Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 7, Issue, 11, pp.22650-22652, November, 2015

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

ARTERIAL VARIATIONS OF AXILLARY ARTERY: FINDINGS FROM 42 CADAVERIC DISSECTIONS

***[1]Dr. Simriti, [2]Bias Dev and [3]Dr. SunandaRaina**

[1]Department of Anatomy, Government Medical College Jammu, India
[2]Department of Orthopaedics, Government Medical College Jammu, India
[3]Department of Anatomy, Government Medical College Jammu, India

ARTICLE INFO

Article History:
Received 26th August, 2015
Received in revised form
30th September, 2015
Accepted 22nd October, 2015
Published online 30th November, 2015

Key words:

Axillary artery, Variations.

ABSTRACT

Shoulder and Arm is exposed to trauma and in significant number vascular injury is associated which requires surgical intervention. We had come across the variations in the second and third part of axillary artery in 2 limbs out of 42 limbs dissected. The surgeon should be aware about these variations as to plan the treatment of the smaller diameter arteries require different preparation in terms of technique, suture material and anesthesia time.

***Citation*:** Dr. Simriti, Bias Dev and Dr. Sunanda Raina, 2015. "Arterial variations of Axillary artery: Findings from 42 cadaveric dissections", *International Journal of Current Research*, 7, (11), 22650-22652.

INTRODUCTION

Axillary artery is the continuation of the subclavian artery into the axilla. The axillary artery begins at the lateral border of the first rib as a continuation of the subclavian artery into the axilla. It terminates at the lower border of the teres major muscle and then continues downward in the arm as the brachial artery (Williams, 1989). The three parts of axillary artery give away one two and three branches respectively and continues as brachial artery. Brachial artery gives rises to profundabrachiiartery and gets divided into radial and ulnar branches at elbow. We have encountered variation in this pattern in two limbs out of 42 limbs dissected in three years in department of anatomy. Since the upper limb is exposed to trauma and on occasions vascularity is compromised, requiring surgical intervention in form of exploration and repair, such variations need to be known to orthopaedic and vascular surgeons.

MATERIALS AND METHODS

Twenty two limbs of embalmed bodies were dissected by the author in the department of anatomy during period extending from June 2011 to May 2014.

***Corresponding author: Dr. Simriti,**
Department of Anatomy, GMC Jammu J&K, India.

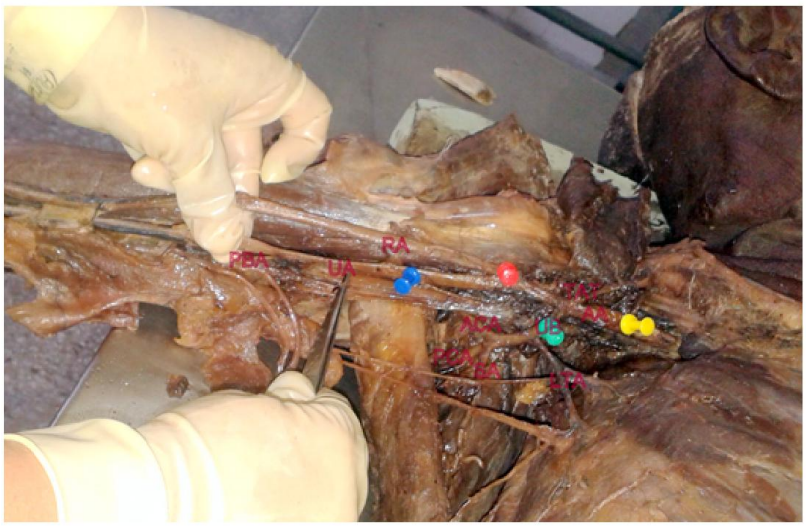
OBSERVATION AND RESULTS

Out of forty two upper limbs, in forty the branching pattern of axillary artery was uniform as it branched into superior thoracic artery in its first part, thoracoacromial and lateral thoracic artery from second part and third part of axillary artery continued as brachial artery after giving away three branches (subscapular, anterior and posterior circumflex humeral). In one limb the second part of axillary artery gave away the branch which further gave away five branches . In this limb the axillary artery instead of continuing as brachial artery, branched into two as radial and ulnar artery. Profundabrachii originated from ulnar artery. Fig.1

In the second limb the axillary artery after giving common brancing pattern in its first, second and third part instead of continuing as brachial artery branched into three branches (profunda brachii, radial and ulnar). Fig.2

DISCUSSION

The incidence of upper limb trauma has been aprox 1130 per 100000 population in industrialized world in last decade, with almost half the injuries involving the arm and shoulder and all these injuries are potential danger to vascularity (DaanOotes, 2012).



