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Anatomical Variation in Branching Pattern of Axillary Artery

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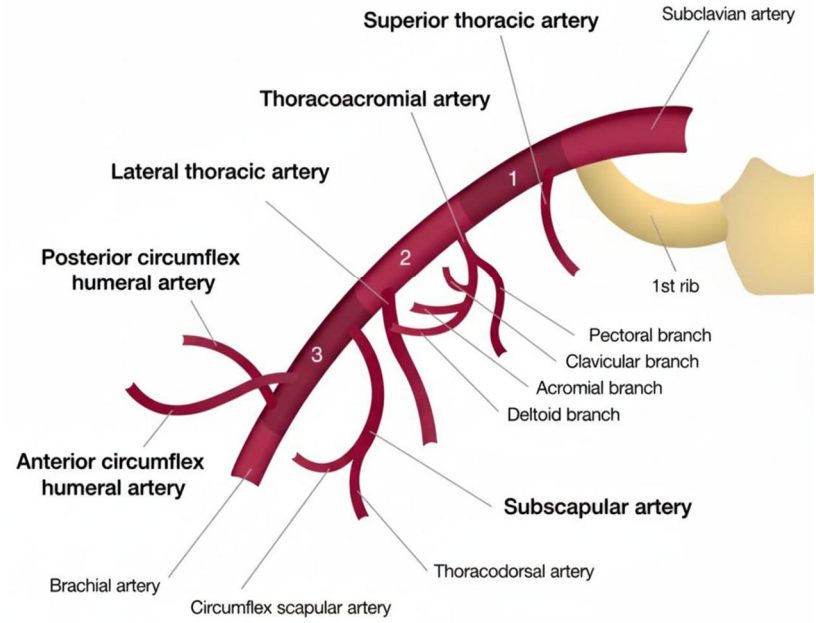
Abstract: ***We discovered a variation in the branching pattern of the right axillary artery during routine dissection of an approximately 60-year-old male cadaver for postgraduate and undergraduate medical students at the postgraduate institute of ayurveda dr sarvepalli radhakrishnan rajasthan ayurved university Jodhpur. The second part of the axillary artery gave rise to thoracoacromial artery and a shared trunk that split into the subscapular and lateral thoracic arteries. The anterior and posterior circumflex humeral arteries were formed by the third part of the right axillary artery. Variations in the branching pattern of the axillary artery are essential for cardiovascular surgeons doing interventional or diagnostic operations.***
Keywords: Axillary artery • Anatomical variation • Branching pattern • Subscapular artery

I. INTRODUCTION

Axillary artery is a continuation of subclavian artery. Axillary artery extends from the outer border of the first rib to the lower border of the teres major muscle, where it continues as brachial artery. The pectoralis minor muscle is anteriorly related to the axillary artery and divides it into three parts, the first extending from the outer border of the first rib to the upper border of the pectoralis minor muscle, the second lying behind the pectoralis minor muscle, and the third extending from the lower border of the pectoralis minor muscle to the lower border of the teres major muscle. The superior thoracic artery is generally derived from the first half of the axillary artery, the lateral thoracic artery and the thoracoacromial artery from the second part, and the subscapular, anterior circumflex humeral, and posterior circumflex humeral arteries from the third part[1].



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II. CASE REPORT

We discovered a difference in the branching pattern of the right axillary artery in a male cadaver of around 60 years of age during routine dissection for postgraduate and undergraduate medical students at the postgraduate institute of ayurveda dr sarvepalli radhakrishnan rajasthan ayurved university Jodhpur. It was discovered that the left axillary artery was normal. The first section of the axillary artery gave rise to the superior thoracic artery, as expected, but the second section gave rise to thoracoacromial artery as expected and a single trunk that separated into the lateral thoracic and subscapular arteries. The artery's third section gave rise to the anterior and posterior circumflex humeral arteries . This is a novel finding that has not before been reported in radiological research. Both the right and left subclavian arteries and brachial arteries displayed normal branching patterns.

III. DISCUSSION

The branching arrangement of the axillary artery varies often. According to Samta et al., 28% of cases evaluated have variance in the branching pattern of the axillary artery. In 4% of cases, the subscapular artery emerges from the second section of the axillary artery, and in up to 30% of cases, it arises from a shared trunk with the posterior circumflex humeral artery [2]. Huelke reported in his study that the subscapular artery comes from the first section of the axillary artery in 0.6% of cases, the second part in 15.7% of cases, and the third part in 79.2% of cases [3]. Rao et al. previously described variation in axillary artery branching pattern, in which the third half of the left axillary artery gave origin to subscapular, anterior and posterior circumflex humeral, profunda brachii, and ulnar collateral arteries from a common trunk [4]. Samuel et al. described a common trunk from the third part of the axillary artery that gave rise to the anterior circumflex humeral, posterior circumflex humeral, and subscapular arteries, then descended into the arm to give rise to the radial collateral, middle collateral, and superior ulnar collateral arteries [5]. A shared trunk from the second section of the axillary artery gave origin to the thoracoacromial, lateral thoracic, subscapular, and posterior circumflex humeral arteries, according to Srimathi [6]. George et al. [7] described a case in which the axillary artery gave rise to a huge aberrant arterial trunk, which thereafter split into a shared circumflex humeral-subscapular trunk and profunda brachii artery.

