



IJCRR

Section: Healthcare
Sci. Journal
Impact Factor
4.016

VARIATION IN THE BRANCHING PATTERN OF THORACO-ACROMIAL ARTERY

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ABSTRACT

In our present case, we observed a variation in branching pattern of the thoraco-acromial artery which in turn is a branch of second part of axillary artery. Normally the thoraco-acromial artery arises as a single trunk giving rise to four branches. In the present case the thoraco-acromial artery was absent. The clavipectoral trunk and deltoacromial trunk arose directly from axillary artery. The clavipectoral trunk divided into clavicular and pectoral branch whereas the deltoacromial trunk divided into deltoid and acromial branch, the course and termination of branches were normal. The present variation was observed in right axillary artery of a male cadaver during routine dissection of undergraduate students, in Bidar institute of medical sciences, Bidar. There was no variation in the branching pattern of thoraco-acromial artery of second part of left axillary artery. The knowledge of such variation is of important for surgeons while performing cannulation of axillary artery for various procedures and also for orthopaedicians while reducing dislocations of shoulder and correction of fractures of upper end of humerus.

Key Words: Axillary artery, Thoraco-acromial artery, Subclavian artery

INTRODUCTION

Axillary artery is the main arterial stem of the upper limb and is a continuation of third part of subclavian artery. It commences at the outer border of first rib and enters the axilla and at the lower border of teres major, nominally becomes brachial artery.¹ It is divided into three parts by the pectoralis minor muscle. The first part is proximal, second part is posterior and third part is distal to pectoralis minor. It is conventionally described as giving of six branches. The first part of axillary artery has one branch, the superior thoracic artery. The second part of axillary artery has two branches i.e. thoraco-acromial artery and lateral thoracic artery. The third part of axillary artery has three branches anterior circumflex humeral, posterior circumflex humeral and subscapular artery.² The thoraco-acromial artery skirts over the upper border of pectoralis minor muscle to pierce the clavipectoral fascia, often separately by its four terminal branches i.e. deltoid, clavicular, acromial and pectoral. These branches radiate away at right angles from each other in the directions indicated by their names.¹ The pectoral branch descends between the pectoralis minor and major muscle and supplies both muscles and to the mamma. The acromial branch runs laterally over the coracoid process

and under the deltoid supplies the deltoid muscle, it then pierces the muscle and ends on the acromion. The clavicular branch runs upward and medially towards the sternoclavicular joint, supplies the joint and the subclavius. The deltoid (humeral) branch crosses over the pectoralis minor and passes in the deltogroove, between the pectoralis major and deltoid and gives branches to both muscles.²

CASE REPORT

During routine dissection of undergraduate students in Bidar institute of medical sciences, Bidar. In a male cadaver, we found a variation in the branching pattern of right thoraco-acromial artery, a branch of second part of right axillary artery. In present case the thoraco-acromial artery was absent. At the upper border of pectoralis minor the clavipectoral trunk and deltoacromial trunk arose directly from the axillary artery. The clavipectoral branch divided into clavicular and pectoral branch both the branches supplied the clavicle and pectoralis, where as the deltoacromial branch divided into deltoid and acromial branch and supplied the deltoid muscle and acromian. Normally the thoraco-acromial artery arises as

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Received: 02.01.2015 **Revised:** 28.01.2015 **Accepted:** 25.02.2015

a single trunk give rise to four branches separately. The course and branching pattern of thoraco-acromial artery arising from the second part of left axillary artery was normal. The course and branching pattern of first and third part of right axillary artery was normal.

DISCUSSION

Rajesh astik et al dissected 80 limbs of 40 human adult cadavers and reported that in 3 male cadavers (8.8%) there was bilateral absence of thoraco-acromial artery and origin of its all branches directly from the axillary artery. Bilateral absence of thoraco-acromial artery and absence of its all branches were found in 1 female cadaver (16.7%), unilateral absence of thoraco-acromial artery in 1 male cadaver (2.9%) on the right side. Division of thoraco-acromial trunk into deltoacromial and clavipectoral trunk was found only in male cadavers and the incidence was 7.5% i.e. 3 out of 40 cases.³

Pandey et al in their study described the variations of thoraco-acromial artery by dividing it into 3 groups. In the first group, thoraco-acromial trunk was absent, the deltoacromial trunk and clavipectoral trunk arose directly from the second part of axillary artery. In the second group the thoraco-acromial artery was present and gave 3 branches i.e. deltoid, pectoral and acromial branch whereas the clavicular branch arose directly from second part of axillary artery. In the third group thoraco-acromial artery was absent and all branches of thoraco-acromial artery arose directly from aorta.⁴