AA-Axillary artery

RA-Radial artery

UA-Ulnar artery

PBA-ProfundaFemoris artery

UB-Unknown artery

TAT-Thoraco Acromial trunck

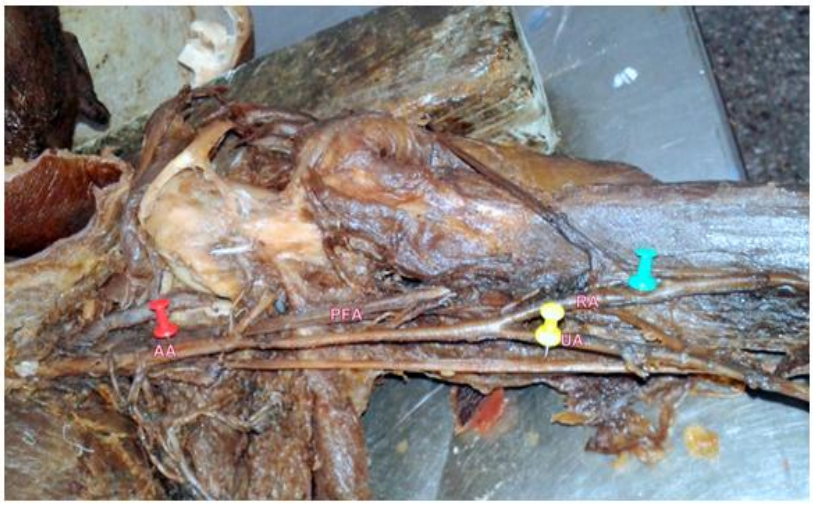
LTA-Long Thoracic artery

ACA-Anterrior Circumflex artery

PCA-Posterior circumflex artery

SA-Subscapular artery

Fig.1.



AA-Axillary artery

PFA-ProfundaFemoris artery

UA-Ulanr artery

RA-Radial artery

Fig.2.

Approximately 1 % of the supracondylar fractures in children are associated with vascular injuries requiring exploration and repair (Menakuru, 2005). The injuries which are associated with vascular trauma in upper limbhas incidence of involvement of brachial artery in 51% (Otsuka,1997). The tourniquet is routinely applied on arm for surgical procedures of forearm and the pressure applied through tourniquet depend on the blood vessels diameter also, with smaller diameter blood vessels requiring lesser pressure for effective tourniquet.

On reviewing the literature through internet, The variation of axillary arteries branching pattern and brachial arteries variation has been found to be reported by Huelke (1959), Bhat (2008), Goldman (2008). Gaur (2012), Swamy, (2013). But no series has been published. There is need to create a data base to affirm correctly the possible incidence of arterial variations in the arm so that the surgeons approaching the limb are adequately prepared before undertaking the surgical procedure on arm where axillary or brachial artery is to be handled.

Conclusion

The incidence of variation of the branching pattern is approximately 5 % in this study and need to be kept in mind while planning an exploration and repair in case of a vascular injury as to repair of smaller vessel require superior technique, suture material ,graft material and amplification, and has more chances of failure of canalization too. The application of Limb occlusion pressure in case of tourniquet application also varies and lower pressure is needed to occlude a smaller bore blood vessel. To plan flap coverage a plastic surgeon expects normal branching pattern of blood vessels. An updated universal data is needed to affirm the incidence correctly as the variations in arterial branching in arm can influence outcome of surgical procedures.

REFERENCES

Bhat KM, Potu BK, Gowda S. High origin of ulnar artery in south Indian male cadaver: A case report. *Rom J MorpholEmbryol.,* 2008;49:573–5. [PubMed]

DaanOotes, Kaj T. Lambers, and David C. Ring The epidemiology of upper extremity injuries presenting to the emergency department in the United States. Hand (N Y). 2012 Mar; 7(1): 18–22.

Gaur S, Katariya SK, Vaishnani H, Wani IN, Bondre KV, Shah GV. A cadaveric study of branching pattern of the axillary artery. *Int J Biol Med Res*., 2012;3:1388–91.

Goldman EM. Axillary artery and branch variations in an 83 year-old male Caucasian. *FASEB J*., 2008;22:770–6.

Huelke DF. Variation in the origins of the branches of the axillary artery. *Anat. Rec*., 1959;135:33–41.

Menakuru SR, Behera A, Jindal R, Kaman L, Doley R, Venkatesan R. Extremity vascular trauma in civilian population: a seven-year review from North India. Injury. 2005; 36:400-6.

Otsuka NY, Kasser JR. Supracondylar fractures of the humerus in children. *J Am AcadOrthop Surg*., 1997;5(1):19–26. [PubMed]

Swamy RavindraShantakumar and K. G. Mohandas Rao.Variant Branching Pattern of Axillary Artery: A Case Report Case Reports in Vascular Medicine Volume 2012 (2012), Article ID 976968, 3 pages http://dx.doi.org/10.1155/2012/976968

Williams PL, Warwick R, Dyson M, Bannister LH, editors. 37th ed. London, England: Churchill Livingstone; 1989. Gray's anatomy; pp. 75

****