



Case Report

Unusual Origin of Supernumerary Head of Biceps Brachii - Rare Case Report

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ABSTRACT

Muscular variations are comparatively less when compared to vascular variations. A few muscles show additional heads of origin apart from their original heads. One such muscle which has additional heads of origin is biceps brachii. Literature reveals common occurrence of a 3rd head to biceps brachii either unilaterally or bilaterally. Knowledge of these extra heads is important in treating injuries of the muscle and in tendon reconstruction surgeries.

In the present case supernumerary head on left side is observed for biceps brachii muscle in a male cadaver of approximately 60 years age. Interestingly this supernumerary head arose partly from sheath over the tendon of long head of biceps brachii. Partly fibers arose from the lateral lip of intertubercular sulcus and capsule of the shoulder joint. Fibres cross the long head of biceps brachii and runs along with the short head of biceps brachii. Addition to the normal short and long heads of biceps brachii. Because of rarity of occurrence of this supernumerary heads an attempt is made to report the case.

Keywords: biceps brachii, Supernumerary Head, additional head.

INTRODUCTION

The biceps brachii is a large fusiform muscle in the flexor compartment of the arm. It is the only flexor of the arm crossing the shoulder joint as well as the elbow joint. Thus it acts on the both joints. Among the two classical heads, the long head runs in the intracapsular course over the humeral head and attached to the supraglenoid tubercle and adjacent portion of glenoid labrum. The short head arises from the tip of the coracoid process of scapula. The two heads soon fuse in the upper half of the arm to form the bulk of the biceps brachii muscle. The flattened tendon of biceps brachii crosses the elbow ventrally at the

lower end, turns backwards and laterally to get inserted into the posterior rough part of radial tuberosity. Bicipital aponeurosis gets merged with deep fascia of forearm. [1,2] Biceps brachii is one of the well documented structures with frequent anatomical variations. Third and additional heads are often documented in the literature. Origin of third head is highly variable. It may arise either from the intertubercular sulcus of the humerus or from the shaft of the humerus near the insertion of coracobrachialis. In this case report, we report the unusual origin of the third head of biceps brachii and its clinical significance.

CASE REPORT

During routine cadaveric dissection of the flexor compartment of the arms in the Department of Anatomy, Institute Of Medical Sciences, Banaras Hindu University, Varanasi. Right and left arm dissections were carried out according to the instructions by Cunningham's Manual of Practical Anatomy. The long head of biceps brachii arose from the supraglenoid tubercle and adjacent portion of glenoid labrum. The short head of biceps brachii arose from the tip of the coracoid process of scapula. The supernumerary third head was arose from following parts

- i. Tendinous sheath around the long head of biceps brachii.
- ii. Lateral lip of the intertubercular sulcus and adjacent area.
- iii. Capsule of the shoulder joint just below the greater tubercle of humerus.

After the origin of these supernumerary head fibers converge together, crosses the long head of biceps brachii from anterior aspect finally joins the muscular fibres of short head of biceps brachii, All these three heads get innervated by musculocutaneous nerve.



Figure No.1- Showing third supernumerary head of biceps brachii muscle.



Figure No: - 2. Showing third head fibres origin from lateral to the tendon of long head of biceps brachii.

DISCUSSION

Although the third head of biceps brachii is a common occurrence in mammals, previous studies in human beings show that the third head of biceps brachii is seen in about 8% of Chinese, 10% of white Europeans, 12% of black Africans, 18% of Japanese, 20.5% of South African blacks, 8.3% of South African whites, 20% of Brazilian whites, 9% of Brazilian blacks, 15% of Turks [3] and merely 2% in the Indian population. [4] Thus, the occurrence of third head of biceps brachii in the Indian population is rare.

Baris Ozgur Donmez et al found supernumerary heads in two male cadavers. In one case the origin was from the medial lip of the intertubercular groove and in another case it was from the lateral lip of intertubercular groove. In both the cases, the three heads united with one another at the middle third of the arm and formed a common tendon before the insertion. [5]

Lokanadhan et al found supernumerary head bilaterally in two cadavers out of 40 cadavers. In one cadaver the third head originated from lower anterior part of humerus on its medial side and fused with common bulk of muscle before its termination into bicipital aponeurosis. In

another male cadaver it had its origin from upper anterior part of humerus on its medial side. The third head fused with common bulk of muscle before the origin of bicipital tendon. [6]

The most common variation is the muscle arising from proximal humerus. This variation is also known as the humeral head or third head of the biceps brachii muscle. Gray's Anatomy reported the incidence of this variation to be as much as 10 %, which concurs with the observations of Bergman et al in white Europeans. Testut reported acromial, labial and pectoral heads of supernumerary heads of biceps brachii. [7] Kosugi et al observed that the supernumerary head of biceps arose from the humerus between the insertion of coracobrachialis and upper part of origin of brachialis and from medial intermuscular septum. [8] Abu-Hijleh reported that the supernumerary bicipital head originated from the anteromedial surface of the humerus just below the insertion of coracobrachialis. [9]

In our present case report supernumerary third head biceps brachii originates from fibrous sheath over the tendon of long head of biceps brachii, lateral to this tendon Lateral lip of the intertubercular sulcus and adjacent area, and capsule of the shoulder joint then these fibers crosses the long head and joins short head of biceps brachii to its proximal part. This variation was very rarely reported by other researchers. As this third head crosses proximal part of long head of biceps brachii from anterior aspect this may affect normal action of biceps brachii at shoulder joint, may be the possibly restricted movements at the shoulder joint.

CONCLUSION

Knowledge of such supernumerary heads of biceps brachii muscle have clinical importance in diagnostic as well as treating

injuries of the muscle and in tendon reconstruction surgeries of arm , shoulder joint . Otherwise they may confuse surgeons who perform procedures and may lead to iatrogenic Injuries or they may cause compression of important neurovascular structures in the upper limb. These variations are interesting not only for anatomists but also to orthopaedic surgeons, plastic surgeons, traumatologists, physiotherapists, doctors dealing with sports medicine and radiologists.

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