Chitra et al reported absence of thoraco-acromial trunk and all the branches i.e. deltoid, pectoral, acromial and clavicular arose directly from the 2nd part of axillary artery.⁵

The braches of third part of axillary artery may show great variations i.e. the anterior and posterior circumflex may arise from common trunk or very rarely may arise along with profunda brachii artery.⁶

CONCLUSION

The thoraco-acromial artery in the present case is absent, the clavipectoral trunk and deltoacromial trunk arose directly

arising from the right axillary artery. The knowledge of such vascular variation is important for surgeons while performing axillary lymph node dissection especially during surgeries involving breast, during subclavian artery occlusion creating the bypass between axillary and subclavian artery, while treating the aneurysm of axillary artery, axillary haematoma, and axillary artery after trauma. Sound knowledge of anatomy of axillary artery is important as the branches of axillary artery are used for microvascular graft to replace the damaged arteries.⁷

AKNOWLEDGMENT

Authors would like to acknowledge the scholars whose articles are cited and used for references in manuscript. We are also grateful to ijcr editorial members and reviewers for their suggestion and also for publishing the article.

REFERENCES

1. Chummy S. Sinnatamby. Last's Anatomy, Regional and Applied Anatomy. 12th edition. London: Churchill Livingstone; 2005. p-51.
2. Standring S, Gray's Anatomy 40th Edition. New York Churchill Livingstone; 2008. p-815.
3. Rajesh Astik, Urvi Dave. Variations in branching pattern of the axillary artery: A study in 40 human cadavers. Journal Vascular Bras.2012; 11 (1):12-17.
4. Pande SK, Shukla VK. Anatomical variation in origin and course of the thoraco-acromial trunk and its branches. Nepal Medical College Journal. 2004; 6:88-91.
5. P. S. Chitra and V. Anandhi, A unique variation in branching pattern of axillary artery International Journal of Anatomical Variations. 2013;(6):1-3.
6. Bergman R.A, Thomson S.A, Afifi A.K, Saadeh F.A. Compendium of Anatomic variation in Cardio vascular system. Baltimore, Urban and Schwarzenber, 1988. p-72-73.
7. Bhat KM, Gowda S, Potu BK, Rao MS. A unique branching pattern of the axillary artery in a South Indian male cadaver. Bratisl Lek Listy. 2008; 109: 587-589.

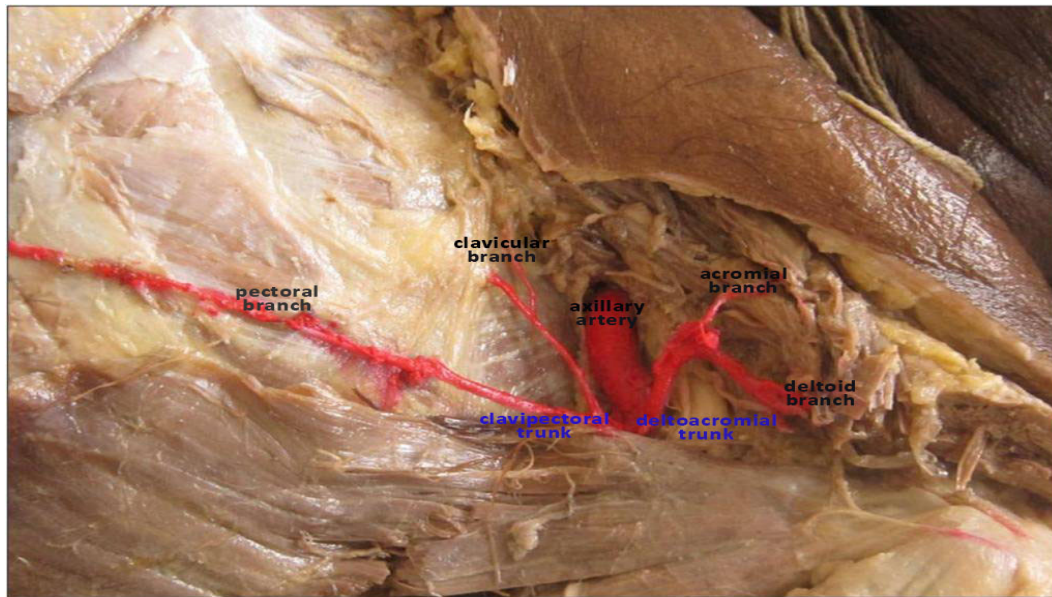


Figure 1: Showing origin of clavipectoral trunk and deltoacromial trunk arising directly from second part of axillary artery.