

CASE REPORT

THIRD HEAD OF BICEPS BRACHII MUSCLE: A RARE CASE REPORT

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Abstract

Biceps muscle one of the muscle of the anterior compartment of the arm. It is one of the most variable muscles in the human body in terms of number and morphology Most of the variations of this muscle lies in its proximal attachment part. This muscle has two heads long and short head. In this case report we have observed a unilateral third head of biceps brachii in adult female cadaver during dissection. Knowledge of such variations is very important for surgeons who do operating procedure in the arm region.

Key words: Biceps brachii, clinical significance and Variation

Introduction

The biceps brachii muscle is classically described as a two headed muscle that originates proximally, with a long head from the supraglenoid tubercle and short head from the tip of the coracoid process of scapula. Distally these heads join to form a common tendon, which gets inserted to the posterior aspect of the radial tuberosity and

some aponeurotic fibres form bicipital aponeurosis which merges with deep fascia of forearm and mainly contributing to the flexion and supination of the forearm [1]. The medial brachial origin of the supernumerary heads of biceps brachii may contribute to pronation of forearm irrespective of shoulder joint position. In addition to elbow flexion independent of

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shoulder joint, the third head of biceps brachii may enhance the strength of elbow flexion [2]. The third head of biceps might cause compression of neurovascular structures in upper limb [3]. It is well known that a third head may extend from superomedial part of the brachialis to the bicipital aponeurosis and medial side of tendon in ten percent of cases [4].

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In the present case study we have observed a third head of biceps brachii in right arm of an old female cadaver (10% formalin fixed) during routine dissection of upper limb for under graduate students in the department of Anatomy, M.R.A. Medical College Ambedkar Nagar U.P. India. In both the arm short and long heads of the biceps brachii have their normal origin and insertion. On further observation in the right side, the cadaver had three head of biceps brachii muscle (Figure: 1). Most of the fibers of the additional third head of biceps brachii length- 7.2 cm and width-

2.1cm originated from pectoralis major muscle tendon. Third head of biceps brachii joined with muscle belly and inserted to the posterior aspect of the radial tuberosity and some fibres are merged with deep fascia of forearm. The additional third head was innervated by musculocutaneous nerve after piercing coracobrachialis, similar to the innervations of long and short heads and continued as lateral cutaneous nerve of forearm passing between brachialis and biceps brachii (Figure: 2,3). Vascular supply of third head of biceps brachii was from the brachial artery.

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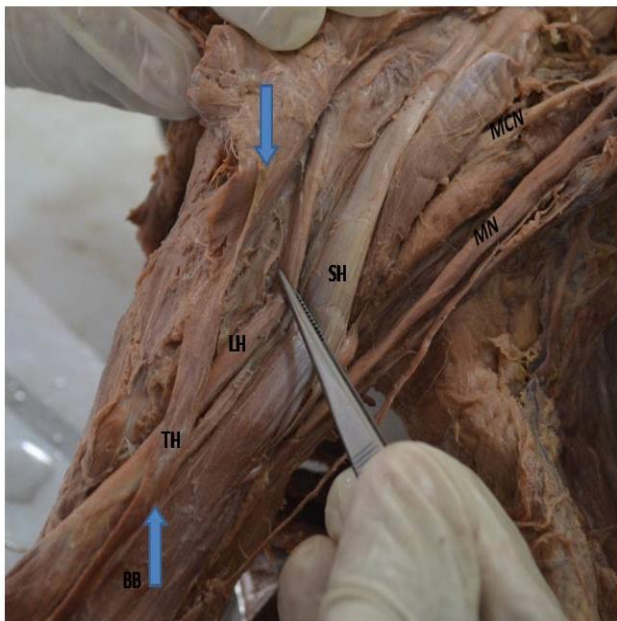


Figure.1: Dissected photograph showing third head of Biceps Brachii in Right Arm of upper limb originating from pectoralis major muscle and join with muscle belly of biceps brachii with arrow. (LH: Long Head; SH: Short Head; TH: Third Head; MN: Median Nerve; MCN: Musculocutaneous Nerve)

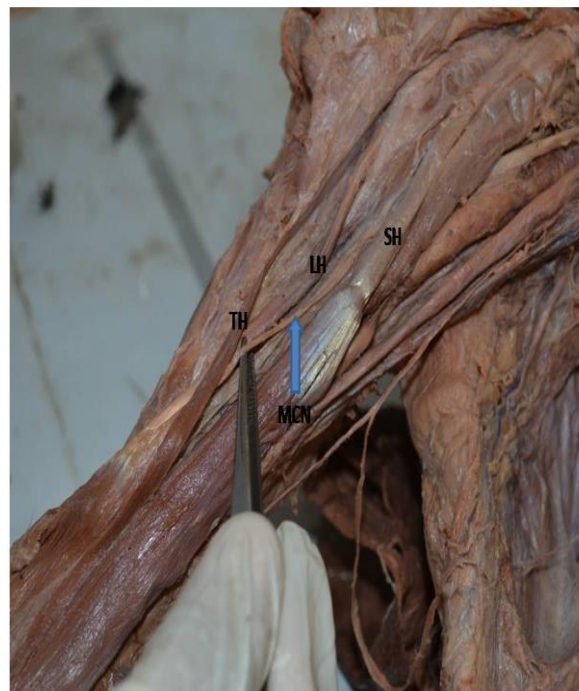


Figure.3: Dissected photograph showing third head of Biceps Brachii in right Arm of upper limb originating from pectoralis major muscle tendon and supplying by musculocutaneous nerve with arrow. (LH: Long Head; SH: Short Head; TH: Third Head; MCN: Musculocutaneous Nerve)



Figure.2: Dissected photograph showing third head of Biceps Brachii in Right Arm of upper limb originating from pectoralis major muscle and join with muscle belly of biceps brachii with arrow and inserted to posterior part of radial tuberosity. (LH: Long Head; SH: Short Head; TH: Third Head; BB: Biceps Brachii)

Discussion

Anatomical variations of the biceps brachii have been described by various authors, but the occurrence of third head of biceps brachii in an ipsilateral arm is rare. Incidence of unilateral three headed biceps brachii is common, a rare occurrence of bilateral supernumerary heads of biceps brachii [5]. The supernumerary heads of biceps brachii muscle are classified according to their locations as superior, infero-medial and infero-lateral heads [6].

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Though most of the supernumerary heads of biceps brachii muscle belong to these three groups, rare variations like acromial, labral and pectoral heads have also been previously [7]. In our present case report the accessory third head of biceps brachii mainly arose from Pectoralis major muscle tendon. The accessory third head may not give extra strength and may not cause an unusual displacement of fracture fragments of humerus; however, this extra head might cause compression of the Median nerve since it might pass between fibers of accessory head. The third head of biceps brachii may further enhance the strength of elbow flexion and supination. It is not known yet, whether or not, the extra head of biceps brachii means a specific functional adaptation of populations characterized for continuous moderate physical activity [8]. Third head of biceps brachii originated from the humeral shaft either inferior to, and in common with, the insertion area for the coracobrachialis, or in common with the

brachialis muscle [9]. Embryologically, during the fifth week of development, mesoderm invades the upper limb bud to further condense into ventral and dorsal muscle masses [10] and this variation of third head of biceps brachii as a portion of the brachialis muscle supplied by the musculocutaneous nerve in which its distal attachment (insertion) has been translocated from ulna to the radius [7].

Conclusion

Biceps brachii will be useful as a component of flap surgery. Knowledge of the existence of the third head of the biceps brachii may become significant in preoperative diagnosis and during surgery of the upper limbs for surgeons.

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