

## Axillary Artery –Its Varied Branching Pattern –Case Report

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### ABSTRACT

The axillary artery extends from outer border of first rib to the teres major and divided into three parts by pectoralis minor. The branches of this vessel supply pectoral region, lateral thoracic wall and contribute branches for scapular anastomosis. In the present case, the normal branching pattern of the axillary artery was varied as the branches of third part of axillary artery arose from second part as a common trunk. Varied anatomy of the axillary artery is helpful for diagnostic interpretations and during surgical intervention.

*Key words:* Axillary artery, Pectoralis minor, Common trunk, Subscapular artery

### INTRODUCTION

The axillary artery is a continuation of the subclavian artery from the outer border of the first rib to lower border of teres major muscle and continues further distally as brachial artery. It is divided into three parts by the pectoralis minor muscle and gives superior thoracic artery from first part, lateral thoracic and thoracoacromial arteries from the second part and third part gives three branches –subscapular artery, anterior and posterior circumflex humeral arteries. These branches may vary in its origin in 30% of the cases, the subscapular artery can arise as a common trunk with the posterior circumflex humeral artery or there may be a common trunk for the branches of second and third part of axillary artery. The knowledge of the normal and variant arterial anatomy of the axillary artery is important in clinical procedures like coronary bypass and flaps in reconstructive surgeries and for surgeons attempting to reduce old dislocation.[1]

### CASE REPORT

During the dissection of upper limb for undergraduate medical students of 1<sup>st</sup> year, a variation in the branching pattern of axillary artery was observed on the right side of a male cadaver. The axillary artery was divided into three parts by pectoralis minor. The first part of the vessel did not show any branches and the second part of axillary artery gave three branches. They were identified as superior thoracic artery and thoracoacromial artery and a common trunk. This common trunk was divided into four branches as lateral thoracic, thoracodorsal artery, circumflex scapular artery and posterior circumflex humeral arteries. Lateral thoracic artery was directed downwards to supply lateral thoracic wall. The thoracodorsal artery accompanied by thoracodorsal nerve and was passing along the posterior axillary fold to supply latissimus dorsi muscle. Normally the course of the thoracodorsal nerve is posterior to the corresponding vessels but in this case it passed anterior to the common trunk and thoracodorsal artery.

Circumflex scapular artery and posterior circumflex were the other branches of this common trunk. Posterior circumflex humeral artery accompanied axillary nerve. Anterior circumflex humeral artery was direct branch from third part of axillary artery.[Fig.1]



Fig.1 showing varied branching pattern of Axillary artery

## DISCUSSION

Variations in the branching pattern of axillary artery were reported by various workers .Gaur S et al reported that variations in branching pattern. They reported subscapular artery arising from second part of axillary artery in 4%cases and in up to 30% of it arises from a commontrunk with posterior circumflex humeral artery. [2] Srimathi reported a common trunk from the second part of axillary artery gave origin to thoraco acromial, lateral thoracic, subscapular and posterior circumflex humeral arteries.[3]

Parveen et al reported a bilateral common trunk from 2nd part that gave origin to posterior circumflex humeral artery, subscapular artery and lateral thoracic artery while anterior circumflex humeral artery branched normally from 3rd part of axillary artery.[4]

These variations are due to defects in embryonic development of the vascular plexus in upper limb bud, which may be due to an arrest in the development of vessels followed by regression, retention or reappearance. This leads to variations in the arterial origin . This unusual course is clinically important for vascular radiologists and surgeons that can cause complications during surgeries involving the axilla and pectoral regions [5,6].

Knowledge of branching pattern of axillary artery is necessary in patients planning the branches of the axillary artery for the use of micro vascular graft to replace the damaged arteries and in axillary-coronary bypass shunt in high risk patients, surgical intervention of fractured upper end of humerus and shoulder dislocations. So the normal and abnormal anatomies of the axillary artery is important for accurate diagnostic interpretation and surgical intervention In breast reconstruction surgeries,thoracodorsal artery along with lateral thoracic and circumflex scapular artery are commonly used as recipient vessels.[7])As lateral thoracic is the main artery supplying nipple areolar complex in majority of females and any compromise in its blood supply leads to nipple-areolar necrosis. The variant origin and distribution of lateral thoracic artery should be kept in mind during procedures like radical mastectomy, mastopexy, breast reconstruction and reduction.[8,9,10]

## CONCLUSION

The branches of axillary artery are important source of arterial supply to structures of pectoral region. Variant arterial anatomy of vessels is due to arrest or retention of some vascular plexus during development. The knowledge of varied branching pattern of axillary artery is important during microvascular grafts and breast reconstructive surgeries.

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