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Variant origin of Common Interosseous Artery from Brachial Artery

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ABSTRACT

Acharya Sushruta has emphasized the method and importance of dissection to study anatomy practically. Perfect knowledge of anatomy is vital for practicing surgeons and hence the training of dissecting the dead body was considered as mandatory for surgeons. Though dissection techniques may give the perception of the structure of organs, the pervading and subtle consciousness in the body can be experienced with the eyes of knowledge and penance only. Though the standard anatomy is defined based on statistical inferences on comparing large number of subjects, individual variations and exceptional structural specialties tend to occur quite frequently. Proper recording and publication of such instances would strengthen the knowledge base of the science. Knowledge regarding arterial variations of upper limb is important for surgeons and orthopedicians as they are commonly involved in invasive procedures. We report a case ofvariant origin of right common interosseous artery from brachial artery in cubital fossa. It followed a normal course after the origin.

Key words: Brachial artery, Cubital fossa, Common interosseous artery.

INTRODUCTION

Brachial artery begins in arm as the continuation of axillary artery. It is superficial throughout its course in the arm lying immediately deep to deep fascia. Opposite the neck of radius, it terminates by dividing into radial and ulnar arteries. The ulnar artery, larger terminal branch leaves the cubital fossa deep to the ulnar head of pronator teres. It gives three branches in cubital fossa out of which the common interosseous artery that arises at the level of radial tuberosity, is larger and the chief artery of forearm.

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On reaching the gap above the interosseous membrane, common interosseous artery divides into anterior and posterior interosseous branches.

CASE REPORT

The variation in the origin of Common interosseous artery was observed in a male body aged 60 yrs during routine dissection for undergraduates in SDM College of Ayurveda, Udupi. Common interosseous artery took origin as one of the terminal branch of brachial artery.The point of origin was 4.5 cm below the base and 6cm above the apex of the cubital fossa. The course and termination of ulnar and radial arteries were also observed to be normal. After origin, Common interosseous artery had a normal course and division.

DISCUSSION

Variations in the vascular patterns are generally due to the developmental anomaly of blood vessels in any particular part of the body. The earliest studies of variations in the arterial system have been given by Senior[1] and Singer.[2] Generally these variations are encountered during surgical procedures or at the time

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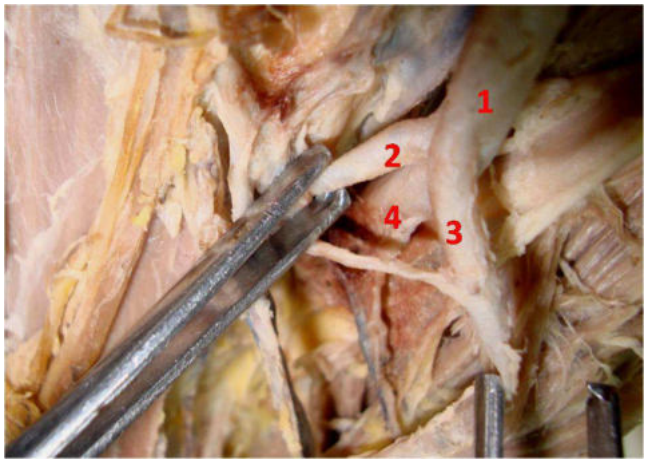

Figure 1: *Origin of Common Interosseous artery from brachial artery. 1. Brachial a., 2: Common Interosseous a. 3: Radial a., 4: Ulnar a.*

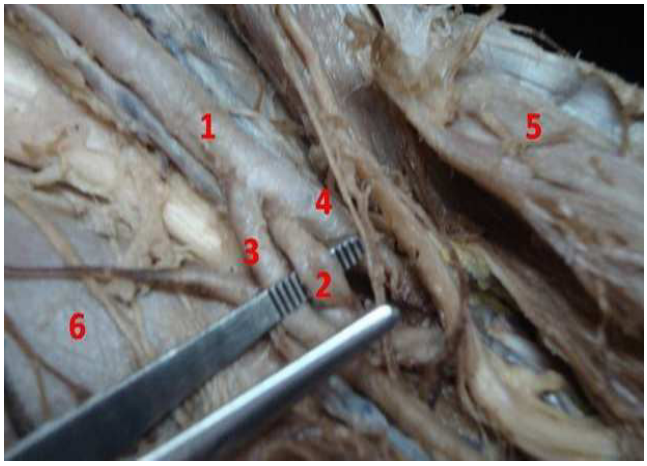

Figure 2: *Origin of Common Interosseous artery from brachial artery. 1: Brachial a., 2: Common Interosseous a. 3: Radial a., 4: Ulnar a., 5:Cut end of Pronator Teres, 6: Brachioradialis, 7:Median n., 8: Tendon of Biceps brachii*

of angiographic procedures or during cadaveric dissections. According to Singer the adult pattern of arterial system develops from the axial artery, which arises from the 7th cervical intersegmental artery which gradually gives rise to other branches supplying the upper limb. The proximal portion of axial artery above the level of teres major forms the axillary artery and beyond its level continues as brachial artery. Distally, in the cubital fossa it continues as interosseous artery. The radial and ulnar artery arises late in the development and gets established; subsequently interosseous artery reduces in size and becomes a branch of ulnar artery.[1]

High origin of radial and common interosseous arteries has been reported in previous studies. Bregman et. al. has reported cases of Common interosseous artery originating from axillary artery or high radial artery.[3] They have also reported common interosseous artery providing the radial artery deep to pronator teres. Mehta et. al. has also reported origin of Common interosseous artery from radial artery in forearm instead of its origin from ulnar or brachial arteries.[4] Sargon et. al. has reported another variation, the proximal origin of radial and common interosseous artery from brachial artery.[5]

High origin of common interosseous artery from brachial artery in arm along with a superficial course of brachial artery has been reported.[6] William et. al. (1999) have mentioned that the brachial artery sometimes, trifurcate proximallyinto ulnar, radial, and common interosseous arteries and ulnar artery may arise proximally.[7] On a study conducted on 20 upper limbs by Bilodi et. al., variation was observed in two limbs with one limb presenting bifurcation of brachial artery and another trifurcation of the brachial artery.[8]

In the present case, the brachial artery had a normal course, and the Common interosseous artery took origin as one of the terminal branches of brachial artery. Further in forearm, the common interosseous artery had a normal course and distribution.

CONCLUSION

The development of vasculature in the precedes the morphological and molecular changes that occur in the limb mesenchyme, hence vascular variations are more of an rule than exception. A detailed knowledge of the normal anatomy and variations of the site of origin and course of the arteries will definitely has the upper hand in the operative procedures. The cubital fossa is commonly used for bloodletting and intravenous infusions, so the understanding of such variations is considerably important because it helps in reducing the chances of hemorrhage and other

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complications. This may be the reason why our *Acharyas* mentioned about the *Avedhya Siras* in the Samhitas.

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