

Case Report

PERSISTENT PALMAR PATTERN OF MEDIAN ARTERY BILATERALLY

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ABSTRACT

Persistent median artery and distribution in both hands, was observed in formalin fixed superior extremities of adult cadaver in the department of Anatomy, Dr. B.R.Ambedkar Medical College, Bangalore. The persistent median arteries on both sides were arising from ulnar artery, accompanied the median nerve and contributed to the superficial palmar arch which supplied the lateral 2 ½ fingers. Persistent median artery may be present asymptotically in most of the individuals but it may lead to compression symptoms of median nerve when artery is subjected to compression. Therefore this kind of anomaly is of clinical importance.

KEY WORDS: MEDIAN ARTERY; SUPERFICIAL PALMAR ARCH; ULNAR ARTERY; AXIS ARTERY.

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Access this Article online

Quick Response code



Web site: International Journal of Anatomy and Research
ISSN 2321-4287
www.ijmhr.org/ijar.htm

Received: 15 July 2013

Peer Review: 15 July 2013 Published (O):24 July 2013

Accepted: 22 July 2013 Published (P):30 Sep 2013

INTRODUCTION

Vascular anomalies of the limbs are very common with the predominant venous anomalies followed by the arterial anomalies. Among the various arterial anomalies of upper limb, the embryological remnants are usually seen in forearm. In case of upper limb, the persistent axis artery in the form of median artery is frequently seen [1]. This kind of persistence is common because of the complexity in the development of the arteries of upper limb in the form of plexus, branching, re-establishment of the anastomosis and disappearance of the additional arteries. The embryonic artery of upper limb is called the axis artery of upper limb. It is the lateral branch of the seventh cervical intersegmental artery which in turn is a branch of fourth aortic arch. It continues in the forearm and hand. In the hand it ends by forming a plexus. The axis artery in the forearm is the median artery which remains for a short time in the forearm during the embryonic life.

In the beginning of foetal life the ulnar and radial arteries grow from it and the median artery regresses in size to become very slender, runs along with median nerve and is called arteria comitans nervi median [1,2]. When it persists in adults it retains the primitive arterial pattern. The incidence of the persistence is reported as 4.4 to 8.3% [3,4]. This was most commonly seen in South African cadavers (27.1%) [5]. When the median artery is subjected to compression, the symptoms were similar to carpal tunnel syndrome and pronator teres syndrome [6].

CASE REPORT

During routine dissection of 50 upper limbs of 25 adult formalin fixed cadavers in the Department of Anatomy, Dr. B.R.Ambedkar Medical College, Bangalore, presence of persistent median artery was observed in both upper limbs of a male cadaver which was arising from ulnar artery.

The median artery in each hand accompanied the median nerve throughout its course and was contributing to the superficial palmar arch along with ulnar artery. The median artery gave 1st and 2nd common digital arteries which supplied the first and second web spaces. It supplied lateral 2 ½ fingers. The radial artery was normal except for the superficial palmar branch which was absent. (Fig. 1 and Fig. 2)

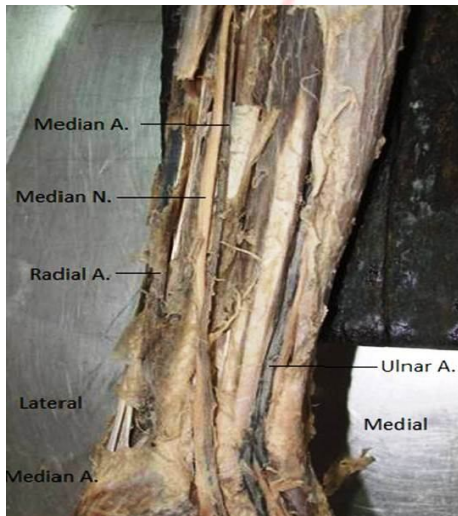


Figure 1. Persistent Median artery accompanying the median nerve till the palm.

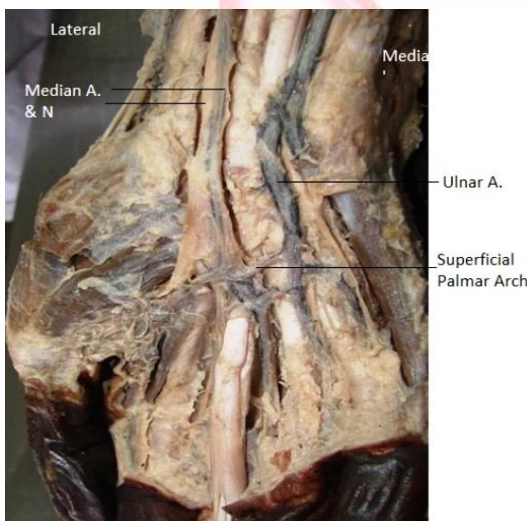


Figure 2. Persistent Median artery and ulnar artery forming the superficial palmar arch. The lateral 2 ½ digits are supplied by the persistent median artery through superficial palmar arch.

DISCUSSION

The median artery is the embryonic artery which disappears in the hand and becomes slender to end in the forearm in postnatal life [1,2]. The incidence of the median artery varies from 1% to 27.4% [7,8,9,10,11,12,13] 17%, In the present observation it was 2%.

It can persist in two patterns, one is the palmar pattern and the other is the antebrachial pattern depending upon the area of distribution. The palmar pattern was observed in 20% of cases studied and is more common in females and bilaterally (4:1). The antebrachial pattern was seen in 76% of cases studied and more frequently seen unilaterally and in females. It was prevalent on the right side than on the left [6]. In the present study the palmar pattern was seen with its contribution to the superficial palmar arch (Fig 2), which coincided with the studies conducted by J.R.Sanudo but with complete superficial palmar arch [6,14]. The anatomic neurovascular relations may cause compression symptoms simulating carpal tunnel syndrome and pronator teres syndrome. The compression to the artery may be from inside as in thrombosis, arteriosclerosis and calcification of the wall, or external, as the compression to the artery can be caused by neighboring structures. Evolutionarily, the presence of median artery is a normal feature in lower tetrapods and preserved in most of the domestic animals [14].

The persistent median artery is asymptomatic in most of the cases and therefore, the incidence cannot be giving the factual percentage. It was detected ultrasonographically and the incidence was more in such an observation with 26% unilateral and 6% bilateral and females predominate [15]. The incidence observed was more in case of South African cadavers with 27% with no sexual dimorphism and no difference in the bilaterally [5].

CONCLUSION

Persistent median artery represents the axis artery of the upper limb in the embryonic life. It is a normal feature in tetrapods and also seen in most of the domestic animals. In human beings it regresses in size and extends only up to the distal forearm. In the present observation the median artery was arising from the radial artery and formed superficial palmar arch. Its distribution was to the lateral 2 ½ fingers. Usually it is asymptomatic but may cause symptoms of carpal tunnel syndrome or pronator teres syndrome when subjected to compression. The compression can be internal or external. Rarely this artery is taken for arterial reconstruction.

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How to cite this article:

Dr. Prathap Kumar, Dr. Roopa Kulkarni. Persistent palmar pattern of Median artery bilaterally. Int J Anat Res, 2013;02:43-45.