A case Report on an Unusual Superficial Branch of the Brachial Artery

Dr. Sharadkumar Prahlad Sawant
Associate Professor, Department of Anatomy, K. J. Somaiya Medical College, Somaïya Ayurvedh, Eastern Express Highway, Sion, Mumbai-400 022.

ABSTRACT
During routine dissection for Ist MBBS students on 65 year old donated embalmed male cadaver in the Department of Anatomy, K.J.Somaiya Medical College, Sion, Mumbai, India, we observed an unusual superficial branch of the right brachial artery. The brachial artery terminated in the cubital fossa into radial and common interosseous arteries. The radial artery had normal course and branches. The common interosseous artery was deeper and gave anterior and posterior ulnar recurrent arteries, and terminated into anterior and posterior interosseous arteries. The unusual large branch from the brachial artery was a variant of ulnar artery, arose from the lateral side of the brachial artery, descended on the lateral side upto the cubital fossa and crossed the fossa from lateral to medial, superficial to median nerve. It then descended superficial to the muscles arising from medial epicondyle of the humerus and was covered by the deep fascia of the forearm, pierced the deep fascia proximal to the wrist, crossed the flexor retinaculum, and formed the superficial palmar arch. Throughout its course, this artery gave no branch. There were no associated altered anatomy of the nerves observed in the specimen. The variation was unilateral and the left upper limb of the same cadaver was normal. The photographs of the variations were taken for proper documentation and for ready reference. Conclusion: The knowledge of presence of the unusual origin of the ulnar artery from the brachial artery in the axilla may be clinically important for clinicians, surgeons, orthopaedicians and radiologists performing angiographic studies. Undoubtedly, such variations are important for diagnostic evaluation and surgical management of vascular diseases and injuries.

Introduction:
The brachial artery ends in the cubital fossa by dividing into radial and ulnar arteries. At the elbow, the ulnar artery sinks deeply into the cubital fossa and reaches the medial side of the forearm midway between elbow and wrist. The common interosseous artery is a short branch of the ulnar, passes back to the proximal border of the interosseous membrane and divides into anterior and posterior interosseous arteries. Anterior interosseous artery descends on the anterior aspect of the interosseous membrane with the median nerve’s anterior interosseous branch. There were no associated altered anatomy of the nerves observed in the specimen. The variation was unilateral and the left upper limb of the same cadaver was normal. The photographs of the variations were taken for proper documentation and for ready reference.

Case Report:
During routine dissection for Ist MBBS students on 65 year old donated embalmed male cadaver in the Department of Anatomy, K.J.Somaiya Medical College, Sion, Mumbai, India, we observed an unusual superficial branch of the right brachial artery. The brachial artery terminated in the cubital fossa into radial and common interosseous arteries. The radial artery had normal course and branches. The common interosseous artery was deeper and gave anterior and posterior ulnar recurrent arteries, and terminated into anterior and posterior interosseous arteries. The unusual large branch from the brachial artery was a variant of ulnar artery, arose from the lateral side of the brachial artery, descended on the lateral side upto the cubital fossa and crossed the fossa from lateral to medial, superficial to median nerve. It then descended superficial to the muscles arising from medial epicondyle of the humerus and was covered by the deep fascia of the forearm. It invariably descended over the muscles arising from the medial epicondyle of the humerus and was covered by the deep fascia of the forearm. In the present case, ulnar artery is somewhat similar to the variations presented in Quain’s Anatomy (2). If the brachial artery is taken to terminate into radial and ulnar arteries, the embryological basis of the existing ulnar artery and the origin and course of the unusual branch of the brachial artery, replacing the ulnar artery in the present case, is as follows. Primitive axis artery and superficial brachial artery are implicated in the morphogenesis of the arteries of the upper limb (3, 18). The seventh cervical intersegmental artery forms the axis artery of the upper limb and persists in the adult to form the axillary, brachial, and interosseous arteries. Transiently, the median artery arises as a branch of the interosseous artery, begins to regress and remains as a residual artery accompanying the median nerve (18). Radial and ulnar arteries are later additions to the axis artery. An ulnar artery and a median artery are branches of the axis artery. A superficial brachial artery is a consistent embryonic vessel, occurring or not with the brachial artery (19). It has two terminal branches, a lateral that continues as a part of the definitive radial artery (20) and a medial, superficial antebrachial artery, which divides into median and ulnar artery branches, which are the trunk of origin of the median and ulnar arteries. These trunks of deep origin predominate and the superficial arteries regress (8). In the present case, the axis artery had formed the interosseous artery and given the trunks of the median and ulnar arteries. The branch of the superficial antebrachial artery persists independently.
without its usual anastomosis to the branch of the axillary artery, and the superficial ulnar artery, which is found in the distal part of the forearm and joins the superficial palmar arch. If the brachial artery is replaced by the ulnar artery from the brachial artery in the axilla, it may be clinically important for angioplasty, pedicle flaps, arterial grafting or brachial pulse. The knowledge of presence of the unusual origin of the ulnar artery above the obstruction. and, in accordance with this view, the recurrent branches are derived from it (2). The present anomaly is very rare and does not seem to have been reported. This case is of significance. Such an anomaly may present a superficial pulse and a hazard to venipuncture (21) and lead to intra-arterial injections or ligature instead of the vein in the cubital fossa (22, 23). Variation in the branching pattern of the brachial artery is of significance in cardiac catheterization for angioplasty, pedicle flaps, arterial grafting or brachial pulse.

Clinical Significance:
The knowledge of presence of the unusual origin of the ulnar artery from the brachial artery in the axilla may be clinically important for clinicians, surgeons, orthopaedicians and radiologists performing angiographic studies. Undoubtedly, such variations are important for diagnostic evaluation and surgical management of vascular diseases and injuries.

Conclusion:
These variations are compared with the earlier data & it is concluded that variations in branching pattern of axillary artery are a rule rather than exception. Therefore both the normal and abnormal anatomy of the region should be well known for accurate diagnostic interpretation and therapeutic intervention.

Competing interests:
The author declare that he has no competing interests.

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