EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 3
Issue: 9
431-433
Year: 2016

A STUDY OF VARIATIONS IN THE ORIGIN OF RADIAL ARTERY IN ADULT CADAVERIC SPECIMENS.

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Article Received on 11/07/2016 **Article Revised on 31/07/2016** **Article Accepted on 21/08/2016**

ABSTRACT
The study of variations in the origin of radial artery taken for study due to its great importance in clinical practice and in Surgical practice. The anatomical knowledge for the variations of radial artery is essential for clinicians and Surgeons, as the radial artery is the choice of artery in recent advanced procedures for vascular Surgeries & diagnostic purpose. The radial artery is important for radiologists during Surgical invasive and non-invasive manipulative procedures. Caronary artery bypass grafting has gained wide spread of importance in treating Coronary artery diseases, the radial artery is the artery must widely used as harvesting material in Caronary artery bypass grafts (CABG). Radial artery is the artery of choice for dialysis in Chronic renal failure (CRF) by making an autogenous fistula because of peak flow rate. The radial artery is also used in reconstructive microvascular Surgeries. Radial pulse is of clinical importance, presence of radial pulse indicate systolic blood pressure of more than 70mm of Hg. Radial artery puncture is performed to obtain arterial blood sampling for gas analysis. **Materials and Method:** The present study conducted in 100 upper limbs of 50 cadavers in Guntur Medical college, Guntur during the dissections of 1st year MBBS students for a period of 5 years. **Results:** Length of arteries were measured from the point of bifurcation of brachial artery into radial and ulnar arteries. (1) High origin was observed in 5 cadavers out of 50 Cadavers. 3 Specimens shown – high origin of radial artery in the middle of arm. (2) One specimen the radial artery originated from axillary artery and the brachial artery continued as ulnar artery. (3) One case the radial artery arised from the brachial artery at the upper part of the arm. **Conclusion:** Incidence of variations 10% (5 out of 50 cadarers). In the middle of the arm = 6%, From the axillary artery 2%, In the upper arm 2% variant origin of radial artery noted.

KEYWORDS: Radial artery, Brachial artery, High origin.

INTRODUCTION
The radial artery is one of the terminal branch of brachial artery and it begins in the cubital fossa about 1 cm below the bend of elbow at the level of the neck of the radius and just medial to the tendon of biceps brachii. The artery leaves the apex of cubital fossa where it is overlapped Partially by the brachioradialis. In the rest of the forearm it runs subfascially and intervenes between the tendons of brachioradialis and flexor carpi radialis muscles. At the wrist, the artery winds dorsally beneath the tendons of abductor pollicislongus and extgensorpollicisbrevis, crossesthe anatomical snuff box and leaves the dorsal surface of the wrist through a triangular gap between two heads of first dorsal interosseous muscle, where it is crossed superficially by the extensor policislongus tendon. In the hand the artery appears in the palm usually between the oblique and transverse heads of adductor pollicis and anastomoses with the deep branch of ulnar artery to form deep palmar arch. The artery gives (1) the radial recurrent artery (ii) muscular branches in the fore arm; (i) dorsal carpal branch (ii) palmar carpal branch (iii) superficial palmar branch at the wrist; (i) first dorsal metacarpal artery (ii) arteriaprincepspollicis & (iii) arteriaradialisindicis in the palm (Ref.1). The radial artery can be exposed surgically at its lower end which is the most common site for arterial cannulation (Ref.-2). The brachial artery may bifurcate anywhere in the brachium, resulting in a superficial radial artery in 14% of the population (or) a superficial ulnar artery in 2% of the population (Ref.3). Arterial variations in the upper limb was noted first time by Von Haller – 1813. He also made embryological studies on the variation of arterial pattern of upper limb in the adult cadavers and he thought that the variations represent the embryonic stage. Charles (1894) Schwalbe (1898) reported the absence of radial artery was rare. Anson & Miller stated high origin of radial artery most commonly at the level of proximal 1/3rd of the arm. M.C. Cormack dissected 107 specimens and the variations were 14.27% (Ref.4) Karleson and Niachajev

