

Anatomical variations in the radial artery observed in its origin and course: a cadaveric study

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The radial artery is one of the main two branches of the brachial artery. It usually originates at the level of the head of the radius in the cubital fossa and courses along the forearm deep to the flexor muscles; then crosses the anatomical snuff box where it contributes to the formation of deep palmer arch and sometimes to the superficial palmer arch. Anatomical variations are observed in its origin, course, branching pattern, diameter and mode of termination. The radial artery has been described as a route of transcatheter coronary interventions and a site of arterial blood sampling. Therefore, understanding the occurrence and types of variations related to the anatomy of the radial artery would reduce failure rates of the above procedures and complications associated with them.

During routine dissection, 28 limbs of 14 cadavers were examined for the origin course and branching pattern. Among the 14 cadavers, high origin of the radial artery was observed in two cadavers. One (J10) had a unilateral (left upper limb) variation with an origin on the arm 18cm above the medial epicondyle, whereas, the other cadaver (J4) had a bilateral variation with the origin 17 cm above the medial epicondyle. J10 and J4 radial arteries followed a superficial and deep course respectively. An aberrant artery originating from the second part of the axillary artery, which runs a superficial course, was observed in the left upper limb of one cadaver (J12). In addition to this, the aberrant artery, the normal radial and ulnar arteries were identified at their origin at the level of head of the radius. Out of 28 upper limbs dissected four radial arteries (14.2%) exhibit variations in origin and course or an aberrant artery.

Anatomical variations of the radial artery are relatively common. It has clinically significant implications as the artery is considered one of the best routes for transarterial interventions. There is emerging evidence that imaging the artery for possible variations prior to the procedure can reduce the failure rates.