadavers which were dissected and observed for variations in the origin and insertion of biceps brachii muscle bilaterally. Among the 70 arms studied, three had 3-headed biceps brachii, 2 on the left and 1 on the right side.

All the third heads were of humeral origin, which inserted into the radial tuberosity by a common tendon with the long and short heads [10]. All such anomalies can be visualised during the daily activities or in extreme physical work but in the present work as the Cadaver was procured from the mortuary no details

of the case history is recorded or was available. Further it is possible the individual may have some discomfort in flexing the elbow but that must have substantiated with the Pronation muscles during his life.

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