



A CADAVERIC CASE REPORT ON ORIGIN OF FLEXOR CARPI RADIALIS FROM TENDON OF BICEPS BRACHII NEAR INSERTION

Anatomy

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ABSTRACT

During routine dissection of an adult male cadaver, in the Department of Anatomy, Bundelkhand Medical College, Sagar, M.P.; unilateral (Right sided upper limb) origin of FCR muscle from tendo-aponeurotic junction of biceps brachii muscle near insertion within cubital fossa. Also the superficial head of Pronator teres muscle fibers are fused with the muscle fibers of FCR.

KEYWORDS

FCR- Flexor Carpi Radialis, Biceps brachii, Cubital fossa, Pronator teres.

INTRODUCTION

Flexor compartment of forearm presents usually five superficial and three deep muscles. The superficial flexor muscles are Pronator teres, Palmaris longus, Flexor carpi radialis, Flexor digitorum superficialis and Flexor carpi ulnaris. Deep group of flexor muscles include Flexor pollicis longus, Flexor digitorum profundus and Pronator quadratus. FCR muscle is a known flexor of the wrist. The action of FCR in combination with Extensor carpi radialis longus and brevis can cause abduction of wrist also. It usually takes its origin from medial epicondyle of humerus as common origin of superficial flexors as well as from antebrachial fascia and adjoining fascial septa. After taking origin, the muscle forms fusiform belly from which tendinous part arises about half way down the middle of forearm. The tendon while passing through flexor retinaculum of wrist, lodges in groove on trapezium before its final insertion to palmar surface of base of second and third metacarpal bones. It derives its nerve supply from median nerve while in forearm [1]. Reported variations regarding FCR muscle include its unusual occurrence, attachments, duplication including presence of additional belly and/or tendon and also regarding insertion pattern [2-8].

CASE REPORT

This study was carried out during routine dissection of an adult male cadaver, in the Department of Anatomy, Bundelkhand Medical College, Sagar, M.P.

Variation was observed Unilaterally (Right sided upper limb) in the origin of FCR muscle. It took from tendo-aponeurotic junction of biceps brachii muscle near insertion within cubital fossa.

So, the head of origin of the FCR muscle also became the content of Cubital fossa in the same plane with tendon of biceps brachii.

Also the superficial head of Pronator teres muscle fibers are fused with the muscle fibers of FCR.

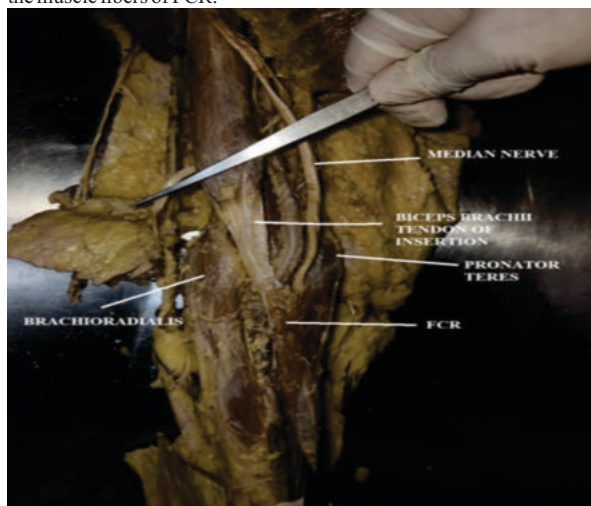


Fig.1:- origin of FCR muscle from tendon of Biceps brachii in Right limb [Unilateral variation] of an adult male cadaver

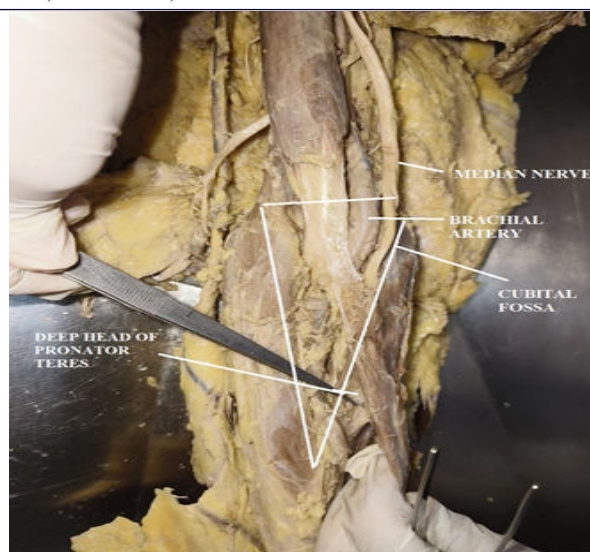


Fig: 2:-FCR within Cubital Fossa

DISCUSSION

Anatomical variations related to muscles of flexor compartment of forearm have been considered as subjects of many anatomical and radiological studies. It is not uncommon to get the variations related to FCR muscle [2-8].

