INTERNATIONAL JOURNAL OF PLANT, ANIMAL AND ENVIRONMENTAL SCIENCES
IJPAES
Volume-8, Issue-3 July-Sept-2018 Coden:IJPAJX-CAS-USA, Copyrights@2018 ISSN-2231-4490
Received: 4th June-2018 *Revised: 17th July-2018* *Accepted: 19th July-2018*
DOI: 10.21276/Ijpaes *http://dx.doi.org/10.21276/ijpaes* *Case Report*

VARIANT ACCESSORY ORIGIN OF BRACHIALIS MUSCLE

Pooja Srivatsan and Dr.Shaheen Sajid Rizvi

Department of Anatomy, K. J. Somaiya Medical College, Somaiya, Ayurvihar, Eastern Express Highway, Sion, Mumbai-400 022

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 Variant Accessory Origin of brachialis muscle This was arising from the anteromedial surface of shaft and medial supracondylar ridge of lower end of humerus. It got inserted into the medial epicondyle of humerus. This accessory origin was pierced by median nerve and brachial artery. The role of additional muscles in compression syndrome is a well known phenomenon. Orthopaedicians and neurologists need to be aware of such variations when dealing with upper limb injuries or operations around the elbow joint.
Key words: Accessory Brachialis Muscle, Median Nerve, Brachial Artery, Variation, Nerve Compression.

*Corresponding autor: Dr. Shaheen Sajid Rizvi, Department of Anatomy, K. J. Somaiya Medical College, Somaiya, Ayurvihar, Eastern Express Highway, Sion, Mumbai-400 022; Email : rizvishaheen68@ gmail.com

INTRODUCTION

The brachialis is a muscle in the arm that flexes the elbow joint. It lies deep to the biceps brachii, and forms a part of the floor of the cubital fossa. It originates from the anterior surface of the distal half of the humerus near the insertion of the deltoid muscle, which it embraces by two angular processes and from the medial intermuscular septa. It converges 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 of the ulna. The brachialis muscle is innervated by the musculocutaneous nerve, which runs on its superficial surface, between it and the biceps brachii. In 70-80% of people, the muscle has double innervation with the radial nerve. The brachialis is supplied by the muscular branches of brachial artery and the recurrent radial artery. The brachialis is the prime mover of elbow flexion [1].

Case Report

During routine dissection for first M.B.B.S. students on a 65 year donated embalmed male cadaver in the Department of Anatomy at K. J. Somaiya Medical College, we encountered Variant Accessory Origin of brachialis muscle. This was arising from the anteromedial surface of shaft and medial supracondylar ridge of lower end of humerus. It was inserting into the medial epicondyle of the humerus. This accessory origin was seen crossing the median nerve and brachial artery.

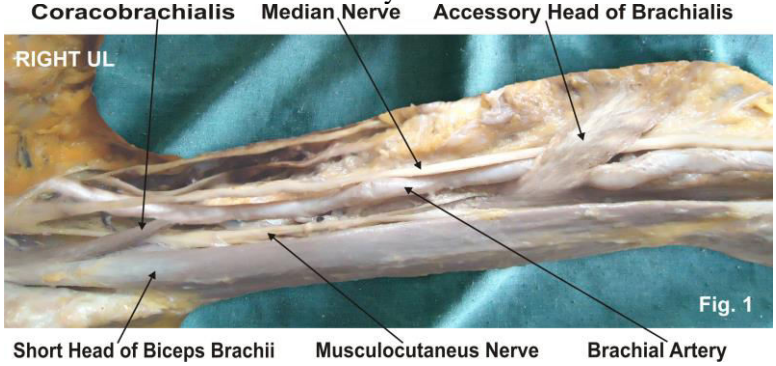

Fig 1– showing photographic representation of Accessory Brachialis crossing the median nerve and brachial artery

DISCUSSION

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 [2]. A number of cases have been reported in literature regarding an accessory origin of Brachialis. Paraskevas et al. have described a variant origin of Brachialis arising from its medial border, linking the median nerve, the brachial artery and fusing with the medial intermuscular septum. The muscle was innervated by musculocutaneous nerve [3]. George and Nayak have described a few fleshy fibers of brachialis arising from the distal third of the muscle and merging with superficial flexors of the forearm and the medial aspect of olecranon process of ulna [4]. Dharap described a muscle that originated obliquely from the middle of the humerus anterior to the median nerve and brachial artery, forming a tunnel for them, and inserting with the common flexor origin of the forearm muscles [5]. Loukas et al. reported an accessory brachialis muscle originating from middle of the shaft of humerus and medial intermuscular septum crossing both brachial artery and median nerve and inserting into the brachialis tendon and common flexor origin of the forearm muscles [6].