(1982) and compata (1991) in their studies observed high origin of radial artery. Swartley (1988) reported high origin of radial artery at the middle of the arm. Poteat reported a rare variation – absence of radial artery (Ref.5). Yelcin Bulent Ozan Hassan conducted study and stated that the variations of radial artery are mostly unilateral in 2006(Ref-6). Corpenters group 1970 explained about the use of radial artery for grafting (Ref.7). Corpenters (1970) & co-workers (1973) studies the use of radial artery for bypass grafting (Ref.8). Gold Stein LJ, Guptas stated that the radial artery can be used for hacmodialysis (Ref.9). R. Pai, B.V. Muralimanjucheton conducted study on radial artery for coronary artery bypass grafting in coronary artery diseases. 2010 (Ref.10). R. Andrew Archbold et.al studied the radial artery acess for coronary angiography and percutaneous interventions Micheal Tam (2006). In his studies on radial artery, stated that the radial artery was a fantastic artery for drawal of arterial blood quick and safely. Carles Eduardo explained the radial artery puncture in order to obtain arterial blood for sampling of gas analysis.

MATERIALS AND METHOD

The specimens for the study are taken from the Department of Anatomy which were kept for the dissection purpose for 1st year MBBS student for a period of 5 years. The limbs collected and kept in freezer and also studied the upper limb specimens from the museum of anatomy Department. Guntur Medical College, Guntur. The incisions given according to practical manual of anatomy – Cunninghams. Skin reflected. Deep fascia also reflected to expose the artery of the brachium and up to the upper 1/3rd of the forearm. The origin, course and branches were observed upto the bifurcation into radial and ulnar arteries. The lengths of vessels noted. The length from the origin to bifurcation in to terminal branches noted and tabulated. The variant origin of radial artery in the specimens noted, and the level where it arised also noted and the variant origin of radial artery photographs taken.

RESULTS

Out of 50 cadavers 5 variant origin of the radial arteries noted and the incidence is 10%. In these variations the origin of radial artery in the middle of the arm is seen in 3 cases and it is 6% (Fig.2) One specimen the radial artery arised from the 3rd part of axillary artery directly and the rest of brancial artery continued down as the ulnar artery (Fig.3). One case the radial artery arised in the upper part of the arm (Fig.4). Absence of radial artery not found: Low origin is also not observed.

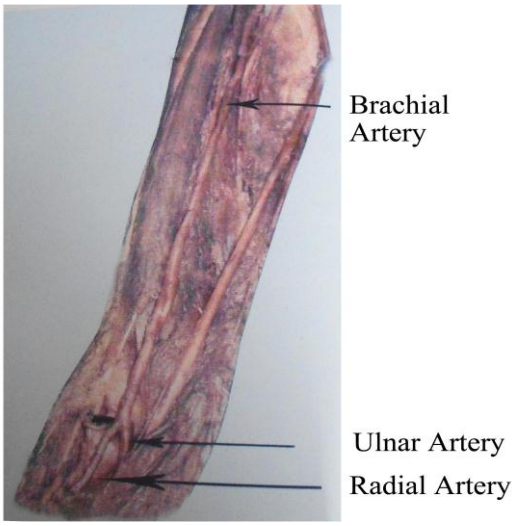

Fig –I: Normal origin of radial artery from brachial artery in cubital fossa.

