



A Study in the Origin of Biceps Brachii in North Coastal Andhra Pradesh

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ABSTRACT

Variation in biceps brachii and musculocutaneous nerve are frequent variations. In the present study there is variation in the origin of biceps brachii with a co-existence of unusual formation of median nerve.

Materials and methods: 16 cadavers (32 upper limbs) were studied during 2013 -2016 as a part of routine dissection for MBBS students .

Observations: out of 16 cadavers studied, one male cadaver showed tricipital origin of biceps brachii bilaterally and unilateral variation in the communicating twigs between lateral cord and medial root of median nerve and ulnar nerve.

Conclusion: Variations in the origin of muscles can cause unusual bone displacement. Variation in communications between median and other nerves of upper limb is important while evaluation of clinical neurophysiology, planning a surgery after trauma and understanding of neurodysfunction.

Key words: biceps brachii, lateral cord , median nerve, pectoralis major, ulnar nerve

Introduction

Biceps brachii is a fusiform muscle having a long head and short head. supernumerary heads of biceps brachii are frequent of which three heads of biceps brachii is the most commonly reported variation. Some authors (Sweiter MG et al ¹1980) have tried to trace the functional aspect of these extra heads by the abnormal movements which they can produce and others (Nakatani T et al 1998², Sweiter MG et al 1980¹, Sargon MF et al 1996³) have tried to draw clinical implications like the head being mistaken for a tumour or suspecting that it produces compression symptoms. Such variations can cause unusual

bone displacement after a fracture (Asvat R et al 1993⁴). A clinician's knowledge of musculocutaneous-median nerve communication is important while evaluation of clinical neurophysiology, planning a surgery after trauma and understanding of median and musculocutaneous nerve dysfunction (Flatow EL et al 1989⁵, Sonck WA et al 1991⁶, Sunderland S 1978⁷.)

Materials and method

The cadavers procured for first MBBS and BDS formed the study material. As a part of routine dissections, the upper limbs of formalin fixed cadavers were dissected. Only one cadaver

showed bilateral tricripital origin of biceps brachii and unilateral variation in the formation of median nerve.

Observation

In the present study, out of 16 cadavers, only one cadaver showed bilateral three headed biceps brachii. Short head (SH) and long head (LH) have taken origins from coracoids process and supraglenoid tubercle which was normal. The third head (TH) has taken origin from pectoralis major (PM) close to its insertion on right (fig.1) and left sides (fig.2) respectively. Insertion was into posterior part of radial tuberosity. Extensive literature search did not find any case reports of a

third head arising only from pectoralis major. On the left side, variation in the communicating twigs prior to the formation of median nerve is also associated along with tricripital origin of biceps brachii. The lateral cord gave off two communicating fibers, one to the ulnar nerve and other to the medial root of median (M.MN) before dividing into lateral root of median nerve (L.MN) and musculocutaneous nerve. Later the medial root and lateral root joined to form the median nerve (fig.3).The communicating fibres from lateral cord to ulnar nerve (UN) might be the fibres which give innervations to flexor carpi ulnaris. Musculocutaneous nerve (MCN) supplied all three heads of biceps brachii.

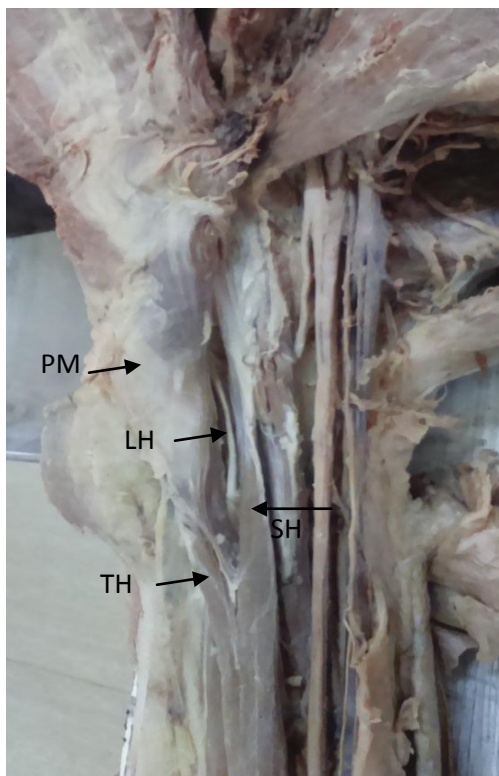


Fig:1 showing third head taking origin from pectoralis major on left side

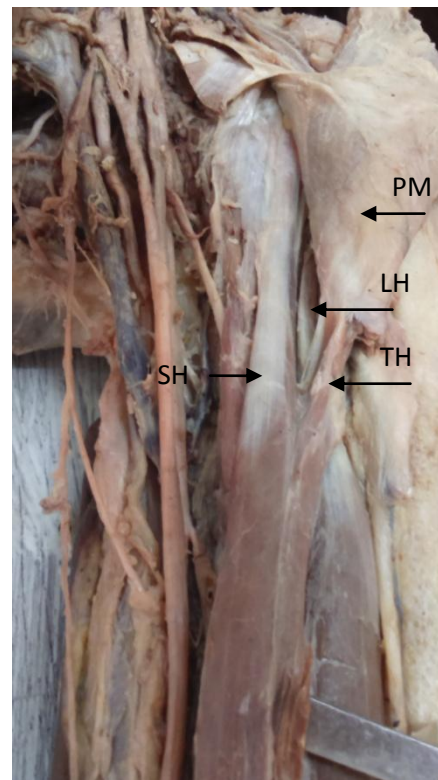


Fig:2 showing third head taking origin from pectoralis major on right side

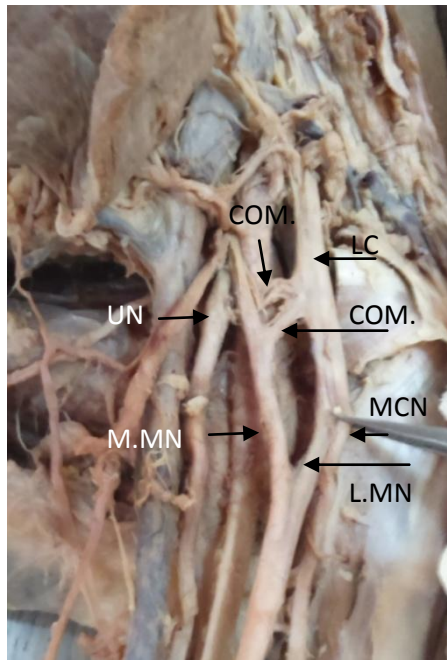


Fig: 3 showing communicating twigs from Lateral cord

Discussion

The third head of biceps brachii arose from superomedial part of brachialis just below the insertion of coracobrachialis (Anita S. Fating et al 2011⁸). Most of the previous studies reported accessory fascicle or third head arose from coracoid process, pectoralis minor tendon or articular capsule of humerus (Sargon MF et al 1996³). this variation varies in different population, Chinese 8%, European White 10%, African Black 12%, Japanese 18%, South African blacks 20.55%, South African whites 8.35% and Colombian 37.5% (Asvat R et al 1993⁴). Danielle Reilly et al 2015⁹ first reported of a third head of the biceps solely originating from the fascia of the brachialis muscle. Moreover, the supernumerary heads may confuse a surgeon during shoulder operations and such variations, if unilateral, can be a cause of asymmetry between the two arms and hence, can be confused with pathological conditions such as tumours (Sargon MF et al 1996³). To our knowledge, this is the first report of a third head of the biceps brachii solely originating from under surface of pectoralis major close to its insertion.

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