Embryological Basis

The intrinsic muscles of the upper limb differentiate from the limb bud mesenchyme of the lateral plate mesoderm. Initially the skeletal elements begin to take shape followed by formation of muscular elements. At a certain stage of development, the muscle primordia fuse to form a single muscle mass. However some muscle primodia disappear through cell death although the cells within them have differentiated to the point of containing myofilaments. Failure of muscle primordia to disappear during embryologic development may account for the presence of the accessory muscules [7].

Clinical Significance

The role of additional muscles in compression syndrome is a well known phenomenon. Although an accessory brachialis may cause no symptoms most of the time, it does have the potential to compress the median nerve resulting in functional impairment. Such accessory muscle slips may also compress the underlying arteries viz., brachial artery in the present case with consequent clinical neurovasculopathy Orthopaedicians and neurologists need to be aware of such variations when dealing with upper limb injuries or operations around the elbow joint and fractures of the humerus [8]. Surgeons should keep in mind, variation of the brachialis muscle while operating on patients with high median nerve palsy and brachial artery compression. and radiologists while doing radiodiagnostic procedures e.g. CT scan, MRI of the arm and angiographic studies and also the physiotherapists Also, these muscles should not be mistaken for tumors on MRI imaging of the arm. These accessory fibres of brachialis may be used as a transposition flap in deformities of infraclavicular and axillary areas and in postmastectomy reconstruction [9].

CONCLUSION

Although an accessory brachialis may cause no symptoms most of the time, it does have the potential to compress the median nerve resulting in functional impairment. The accessory fibres of brachialis may prove significant and lead to confusion during surgical procedures or cause compression of neurovascular structures. Orthopaedicians and neurologists need to be aware of such variations when dealing with upper limb injuries or operations around the elbow joint and fractures of the humerus.

ACKNOWLEDGEMENT

Authors are thankful to Dean Dr. Vinayak Sabnis Sir for his support and encouragement. Authors are also thankful to Mr. M. Murugan, Mrs. Pallavi Kadam, Mr. Shivaji Dalvi, Mr. Kishor Rangle, Mr. Shankush Adkhale, Mr. Sanjay Shinde, Mr. Kishor Beradiya and Mr. Panduj for their help. Authors also acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

Conflict of Interest

The authors declare that they have no conflict of interest.

Statement of Human and Animal Rights

All procedures performed in human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

REFERENCES

[1] Standring S, ed. 2008. *Gray's Anatomy*, The anatomical basis of clinical practice. 40th Ed., Elsevier Churchill Livingstone.; 855.

[2] Sharadkumar Pralhad Sawant, Shaguphta T. Shaikh, Rakhi Milind More, 2012. Accessory slip of brachialis muscle; Int J Biol Med Res; 3(4); 2636 - 2637

[3] Paraskevas G, Natsis K, Loannidis O, Papaziogas B, Kitsoulis P, Spanidou S. 2008. Accessory muscles in the lower part of the anterior compartment of the arm that may entrap neurovascular elements. Clin Anat.; 21: 246–251.

[4] George BM, Nayak SB. 2008. Median nerve and brachial artery entrapment in the abnormal brachialis muscle – a case report. Neuroanatomy.; 7: 41–42.

[5] Dharap AS. 1994. An anomalous muscle in the distal half of the arm. Surg Radiol Anat.; 16: 97–99.

[6] Loukas M, Louis RG Jr, South G, Alsheik E, Christopherson C. 2006. A case of an accessory brachialis muscle. Clin Anat.; 19: 550–553.

[7] Langman J. 1969. *Medical Embryology*. 2nd Ed., Baltimore, Williams and Wilkins. 143–146.

[8] Nakatani T, Tanaka S, Mizukami S. 1998. Bilateral four-headed biceps brachii muscles: the median nerve and brachial artery passing through a tunnel formed by a muscle slip from the accessory head. Clin Anat.; 11: 209–212.

[9] Gessini L, Jandolo B, Pietrangeli A. 1983. Entrapment neuropathies of the median nerve at and above the elbow. Surg Neurol.; 19: 112–116.

INTERNATIONAL JOURNAL OF PLANT, ANIMAL AND ENVIRONMENTAL SCIENCES

ISSN 2231-4490

International Journal of Plant, Animal and Environmental Sciences