

CASE REPORT

A RARE CASE OF SUPERFICIAL ULNAR ARTERY AND ITS CLINICAL IMPLICATIONS

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ABSTRACT: During routine dissection of the upper extremity, of a male cadaver 60 years of age in our department of anatomy, we found the superficial ulnar artery which is a rare variation of the ulnar artery. This artery was arising from the middle of the right brachial artery and the artery then had a superficial course in the forearm and was found superficial to muscles arising from the medial epicondyle.^[3, 4] The superficial ulnar artery is a very rare variation of the upper limb arterial system. The incidence is about 2.26%.^[6] These variations may have diagnostic, interventional and surgical significance. The brachial artery had a normal course and it divided into the radial artery and the common inter-osseous artery

KEYWORDS: Superficial Ulnar artery, brachial artery, Radial artery.

INTRODUCTION: The brachial artery, a continuation of the axillary artery, begins at the distal border of the tendon of teres major and ends about a centimeter distal to the elbow joint by dividing into the radial and ulnar arteries. The artery is wholly superficial, covered anteriorly by the skin and fascia and crossed superficially by the median nerve from the lateral to the medial side.^[1] The ulnar artery is the larger branch of the brachial artery, passes medially deep to the pronator teres muscle and then runs to the distal part of the forearm together with the ulnar nerve. The common inter-osseous artery is a larger branch of ulnar artery which arises just below the radial tuberosity. Radial artery is a smaller terminal branch of the brachial artery. The radial artery runs along the lateral part of the front of the forearm with the superficial branch of radial nerve. Superficial ulnar artery is a rare variation of the ulnar artery. It usually arises higher up, either in the axilla or in the arm and runs a superficial course in the forearm before entering the hand.^[2]

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coursed in front of the flexor retinaculum to enter the palm and radial artery had a normal course in the palm (fig. 2).

Fig. 1: Photograph of right upper limb showing the brachial artery and their branching pattern. Brachial artery (BA); Superficial Ulnar artery (SUA); Radial artery (RA); Common Interosseous artery (CIA); Median nerve (MN).

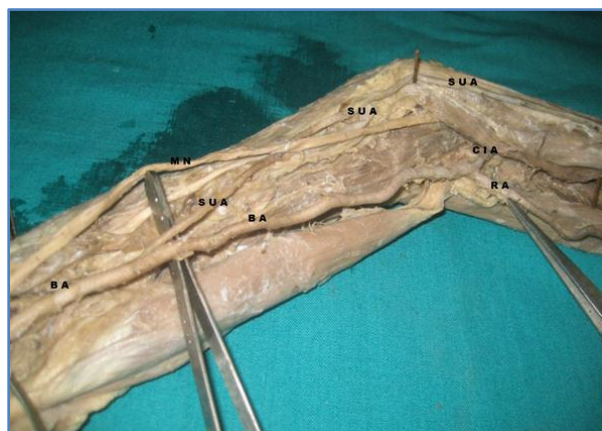


Figure 1

Fig. 2: Photograph of right upper limb showing the course of superficial ulnar artery Brachial artery (BA); Superficial Ulnar artery (SUA); Radial artery (RA); Common Interosseous artery (CIA); Median nerve (MN).



Figure 2

DISCUSSION: Variations in upper limb arteries are common But majority of these variations occur in the radial artery followed by ulnar artery^[6] Anatomic variation in the major arteries of the upper extremities have been reported in 11-24.4% of individuals.^[7] The presence of a superficial ulnar artery seems to be a rare variation with an incidence of 0.7% – 9.4% in the literature.^[3, 4, 5, 7] When the superficial ulnar artery is present, the brachial artery commonly terminates as the

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radial and common inter-osseous arteries.^[3] Sometimes it is bilateral and bilateral cases are more often seen in females.^[3]

The superficial course of the ulnar artery over the forearm flexors has been described in two ways: under the ante brachial fascia^[14] or more infrequently, as over the ante brachial fascia in a subcutaneous position crossed by the median cubital vein.^[10, 14] Henry Hollinshed has stated that "one of the two arteries lie superficial to superficial flexor group of muscles. The other artery is taking the usual course is crossed superficially by median nerve".^[8]

McCormack and his co-workers found only 17 superficial ulnar arteries a percentage of 2.26 of the vessels examined in contrast to the 107 superficial radial arteries. In 11 of these, the ulnar artery in the forearm had a superficial course immediately deep to the ante brachial fascia running obliquely downward over the origin of the pronator teres and other superficial muscles to reach lateral border of flexor Carpi ulnar is at about the middle of the forearm, where it either passed under cover of this muscle or paralleled it. By the time the wrist was reached the ulnar nerve and artery had the usual relationship.^[6]

Siege et al., and Fadel et al., have reported superficial ulnar artery and its clinical significance. The superficial ulnar artery arises frequently from the lower third of the brachial artery, less frequently from the upper third and rarely from the middle third.^[9, 10] In present case it arises from the middle third of brachial artery. The ulnar artery was found to deviate from its usual mode of origin in one in thirteen cases; frequently arising from the lower end of the brachial artery.^[11]

Clinical Implication: Any arterial variation has clinical significance. The presence of superficial ulnar artery is more vulnerable to trauma and successive bleeding. The superficial ulnar artery also makes it accessible for cannulisation. It may cause misinterpretation of angiographic images. Being superficial, the ulnar artery maybe mistaken for a vein and accidental injection of certain drugs in this artery may cause reflex vascular occlusion resulting in hazardous gangrene of hand and subsequent amputations have been reported.^[12, 13] Since the free forearm flap on the radial artery is often used in reconstructive surgery, if a superficial ulnar artery is present there is a risk that it may be ligated or cut instead of the superficial vein, causing disorder of circulation in the hand.^[14, 15] On the other hand, the presence of a superficial ulnar artery can be advantageous, since it can be used to supply blood to the forearm flap^[16]

CONCLUSIONS: Since a superficial ulnar artery is a rare variation there is a chance that clinician may encounter this anomaly. Therefore, vascular surgeons, cardiologists, anesthetists or radiologists should always keep in mind such anatomic variation and try to detect it before any technical procedure in the upper limb. This also emphasizes the importance of preoperative arterial Doppler or angiography to correctly identify the regional anatomy.

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