

Bilateral Three Headed Biceps Brachii - A Case Report

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Abstract:

Bilateral three-headed biceps brachii muscle was found in a sixty-year-old male cadaver. The supernumerary head took origin from the site of insertion of coracobrachialis and inserted into the common tendon of biceps brachii. Presence of this bilateral occurrence will be important for surgeons and traumatologists as this might cause compression of musculocutaneous nerve or median nerve.

Key Words: Biceps brachii, Supernumerary head.

Introduction:

Biceps brachii is one of the most variable muscle in the human body in terms of number and morphology. The biceps brachii is classically described as a two headed muscle, that originates proximally with a long head from the supra glenoid tubercle and a short head from the coracoid process of scapula. The supernumerary heads might cause confusion to a surgeon or they might cause compression of neurovascular structures in upper limb (Warner et al, 1992). 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 (Williams et al, 1989).

Case Report:

During routine dissection of upper limb for under graduate students, a supernumerary third head of biceps brachii was found bilaterally in a sixty-year-old male cadaver. Both short and long heads have their normal origins and insertions bilaterally. On the right side most of the fibers of the additional third head originated from the antero medial surface of humerus at the point where coracobrachialis is inserted and some fibers arose from the deep fascia surrounding brachialis muscle and joined the common biceps brachii tendon for insertion. The additional head was innervated by musculocutaneous nerve after piercing coracobrachialis, similar to the innervation of long and short heads and continued as lateral cutaneous nerve of fore arm passing between brachialis and biceps brachii (Fig. I).

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Fig.I: Showing 3rd head of Biceps Brachii in Right Upper Arm. (LBB- Long head of biceps brachii, SBB- Short head of biceps brachii, 3BB - Third head of biceps brachii, CB- Coracobrachialis, MC- Musculocutaneous nerve).

The origin of third head on left side was similar to that of right side, however, third head was pierced by the musculocutaneous nerve which continued later as lateral cutaneous nerve of fore arm (Fig. II).

Discussion:

The incidence of supernumerary heads of biceps brachii range from 9.1% to 22.9%. Out of this the third head is reported in 7.5% to 18.3% cases. Incidence of unilateral three headed biceps brachii is common, a rare occurrence of bilateral supernumerary heads of biceps brachii was reported by Kosugi et al (1992). The supernumerary heads of biceps brachii muscle are classified according to their locations as superior, infero-medial and infero-lateral heads (Rodriguez – Niedenfuhr et al, 2003). Though most of the supernumerary heads of biceps brachii muscle belong to these three groups, rare variations like



Fig. II: Showing musculocutaneous nerve piercing 3rd head of biceps brachii in Left Upper Arm.

(LBB- Long head of biceps brachii, SBB- Short head of biceps brachii, 3BB - Third head of biceps brachii, MC- Musculocutaneous nerve)

acromial, labral and pectoral heads have also been previously reported (Testut, 1883). In the present case the accessory third head of biceps brachii mainly arose from antero-medial surface of shaft of humerus just lateral to the insertion of coracobrachialis as was reported by Asvat et al (1993) and Rodriguez-Niedenfuhr et al (2003), and between the bellies of biceps brachii and brachialis muscles and fused with the posterior aspect of common biceps tendon as described by Swieter & Carmichael(1980). Embryological observations by Testut (1902) described 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. 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 fibres of accessory head. This might also cause engorgement of veins because of compression exerted by the accessory biceps brachii. Biceps brachii will be useful as a component of flap surgery Mas et al (2006); in such cases the knowledge of the innervation of accessory head as well as the compression of vasculature will be very much required by surgeons.

Bibliography:

1. Asvat R, Candler P, Sarmiento EE: High incidence of third head of biceps brachii in South African population.

2. Kosugi K, Shibata S, Yamashita H: Supernumerary humeral heads of the biceps brachii and branching pattern of the musculocutaneous nerve in Japanese. *Surgical & Radiological Anatomy*, 1992;14(2):175-185.
3. Mas N, Pelin C, Zagyapan R, Barhar H: Unusual Relation of the Median Nerve with the Accessory Head of the Biceps Brachii Muscle: An original case Report. *International Journal of Morphology*, 2006;24(4): 561-564.
4. Rodriguez-Niedenfuhr N, Vazque T, Choi D, Parkin I, Sanudo JR: Supernumerary humeral heads of biceps brachii muscle revisited. *Clinical Anatomy*, 2003;16(3):197-203.
5. Swieter MG, Carmichael SW: Bilateral three headed biceps brachii muscle. *Anatomischer Anzeiger*, 1980;148(4):346-349.
6. Testut L: Signification anatomique du chef humeral du muscle biceps. *Bulletins Memories de la sciете d'anthropologie de paris*. 1883;6:238-245.
7. Testut L: Tretado, de Anatomia Humana. Ist Edn.; Salvat Barcelona, 1902;pp1022.
8. Warner J J, Paletta GA, Warren RF: Accessory head of the biceps brachii: Case report demonstrating clinical relevance. *Clinical Orthopedics and Related Research*, 1992;280:179-181.
9. Williams PL, Warwick R, Dyson M, Bannister LH: Gray's Anatomy: The Anatomical Basis of Medicine And Surgery, 37th Edn.; ELBS, Churchill Livingstone, 1989;pp614-615.