

VARIATIONS IN THE BRANCHES OF AXILLARY ARTERY AND ITS CLINICAL SIGNIFICANCE

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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 dissection the dead body was considered as mandatory for surgeons. During routine dissection to post graduates in Sri Dharmasthala manjunatheshwara College of Ayurveda, Udupi, a variation was observed in third part of axillary artery. It gave a common trunk which divided into subscapular artery, circumflex humeral artery and profound brachial artery, the branches of brachial plexus surrounded this trunk instead of axillary artery, the median nerve was formed in front of common trunk. Knowledge of such variations is also important in interpreting images and in carrying out surgical and anaesthetic procedures involving axillary artery.

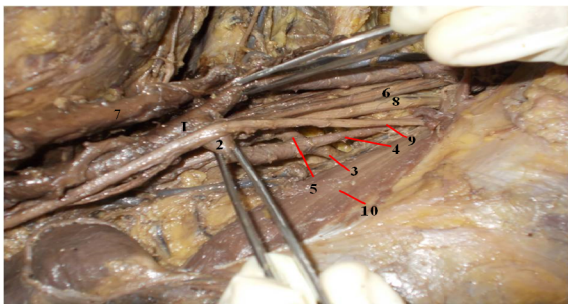
Keywords: axillary artery, brachial plexus, Circumflex humeral artery.

INTRODUCTION

Axillary artery is a continuation of the subclavian artery at the outer border of the first rib. The course of axillary artery is anatomically divided into three parts by the pectoral's minor muscle. The first part begins at the lateral border of the first rib and extends to the super medial border of the pectoral's minor muscle. The second part lies deep to pectoralis minor muscle and third part lies between the inferolateral border of the pectoralis minor and the inferior border of the teres major muscle. The first part of the artery gives superior thoracic artery. The second part gives lateral

thoracic and thoracoacromial artery. The third part gives subscapular artery, anterior and posterior circumflex humeral artery¹. It is very common to find the variations in the branching pattern of axillary artery. Knowledge of variations is important for orthopaedic surgeons as well as for vascular surgeons to avoid complications during various surgical procedures. During routine dissection for postgraduate of shareera rachana, Sri Dharmasthala manjunatheshwara college of ayurveda udupi, Karnataka. We came across a variation in branching pattern of axillary artery in a

male cadaver of approximately 50 years of age. The left axillary artery was found to be normal. The first part of axillary artery gave rise to superior thoracic artery as usual, the second part gave two branches, the lateral thoracic and thoracoacromial artery. The third part of axillary artery instead of three branches gave a common trunk which divided into subscapular artery, circumflex humeral artery and profunda brachii artery, the branches of brachial plexus surrounded this trunk instead of axillary artery, and the median nerve was formed in front of common trunk.



1. Axillary artery 2. Common Trunk 3. Circumflex humeral artery 4. Profunda Brachii artery 5. Subscapular artery 6. Median nerve 7. Axillary vein 8. Radial nerve 9. Musculocutaneous nerve 10. Coracobrachialis

This is a novel observation and has not been described earlier on radiological studies. The subclavian artery and brachial artery of both the right and left sides had normal branching pattern.

DISCUSSION

The variability of branching pattern of axillary artery has been observed and reported by several studies and case reports²⁻⁹. Gross deviation from normal description, as observed in this rare case, can be clinically important and noteworthy for clinicians. However, branches arise as outgrowth from vessels. Such outgrowth is patterned, and follows some guiding factors. Occasional variability in the branching pattern of arteries can be ascribed to alteration in these factors¹⁰. The deviant neurovascular anatomy observed in present case has not been previously reported in available literature. Embryologically, the seventh cervical intersegmental artery forms the axillary, brachial and anterior interosseous arteries of the upper limb. The anomaly could have arisen due to abnormal rate of growth and development, or failure of absorption during the formation of the limbs, resulting in redundancy

of the artery. Axillary artery pulsations serve as an important landmark in brachial plexus blocks.¹¹ In this procedure, the axillary artery is palpated with the arm abducted at right angles to the body and the injection is made at the highest point in the axilla where the pulsations of the axillary artery can be felt¹². Disturbed relationship with brachial plexus, may lead to partial failures of brachial plexus blocks using the axillary artery approach. As in the case the vein lies posterior to the artery, there is a possibility of accidental introduction of anaesthetic agent into the vein during such procedures.

CONCLUSION

Knowledge of occasional variation in the course, relation and branching pattern of axillary artery is important in interpreting images and in carrying out surgical procedures like subclavian vein puncture and anesthetic procedures like brachial plexus blocks involving axillary artery. No variation is reported in 1st part of the artery. Knowledge of variations is important for orthopaedic and vascular surgeons to avoid complications during various surgical procedures in axillary regions and during angiographies respectively. This may be the reason why our Acharyas mentioned about the Avedhya sira in the samhitas.

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