

Case Report

DOUBLE AXILLARY ARTERY-A CASE REPORT

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Abstract:

A Variant pattern of axillary artery branching was observed in a 50 year old male cadaver. On the right upper limb, the third part of axillary artery bifurcated into two trunks-superficial and deep. The superficial trunk continued distally as brachial artery. The deep trunk after running for a short course gave the following branches-subscapular artery, anterior and posterior circumflex humeral arteries and continued distally as profunda brachii artery. The importance of this observation is in various streams especially Vascular surgery, general surgery as well as in Doppler and contrast imaging of vessels.

Keywords: Axillary artery, doubling, variations

INTRODUCTION:

Axillary artery is a continuation of the subclavian artery. It begins at the outer border of the first rib, and ends nominally at the inferior border of the teres major muscle, after which it is named the brachial artery. Pectoralis minor crosses the artery superficially and so divides it into three parts which are proximal (1st part), posterior (2nd part) and distal (3rd part). The branches of the artery are superior thoracic (from the 1st part); thoraco-acromial and lateral thoracic (from 2nd part) and subscapular and anterior and posterior circumflex humeral arteries from the third part [1]. Considering the higher incidence of the artery's anatomical variations, proper anatomical knowledge of such anomalies may be of great clinical significance to Vascular Surgeons, Orthopaedicians and radiologists for performing angiographic studies.

CASE REPORT:

The case was seen during routine undergraduate cadaveric dissection. In a male cadaver of around 50 years of age, the abnormality was noted on the right upper limb.

The third part of axillary artery (distal to pectoralis minor muscle) bifurcated into two trunks-superficial and deep (figure 1). The superficial trunk continued as the brachial artery in the arm (figure 2). The deep trunk after running for a short course gave the following branches-subscapular artery, anterior and posterior circumflex humeral arteries and continued as profunda brachii artery (figure 3). Rest of the branches were normal. The median nerve ran between the superficial and deep trunks.