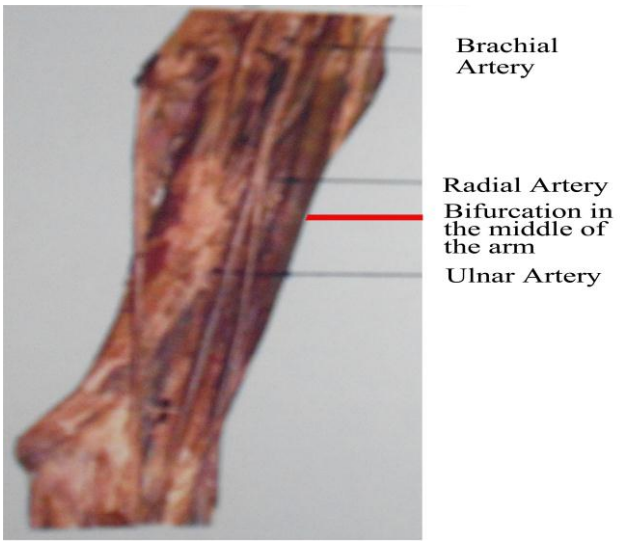

Fig –II: Origin of radial artery in the middle of the arm

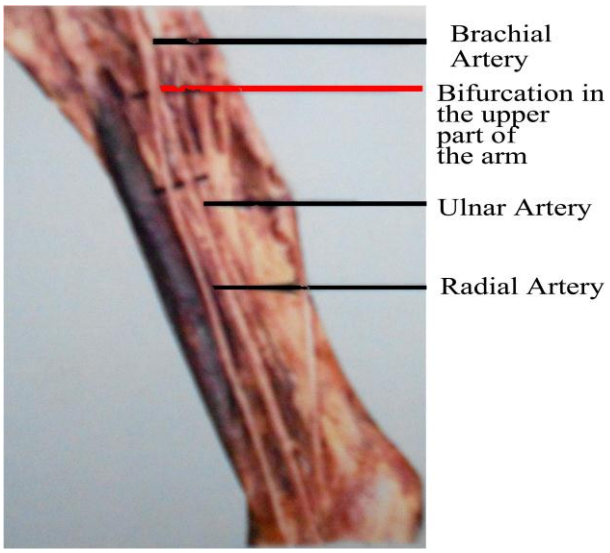

Fig-III: Origin of radial artery in the upper part of the arm.

Fig-IV: Origin from the 3rd part of axillary artery in the axilla

DISCUSSION

The radial artery is one of the limb artery used as homograft in coronary artery bypass Surgery and transradial intervention (TRI). Van Haller Study was based on large samples and focused on different variation patterns of arteries such as origin, course, relations, incidence by sex, size and data and he thought he variations are embryologically based. Charles, schwalbe stated the absence of radial artery was rare. Poteat reported a rare variation that was absence of radial artery and he stated that the incidence of absence is less than 0.03%. According to the above authors statements the present study the radial artery absency was not found and all the limb specimens are having radial arteries.

In 1939 Miller stated the high origin of radial artery from the proximal 1/3rd of the arm was commonest.

The McCormack et al study (1953) stated regarding the variations of the origin of radial artery with frequency of 14.27%, Out of 107 cadavers dissected, 16 variations from the axillary artery, 91 variations were from the middle of the arm.

Anson 1966 study reported the origin of radial artery from the proximal 1/3rd of the arm is 15%. Swartley stated that the high origin of radial artery usually in the middle of the arm.

In the present study the frequency of variations was 10% (5 cases in 50 cadavers).
3 cases from the middle of the arm – 6%.
1 case from 3rd part of axillary artery – 2%.
1 case from the upper part of the brachial artery. 2%.

Some authors also reportred low origin in 2% cases. Such variations not seen in the present study and the origin of radial artery was limited to cubital fossa in 95 specimens.

CONCLUSION

The present study observed the variations in the origin of radial artery.

10% Cases shown variations incidence.
6% are in the middle of the arm.
2% are in the upper part of arm.
2% are from the 3rd part of axillary artery.

REFERENCES

1. Asim Kumar Dutta – Essentials of Human Anatomy Part III; 3rd edition Reprint-2004; Pages: 73-74.
2. Last's Anatomy Regional and Applied:
3. Chummy S`. Sinnatamby, 10th edition Reprit – 2001; Page: 66.
4. Ernest. W. April Anatomy -2nd edition 1990; Page: 66.
5. The Me Cormack cauldwellEw, Anson BJ. Brachial and antebrachial arterial patterns Jr. Surg. Gynecolobstetr, 1953; 96: 43-45.
6. Poteat (1986) – Report – rare variation – Absence of Radial Artery 1986. Jr. Anat. Reg – 90.
7. Yecin – Bulent Ozan Hasan – Variation of radial artery mostly Unilateral Jr. Anant. 2006-61.
8. Corpenters group (1970) use of radial artery for grafting – Hollenshed W.H. Anatomly for Surgeons -2nd Edition.
9. Corpenters 1970 and Co-workers (1973) – use of radial artery for coronary bypass grafting – Hollenshed W.H. Anatomly for Surgeons -2nd Edition.
10. Gold Stein LJ, Guptas 2005- use of radial artery for haemodialysis Archy – Surg, 2004; 139(9): 1025.
11. R. Pai, B.V. Muralimanjuchetan 2010 radial artery in bypass grafting in Caronary artery disease. Not. Anat. Soc. Jr. 92.