

Bilateral Abnormal Origin of Radial Artery From 3rd Part of Axillary Artery: A Case Report

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Abstract

The present case report shows the variation of the radial artery in its origin and superficial course, during routine dissection in the Dept. of Anatomy of Indira Gandhi Govt. Medical College Nagpur.

A higher bifurcation of 3rd part of Axillary artery into radial artery and brachioulnarartery is being reported in right and left side of upper limb of a female cadaver. This radial artery is superficial throughout in its course. It is continued as radial artery and another artery remain as main trunk of brachioulnarartery & descend down wards in forearm as ulnar artery. Incidence of this type of vascular pattern can be a result of developmental anomaly during the formation of blood vessels of the upper limb. This variation has diagnostic, interventional and surgical significance.

Keywords: Abnormal radial artery; Axillary artery variation; Superficial brachioradial artery.

Introduction

Variations in the arterial pattern of upper limb are common and have been reported by several investigators.[1]

Axillary artery is the direct continuations of the subclavian artery at the outer border of the 1st rib.

The course of the axillary artery is the anatomically divided into 3 parts by the pectoralis minor muscle into 3 parts.[2]

Out of this 3rd part gives subscapular artery, anterior and posterior circumflex humeral artery.[3]

Radial artery is smaller terminal branch of brachial artery and begins in the cubital fossa

about 1 cm. below the bend of elbow at the level of the neck of radius.

Brachial artery is continuation of axillary artery. In the hand branches of radial artery and ulnar artery contribute to the formation of superficial palmar arch.[4]

Case Report

During routine under graduate dissection of a female embalmed cadaver in the Dept. of Anatomy, at Indira Gandhi Government Medical College, Nagpur.

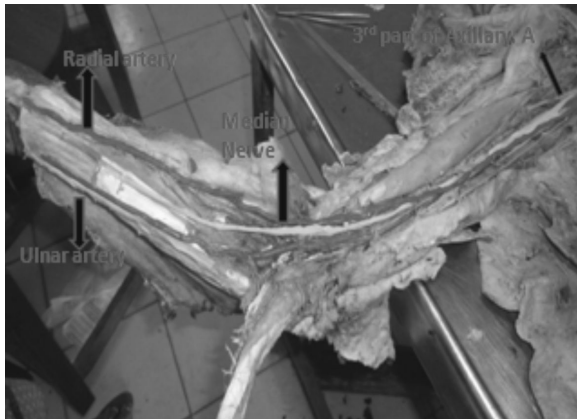
An anomalous branch arising from the 3rd part of the axillary artery proximal to the union of the two roots of the median nerve was observed in both side of upper limb. It passes between the two roots of the median nerve on the both side. It then crossed from medial to the lateral of the arm superficial to biceps brachii muscle. Radial artery did not give any branch in the arm. In the cubital fossa it anastomoses with brachial artery via a communicating branch. In the forearm its course was similar to the radial artery and it descend superficially in the lateral part of the forearm and entered into the anatomical snuff box. Finally it terminates by forming a deep

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Origin of right radial artery & its course in arm & forearm.



Origin of Lt. Radial Artery

Course of Lt. Radial Artery in Arm and Forearm

palmar arch completed by the deep branch of ulnar artery.

This anomalous artery can be considered as radial artery originated from the 3rd part of axillary artery. Such an anomalous radial artery has been called a superficial brachio

radial artery. Because of its superficial course in arm and forearm, it is called as superficial brachio radial artery.

And this radial artery shows its tortuous course and its crossing superficial to the ulnar artery make this variation special and unique. This course and nature of the radial artery may cause problems in invasive procedure.

Discussion

The variations in the branching patterns of the arteries of the limbs have clinical and surgical significance.[5]

Anomalies of the arteries of the upper limb are common, as their development is dependent upon many sources, as well as on a precise sequential pattern of the formation and regression of some of the arteries.[6]

Some of the earliest study reports on the variations in the arterial system have been made by Senior[7] and Singer[8]. According to Bergman *et al* the high origin of the radial artery is seen in 15% cases and that of the ulnar artery is seen in 2% cases. This high division may occur at any point in the normal course of the vessels. But it is more common in the middle third portion of the course.[9]

The brachioradial artery, one of the varieties of radial artery with anomalous origin, is the commonest arterial variation of the upper limb.[10]

Rodriguez -Niedenfuhrer studied the variations of the arterial pattern in the upper limbs and observed that the incidence of brachioradial artery to be 13.8% where as superficial brachioradial 0.26%.[11]

The case we reported here had superficial brachioradial artery, a rare variation which originated directly from the 3rd part of axillary artery just above the formation of median nerve and this is hypoplastic in the proximal portion, which makes it difficult for angiographic procedure or guiding catheter into the axillary arteries during cardiac catheterization.[12] Unusual origin of the

radial artery may cause failure in the reconstructive surgery of the upper limb, it can be ligated or cut considering it as a vein leading to disorder in circulation of the hand.[13]

Clinical Implication

The knowledge on the variation which has been reported here is important in procedure like cardiac catheterization, arterial grafting and other angiographic procedure. This type of a variation may cause a misinterpretation of the angiographic images. Accidental punctures of the superficially placed arteries may occur while venipuncture are attempted, which are susceptible to damage in orthopedic and plastic surgery operation.[14]

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