

SUPERFICIAL ULNAR ARTERY- A CADAVERIC CASE STUDY**Dr. Swarup P. Kulkarni^{1*} and Dr. Swarupa S. Mane²**

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ABSTRACT

Considering the human anatomy of the upper extremity, particularly arteries of the upper extremity, it consists of axillary artery, brachial artery, radial artery, and ulnar artery, superficial and deep palmar arches. Axillary artery continuous as brachial artery at the lower border of teres major muscle. Then, brachial artery generally divides into radial and ulnar arteries at the cubital fossa. After arising from the brachial artery in the cubital fossa, the ulnar artery normally passes deep to the superficial flexors of the forearm. In this cadaveric case study, during the first year undergraduate course dissection, the right side (unilateral) ulnar artery was found to be originated 3cms above the cubital fossa from the brachial artery. Since its origin above from the cubital fossa, the ulnar artery was following superficial course lying superficial to the flexors muscles and completed superficial palmar

arch in the hand. The superficial ulnar artery gave only two minute muscular branches in the forearm. The other of branches was found to be given by the radial artery. This kind of variation in the course of ulnar artery is of importance for surgeons as well as clinicians in the treatment aspects. In the left upper extremity, the origin, course and branches of the ulnar artery were normal.

KEYWORDS: Upper extremity arteries, unilateral superficial ulnar artery, cadaveric case study.

INTRODUCTION

The axillary artery is the continuation of the subclavian artery. It starts from the outer border of 1st rib to the lower border of the teres major muscle. Thereafter it is called as brachial artery. The brachial artery extends from the lower border of the teres major muscle to a point in front of the elbow, at the level of the neck of the radius, just medial to the tendon of the biceps brachii muscle. It terminates by dividing into radial and ulnar artery in front of the elbow. The ulnar artery is the larger terminal branch of the brachial artery and begins in the cubital fossa. The artery runs obliquely downwards and medially in the upper one third of the forearm but in the lower one third of the forearm, its course is vertical. It enters the palm by passing superficial to the flexor retinaculum. Anteriorly in upper half, the artery is deep and is covered by, pronator teres, flexor carpi radialis, palmaris longus, flexor digitorum superficialis and flexor carpi ulnaris. The lower half of the artery is superficial and covered by the skin, superficial and deep fascia and by the palmar cutaneous branch of the ulnar nerve. Posteriorly, the origin of the artery lies on the brachialis and flexor digitorum profundus. Medially, it is related to the ulnar nerve and to flexor carpi ulnaris. Laterally, it is related to the flexor digitorum superficialis. The artery is accompanied by two venae comitantes. The ulnar artery is the principal artery of the forearm and the radial artery is usually the main artery of the hand.

Variations of Ulnar Artery

Higher origin and superficial course- when the origin of the ulnar artery is high the artery arises more often from the brachial artery (than from the brachial artery). In such cases, the artery passes superficially to the flexors of the forearm either deep or superficial to the deep fascia. Brachial artery becomes continuous with the common interosseous artery.^[1&2]

Cadaveric Case Study

During routine dissection of first year undergraduate students at the dissection hall of Dr. J.J. Magdum Ayurved Medical College, Jaysingpur, Maharashtra, India, a variation was found in the right side forearm related to the ulnar artery. This variation was found in the 60 year old male cadaver. The ulnar artery was arising from the brachial artery but not in front of the elbow or in the cubital fossa but 3cms above from the elbow or cubital fossa. The second variation was found that, its origin from the brachial artery, the ulnar artery was superficial throughout its course up to the medial aspect of the wrist joint (flexor retinaculum). Then it ends by forming the superficial palmar arch in the palm. The artery passed superficial to all

the superficial flexor muscles of the forearm. Then, it descends into middle of forearm; it was close to the lateral border of the flexor carpi ulnaris muscle. It passed superficial to the flexor retinaculum then divide in to superficial and deep palmar branch. In the forearm it gives two minute muscular branches to the superficial flexor muscles of the forearm. The other branches of the ulnar artery, common interosseous, anterior and posterior ulnar recurrent were absent. The radial artery followed the normal course in the forearm and gave few muscular branches in the upper aspect of the forearm. It also gave medial and lateral branch in the forearm. Medial branch divides into common interosseous branch and lateral into radial recurrent and muscular branch.



Photo 1: Branching of Brachial artery above the Cubital fossa.



Photo 2: Superficial ulnar and radial arteries.

DISCUSSION

Information of superficial ulnar artery is imperative as it may shows pulse and precarious if punctured. The presence of the same can be beneficial as it can be used to supply blood to forearm flap. Anatomical variations in the major arteries of the upper extremity have been reported in 11 to 24.4% of limbs.^[3] The occurrence of superficial ulnar artery varies in between 0.7% to 9.4% in the population.^[4] In the present cadaveric case study, origin of ulnar artery was seen 3cms above to the elbow. Starting from its origin, the ulnar artery was superficial throughout. It was superficial to all the superficial flexor muscles of the forearm. It only gave two minute muscular branches to the superficial flexor muscles of the forearm. It was continuously superficial up to medial aspect of the flexor retinaculum. Thereafter, it

divides into superficial and deep palmar branches to complete the two arches in the palm. Radial artery gave medial and lateral branch and further common interosseous radial recurrent and muscular branches respectively.

CONCLUSION

The ulnar artery is the major artery of the forearm and the radial artery is usually the key artery of the hand. The observed variations in the arterial prototype of the forearm amplify the possibility of injuries taking place specially during the surgical measures. So, this type of arterial difference should be always kept in mind before any surgical procedure. This awareness of superficial arterial variation is also important for the clinical practitioners and nursing employees specially during the intravenous injections and also cannulation. In this cadaveric case study the variations in the ulnar artery was from its origin from the brachial artery and also in its branching pattern.

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