

A case of third head of biceps brachii muscle and fused higher origin of brachioradialis

Gujaria IJ, Aenumulapali A

ABSTRACT

The biceps brachii is a large fusiform muscle in the flexor compartment of the arm. During routine dissection of the left upper limb, a third head of biceps brachii which arose from superomedial part of brachialis and fused higher origin of brachioradialis was found. Brachioradialis had higher additional origin besides its usual origin. A variation in the heads of the biceps brachii muscle has been reported to compress the surrounding neurovascular structures.

Key words: biceps brachii, brachioradialis, third head of biceps brachii

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. Its long head runs in the intracapsular course over the humeral head and attached to the supraglenoid tubercle and adjacent portion of glenoid labrum while 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}

Brachioradialis is the most superficial muscle along the radial side of the forearm. It forms the lateral border of the cubital fossa. It arises from proximal 2/3rd of the lateral supracondylar ridge of humerus and form the anterior surface of the lateral intermuscular septum. The muscle fibers end above midforearm level in a flat tendon which inserts on the lateral side of the distal end of the radius, just proximal to its styloid process.^{1,2}

In 10% cases the third head of biceps brachii may arise from the supero-medial part of the brachialis and is attached to the bicipetal aponeurosis and medial side of tendon insertion. The presence of

the third head and fused higher origin of brachioradialis is important for academic and clinical purpose.^{1,2} We report a case of third head of biceps brachii muscle and fused higher origin of brachioradialis muscle.

CASE REPORT

Third head of biceps brachii and fused higher origin of brachioradialis were found in the left upper limb during routine dissection. The long as well as the short head of biceps brachii arose from usual site. The third head of biceps brachii arose from superomedial part of brachialis just below the insertion of coracobrachialis (fig.1). Its tendon was attached to the lower part of muscle belly. This third head was supplied by a branch from musculocutaneous nerve. The tendon of biceps brachii was inserted into the posterior rough part of radial tuberosity. Bicipital aponeurosis was merged with deep fascia of forearm. Brachioradialis had higher additional origin beside its usual origin from proximal 2/3rd of the lateral supracondylar ridge of humerus and formed the anterior surface of the lateral intermuscular septum. Higher origin of brachioradialis was fused with brachialis and medial head of triceps muscles (fig.2 & 3). The tendon of brachioradialis was inserted on the lateral side of the distal end of the radius, just proximal to its styloid process. No such variation was observed on right side.

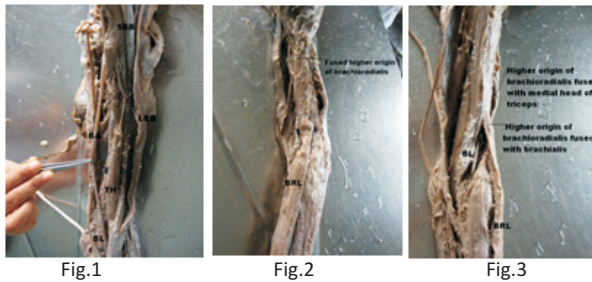


Fig.1 Fig.2 Fig.3
BRL- Brachioradialis, **BL**- Brachialis, **SBB** – Short head of biceps brachii, **LBB** – Long head of biceps brachii,
TH – Third head of biceps brachii, **BA** – Brachial artery
 Figure 1: Dissection showing third head of biceps brachii
 Figure 2: Dissection showing fused higher origin of brachioradialis with brachialis.
 Figure 3: Dissection showing fused higher origin of brachioradialis with brachialis and medial head of triceps.

DISCUSSION

Biceps brachii muscles present wide range of variations. It can manifest as a cluster of accessory fascicles arising from coracoid process, pectoralis minor tendon or articular capsule of humerus.³ The most common variation is the muscle arising from proximal humerus. This variation is also known as the humeral head of the biceps brachii muscle. A study reflects the occurrence of third head of biceps brachii in different populations varying from 8% to 37.5%.⁴ In a study of 48 cadavers at Delhi, the third head of biceps was observed on both sides in one male cadaver. The variant third head originated from the anterior limb of the “V” shaped insertion of the deltoid muscle on the humerus, and was supplied by a branch from musculocutaneous nerve.⁵ Another study (n=16), from Nepal reported that three headed as well as

four headed biceps brachii muscle was observed in one case each.⁶

A study reported a few fleshy fibers from brachialis merged with brachioradialis and other superficial flexor of the forearm after an oblique course. Some of the fibers were inserted on the medial aspects of olecranon process of ulna.⁷ Our observations of the third head of biceps brachii muscle is comparable to available literature. However, the fused higher origin of brachioradialis with brachialis and median head of triceps differ from previous reports. The third head of biceps brachii observed in our case may increase the power of flexion and supination component.⁵ The fused higher origin of brachioradialis may cause compression neuropathy of median nerve and vascular compression symptoms due to entrapment of brachial artery.

In conclusion, these variations are not rare and are interesting not only to anatomists but also to orthopaedic surgeons, plastic surgeons, traumatologists, physiotherapists, doctors dealing with sports medicine, and radiologists.

AUTHOR NOTE

Ila Jitesh Gujaria, Associate Professor, Contact no- +91 9327035422,
 E-mail: dr.ilagujaria@rediffmail.com
(Corresponding Author)
Ashok Aenumulapalli, Tutor
 Department of Anatomy, SBKS Medical Institute and Research Center, Vadodara, Gujarat– 391760

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