In this scenario, the second branch of the axillary artery gave rise to a common trunk that split into the lateral thoracic and subscapular arteries. The variation in the branching pattern of the axillary artery could be attributable to abnormalities in the embryonic vascular network caused by development arrest at any time. Vascular differences may be caused by developmental abnormalities in surrounding tissue [8].

Variations in the branching pattern of the axillary artery should be considered when conducting axillary-subclavian artery bypass in the surgical treatment of subclavian artery blockage[8]. In this instance, the common trunk can be used for bypass. Aneurysms and injuries to the axillary artery may necessitate reconstructive surgery, and variants such as the one presented here may complicate the treatment.All these applications make present variation noteworthy.

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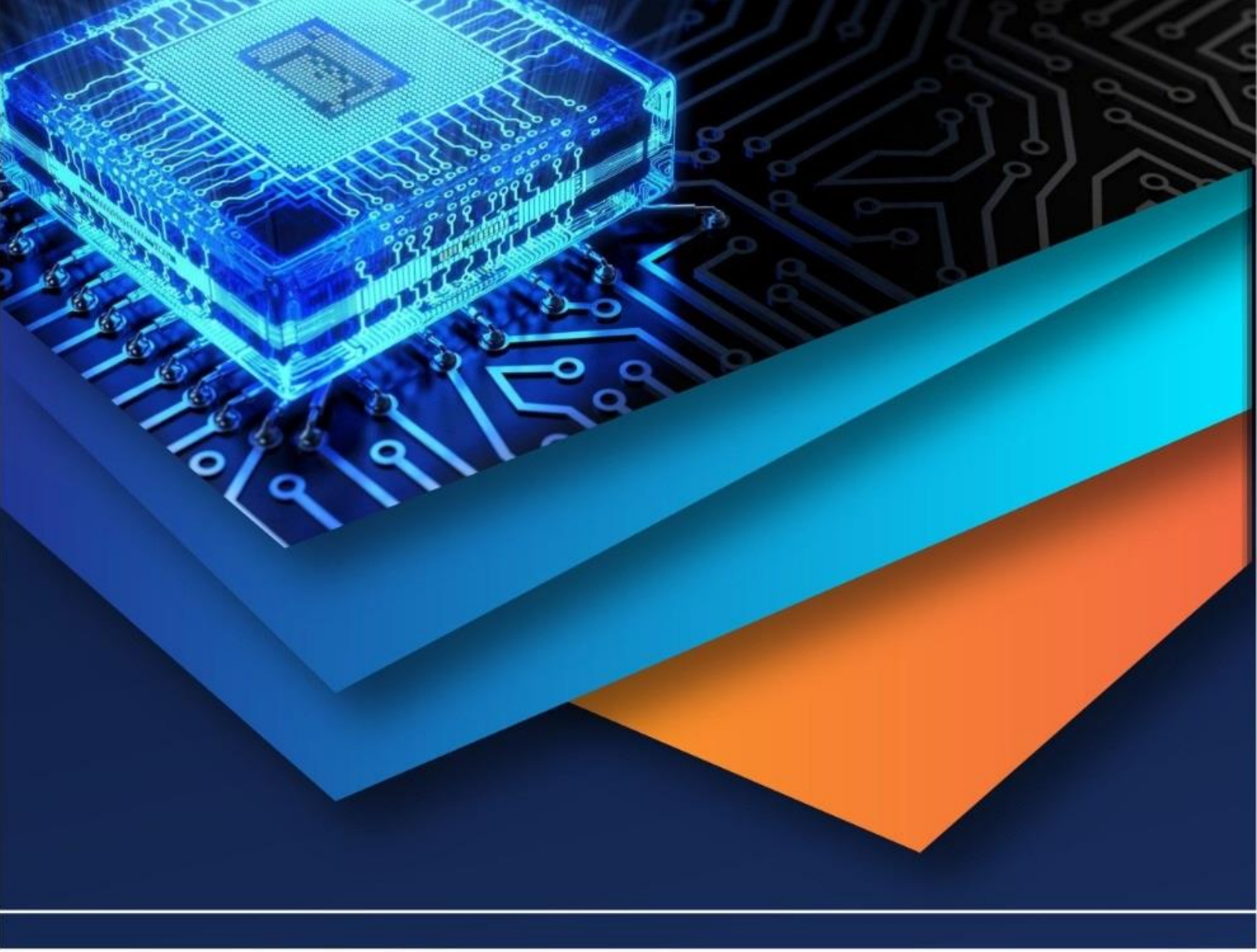

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