Both congenital absence [2] and duplication in the form of two separate musculotendinous units, a FCR and a FCRB (flexor carpi radialis brevis) have been reported [4]. Further importance of FCR muscle has been documented and studies have highlighted the use of supernumerary tendons of FCR muscle as interpositional graft during reconstructive surgeries [9, 10]. Accordingly, variant FCR with small belly and long tendon has been reported to be beneficial to surgeons undertaking regional reconstructive surgeries and also to physiotherapists for making better post reconstructive rehabilitation planning [3].

Such anatomical variations can likely be explained on the basis of deviation from regular embryological development of upper limb muscle. During initial stage of development, myogenic precursor cells arise from differentiated ventral muscle mass which is segmental in origin earlier but later on fuse to form a single muscle with loss of some muscle primordial through cell death during differentiation under control of family of transcription factors called myogenic regulatory factors. Thus altered signaling between mesenchymal cells resulting into persistence of cells not undergoing into process of cell death may account for occurrence of such additional muscle slips [11].

CONCLUSIONS

Though minor differences have been observed between past and present study, knowledge of present study highlighting anatomical variant of FCR muscle seemed to be relevant and clinically noteworthy and it would definitely supplement the understanding of muscular

variations of flexor compartment of upper limb.

REFERENCES:

- [1]. Standring S, Johnson D. Gray's anatomy: The Anatomical Basis of Clinical Practice. 40th ed., Edinburg: Churchill Livingstone (Elsevier); 2008: 845-46.
- [2]. Rumball KM, Tonkin MA. Absence of flexor carpi radialis. *J Hand Surg.* 1996 Dec 21 (6): 778.
- [3]. Reghunathan D, Satheesha Nayak B, Surendran S, Kumar N, Rao SS. Tendinous flexor carpi radialis: a case report. *OA Case Reports* 2013 Sep 10; 2 (10):96-97.
- [4]. Duncan SFM, McCormack RR Jr, Roberts CC. Characteristics of flexor carpi radialis brevis tendon on magnetic resonance imaging and its use in basal joint arthroplasty. *Radiology Case Reports.* [Online] 2006; 1(1):24-26.
- [5]. Bhat KMR, Kulakarni V, Gupta C. Additional muscle slips from the bicipital aponeurosis and a long communicating branch between the musculocutaneous and the median nerves. *Int J Anat Var.* 2012; 5: 41- 43.
- [6]. Bergman RA, Thompson SA, Afifi AK, Saadeh FA. *Compendium of Human Anatomic Variation: Text, Atlas and World Literature.* Baltimore: Urban & Schwarzenberg; 1988: 12.
- [7]. Deopujari R, Quadir N, Athavale S, Gajbhiye V, Kotgirwar S. Variant Bicipital Aponeurosis: A Cadaveric Study. *PJSR* 2014; 7(2): 43-46.
- [8]. Trivedi S, Sinha MB, Sharma DK, Rathore M, Siddiqui AU. Abnormal musculotendinous slip from Biceps Brachii to Pronator Teres: A Case Report. *IJBAR* 2015; 6(01): 64-66.
- [9]. Brunton LM, Wittstadt RA. Thumb carpometacarpal arthroplasty using an absorbable interference screw for flexor carpi radialis ligament reconstruction. *Tech Hand Up Extrem Surg.* 2011 Jun; 15 (2): 115-118.
- [10]. Gahankari D, Tambwekar S, Rana RE. Flexor carpi radialis opponensplasty. *Br J Plast Surg.* 1996 Sep; 49 (6): 401-03.
- [11]. Mooney EK, Loh C. Hand Embryology Gross Morphologic Overview of Upper Limb Development. <http://emedicine.medscape.com/article/1287982-overview> (accessed November 2015).