

Case Report

VARIATION IN BIFURCATION OF RIGHT BRACHIAL ARTERY

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ABSTRACT

Brachial artery is a major artery of upper limb and is the branch of 3rd part of axillary artery. In the present case study we found a variation in the bifurcation of the brachial artery of right arm, with brachial artery dividing 7 cm above the epicondyl, a deviation from normal course. Out of two branches radial and ulnar, the radial artery had smaller caliber than ulnar artery. Knowledge regarding the anatomical variations of arteries is of utmost importance for orthopedic surgeons, radiologist and cardiovascular surgeons during various surgical procedures and procedures like angiography.

KEY WORDS: Brachial artery, bifurcation, variation, radial artery.

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INTRODUCTION

Brachial artery is a continuation of axillary artery begins at the distal border of the tendon of teres major and ends about a centimeter distal to elbow joint at the level of neck of radius by dividing into radial and ulnar arteries. Frequently the artery divides more proximally than usual into radial, ulnar and common interosseous arteries [1]. These anatomical variations in the anatomical pattern of upper limb of man has been reported in many studies. The short segment of brachial artery and its variant termination in the form of high up bifurcation are fairly common [2]. Departure from the anatomical norms with respect to origin and course of arteries of upper limb is seen in 18.54%-20% cases [3,4]. Variations of the

upper limb have been documented by many authors and have considerable significance towards the clinical and surgical point of view. The major variations in the arterial patterns reported are higher origin of radial and ulnar arteries [5].

CASE REPORT

During routine dissection of a male cadaver, a variation in the bifurcation of the brachial artery

Of the right upper limb was observed. In this case there was short segment of brachial artery which divides 7 cm above the line joining two epicondyles, a deviation from the normal course where in brachial artery normally divides into radial and ulnar artery in cubital fossa at the level of neck of radius. The branch which was to

become radial artery was smaller in caliber than the branch which continued as ulnar artery in forearm. Segment of brachial artery proximal to bifurcation was giving routine branches like profunda brachii and other muscular branches to flanking muscles. Radial artery in the arm gave only small branches to brachialis and biceps muscles and distal to cubital fossa had the same course as normal. Whereas superior and inferior ulnar collateral arteries along with nutrient artery to humerus took origin from the designated ulnar artery and later had course and relations and branches as normally seen from level of cubital fossa downwards.

Fig. 1: Showing the higher division of Brachial Artery.



DISCUSSION

Variations of the normal arterial pattern in upper limb occur frequently [3]. These anomalies of the forelimb arterial tree are fairly common and are mainly because of their multiple and plexiform sources, the temporal succession of emergence of principal arteries, anastomoses and particular network and functional dominance followed by regression of some paths [6]. Variations in the number and course of the arteries of upper limb are significant from clinical and surgical point of view. Superficial brachial artery is constant embryonic vessel which plays an important role in normal arterial morphogenesis of upper limb. This connects the third part of axillary artery to distal part of brachial or radial artery [7]. Persistence of this vessel leads to formation of two brachial arteries one passing superficial and other deep to median nerve. Superficial brachial artery divides into radial and ulnar artery in cubital fossa, deep brachial artery gives branches in arm as given in normal adult brachial artery [8,9]. High up division of the brachial artery into radial and ulnar arteries in the middle of arm is associated with variant median nerve and absent musculo-

cutaneous nerve [10]. This is also documented in the case of early division of brachial artery in middle of right arm into radial and ulnar artery both of same caliber [2].

In the present case the anomaly reported is rare, though has some support from the literature cited above. The higher origin seen in the present case is not due to persistence of brachial artery from axilla but due to persistence of part of radial artery in the lower part of arm and failure of communication between radial artery and axillary artery in cubital fossa.

CONCLUSION

Knowledge of the variation of brachial artery is important for various surgical and diagnostic procedures and is of utmost importance for cardiovascular surgeons and orthopedic surgeons especially in fractures related to shaft of humerus.

Conflicts of Interests: None

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