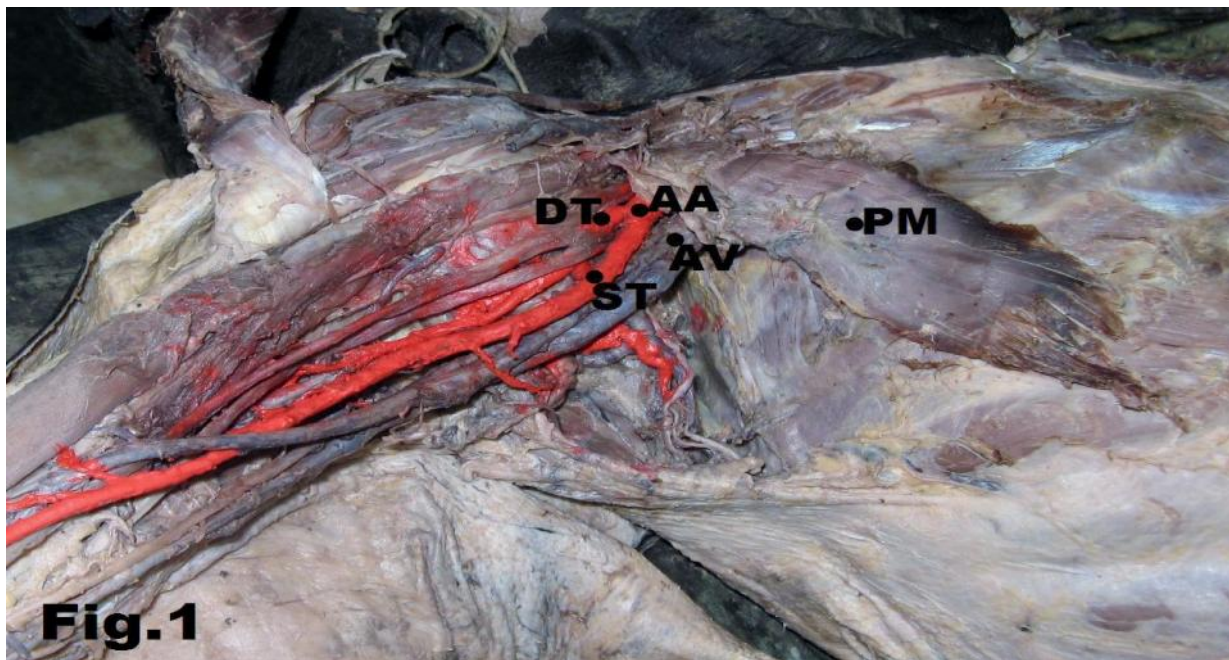


Fig.1 - Showing division of third part of Axillary artery distal to pectoralis minor

PM - Pectoralis minor

AA - Axillary artery

ST - Superficial trunk

DT - Deep trunk

AV - Axillary vein

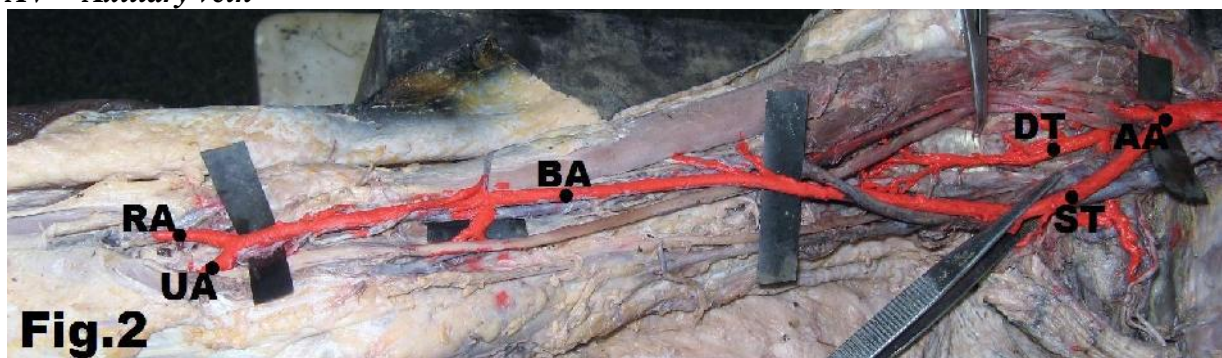


Fig.2 – Showing Superficial trunk continuing as brachial artery and dividing into Ulnar and Radial arteries at elbow.

