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Case report

Accessory slip of brachialis muscle

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ABSTRACT

During routine dissection for first M.B.B.S. students on 65 years donated embalmed male cadaver in the Department of Anatomy, K. J. Somaiya Medical College, we encountered an accessory brachialis muscle taking origin from the anteromedial surface of shaft and medial supracondylar ridge of lower end of humerus and inserted into the medial epicondyle of humerus. The median nerve and brachial artery pierced the muscle. The role of additional muscles in compression syndrome is a well known phenomenon. Medical fraternity including orthopedicians and neurologists need to be aware of such variations when dealing with upper limb injuries or operations around the elbow joint.

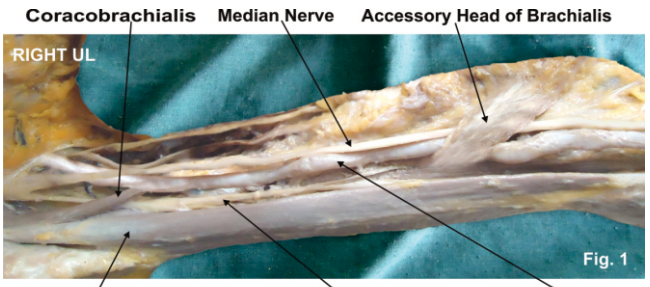
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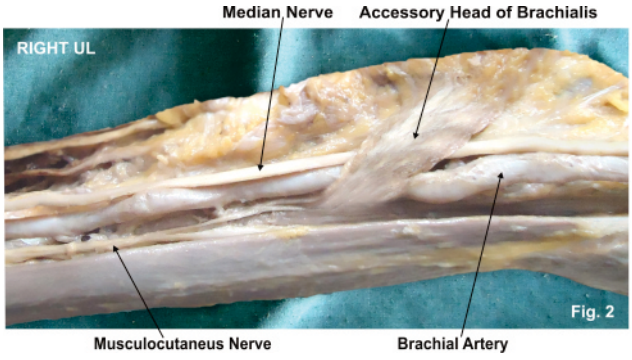
1. Introduction

Brachialis arises from the lower half of the front of the humerus and from the medial intermuscular septa, converge to a thick, broad tendon which is attached to the ulnar tuberosity and to a rough impression on the anterior aspect of the coronoid process. Brachialis may be divided into two or more parts. It may be fused with brachioradialis, pronator teres or biceps. In some cases it sends a tendinous slip to the radius or bicipital aponeurosis[1]. Surgeons and orthopedists dealing with cases of road traffic accidents need to be aware of such variations as dealing with such cases may not only be difficult, but a nightmare too.

2.Case Report:

During routine dissection for first M.B.B.S. students on 65 years donated embalmed male cadaver in the Department of Anatomy, K. J. Somaiya Medical College, we encountered an accessory brachialis muscle taking origin from the anteromedial surface of shaft and medial supracondylar ridge of lower end of humerus and inserted into the medial epicondyle of humerus. The median nerve and brachial artery pierced the muscle.





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3.Discussion

Several cases on the presence of accessory brachialis muscle in the arm have been reported. Dharap observed an unusual muscle that passed obliquely from the middle of the humerus anterior to the median nerve and brachial artery, forming a tunnel for them, before inserting with the common origin of the forearm flexor muscles [2]. Loukas et al. reported an accessory brachialis (AcBr) muscle originating from mid shaft of humerus and medial intermuscular septum. During its course medially, toward the elbow, the AcBr crossed both the brachial artery and the median nerve. The distal tendon split to surround the median nerve before inserting into the brachialis tendon and the common tendon of the antebrachial flexor compartment muscles [3]. Paraskevas et al. have described a variant muscle on the left side arising from the medial border of brachialis muscle and after bridging the median nerve, the brachial artery and vein; it was fused with the medial intermuscular septum. The muscle was innervated by musculocutaneous nerve [4]. George and Nayak have described few fleshy fibers of brachialis arising from the distal third of the muscle and merging with superficial flexors of the forearm and to the medial aspect of olecranon process of ulna [5]. Rajanigandha et al. reported the occurrence of an accessory brachialis muscle that formed a fibro-muscular tunnel after blending with the medial intermuscular septum [6]. Although causes no symptoms most of the time, such structures have the potential to compress the median nerve with consequent functional impairment. Such accessory muscle slips may also compress the underlying arteries viz., brachial artery in the present case. Embryologically, the intrinsic muscles of the upper limb differentiate in situ, opposite the lower six cervical and upper two thoracic segments, from the limb bud mesenchyme of the lateral plate mesoderm. The formation of muscular elements in the limbs takes place shortly after the skeletal elements begin to take shape. At a certain stage of development, the muscle primordia within the different layers of the arm fuse to form a single muscle mass [7]. Langman stated, however, that some muscle primodia disappear through cell death despite the fact that cells within them have differentiated to the point of containing myofilaments [8]. Failure of muscle primordia to disappear during embryologic development may account for the presence of the accessory muscular bands reported in this case.Compression of the median nerve and brachial artery by various types of structures leading to clinical neurovasculopathy has been reported [9,10].On contraction, these muscles can compress the median and ulnar nerves, leading to further irritation of the nerves. Contraction of these muscles can compress both the brachial artery and brachial veins. Also, these muscles should not be mistaken for tumors on MR imaging of the arm.

4.Conclusion

The existence of such variation of the brachialis muscle should be kept in mind by the surgeons operating on patients with high median nerve palsy and brachial artery compression, by the orthopaedicians dealing with fracture of the humerus, the radiologists while doing radiodiagnostic procedures e.g.CT scan, MRI of the arm and angiographic studies and also by the physiotherapists. These accessory fibres of brachialis may be used as a transposition flap in deformities of infraclavicular and axillary areas and in postmastectomy reconstruction. The accessory fibres of brachialis may prove significant and lead to confusion during surgical procedures or cause compression of neurovascular structures.

Competing Interests

The authors declare that they have no competing interest

Authors' contributions

SPS wrote the case report, performed the literature review & obtained the photograph for the study. RMM performed the literature search and assisted with writing the paper. STS conceived the study and helped to draft the manuscript. All authors have read and approved the final version manuscript.

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