AA - Axillary artery

ST - Superficial trunk

DT - Deep trunk

BA - Brachial artery

RA - Radial artery

UA - Ulnar artery

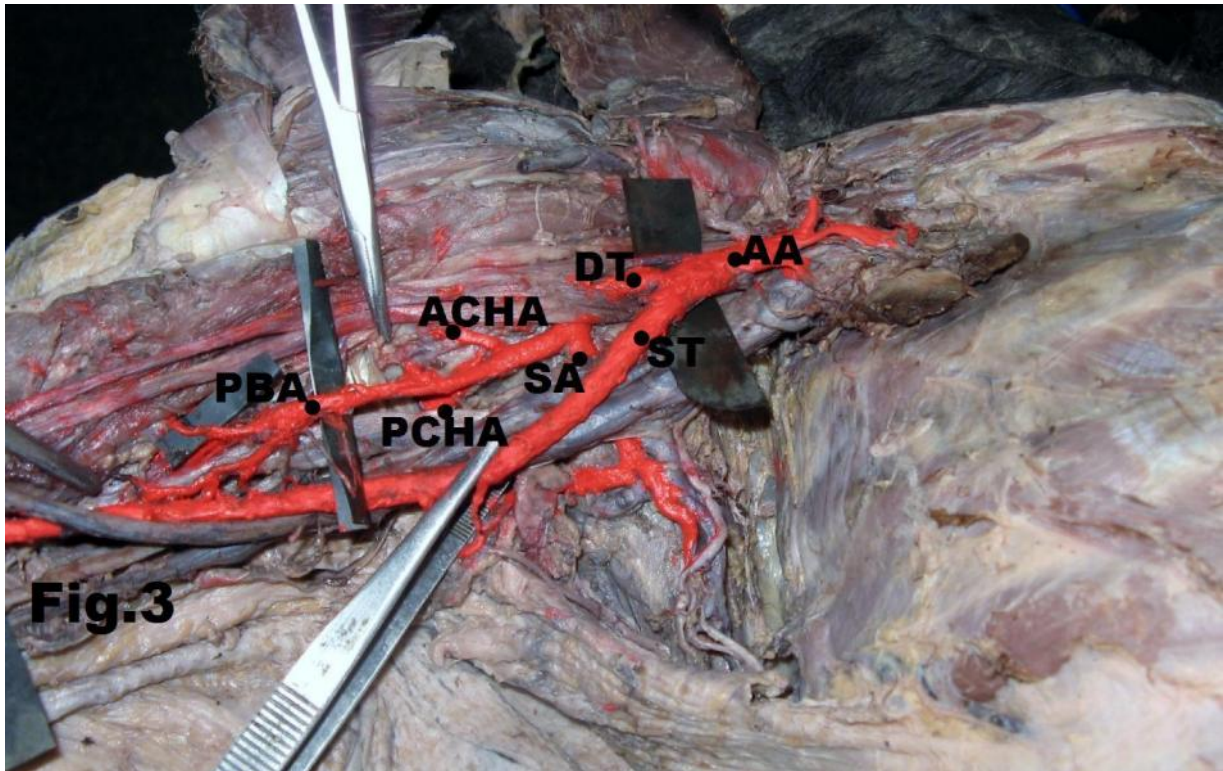


Fig.3 – Showing the branches of the deep trunk

AA - Axillary artery

ST - Superficial trunk

DT - Deep trunk

SA – Subscapular artery

ACHA – Anterior circumflex humeral artery

PCHA – Posterior circumflex humeral artery

PBA –Profunda brachii artery

The left side showed no abnormality.

DISCUSSION:

Variation in branching pattern of axillary artery has been reported in the past. McCormack and his co-workers (1953) encountered a single example of the rare accessory brachial artery or doubling of the brachial artery². Maraspin LE(1971) has reported an anomalous bifurcation of right axillary artery in man³.

Abdo Jurjus et al (1986) have reported that in their study the anomalous brachial artery, after giving off a profunda brachii artery with no collaterals divides in its upper 1/3rd into two brachial arteries⁴.

Hollinshead's textbook of anatomy describes that in approximately 30% of individuals, there are two arteries that proceed down the arm in one or both limbs. This anomaly may arise in two ways. Most commonly, the brachial artery gives off its radial or ulnar branch at a higher level than usual, well above the cubital fossa. Less frequently, there is a true doubling of the brachial artery, the axillary artery having given rise to two vessels,

rather than one. The identity of the vessels is determined by their relation to the median nerve and their fate in the forearm. The normal artery takes the usual course of the normal brachial artery. The anomalous artery lies in a more superficial position and is named either a superficial brachial artery or superficial radial artery or superficial ulnar artery depending on the course it pursues in the forearm⁵. Safiye cavdar Ali et al (1999) have reported a case of axillary artery branching similar to the present one⁶. Yoshinaga et al (2003) observed bifurcation of brachial artery into a large superficial branch and a small deep branch at the distal border of teres major muscle⁷. Jayakumari.S et al (2006) has found out a rare case of double brachial artery⁸. Doris George Yohaman(2013) has reported doubling of second part of axillary artery⁹. In the present study, third part of axillary artery bifurcated similar to the findings of Maraspin³ and Safiye cavdar Ali et al⁶. The embryological reason for the doubling is that there is persistence of of vascular channel that would have normally disappeared during the course of development as mentioned by Jurjus et al(1999)¹⁰.

Any arterial variation can have both morphological and clinical significance. Cardiologists, radiologists or vascular surgeons involved in the procedure should be attentive to these possibilities of anatomical Variations and require, in case of doubt, a colour Doppler ultrasound of the limb.

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