

Original Research Article

## Cadaveric Study of the Superficial Brachio Radial Artery

Shaik Ahammad Peera<sup>1\*</sup>, Raju Sugavasi<sup>2</sup>, Indira Devi B<sup>2</sup>, Kanchanalatha.G<sup>3</sup>

<sup>1</sup>Assistant Professor, <sup>2</sup>Tutor, <sup>3</sup>Professor,

Department of Anatomy, RIMS Medical College, Rajiv Gandhi Institute of Medical sciences, Kadapa, A.P. India.

\*Correspondence Email: peersanatomy2013@yahoo.com.

Received: 10/11/2013

Revised: 11/12/2013

Accepted: 13/12/2013

### ABSTRACT

**AIM:** To study the incidence of superficial brachioradial artery in the Andhra population of south Indian region.

**MATERIALS & METHODS:** 60 upper limbs were selected and dissected for superficial brachioradial artery, which are available in the Department of Anatomy, RIMS medical college, Kadapa, Andhra Pradesh, India.

**RESULTS:** A single case of the superficial brachioradial artery was observed on right side, among 60 upper limbs and the incidence was 1.7%. This abnormal branch arising from the third part of the axillary artery continued superficially on the front of arm and forearm.

**CONCLUSION:** Perfect knowledge about the normal and abnormal arterial anatomy of the axillary artery and brachial artery is significant for clinical procedures and vascular radiology.

**KEYWORDS:** Axillary artery, superficial brachioradial artery, Variation

### INTRODUCTION

Axillary artery is the continuation of subclavian artery from the outer border of the first rib and at the inferior border of teres major it continues as the brachial artery. It then divides into the radial and ulnar arteries while reaches the cubital fossa at the elbow. The Axillary artery divides into superior thoracic from first part, thoracoacromial, lateral thoracic from second part and subscapular, anterior and posterior circumflex humeral artery from the third part in the axilla. Radial artery is smaller terminal branch from the brachial artery

which arises at the neck of radius medial to tendon of biceps. It descends along the lateral side of the forearm, accompanied by paired venae comitantes and terminates in the hand by forming the deep palmar arch after anastomosing with the deep branch of the ulnar artery [Standing S. 2008].<sup>[1]</sup> If the Radial artery is originated from the axillary artery and enters the arm and forearm superficially, such an abnormal radial artery has been called as superficial brachioradial artery [Rodríguez-Niedenführ et al., 2003].<sup>[2]</sup>

## MATERIALS & METHODS

A total number of 60 upper limbs of from 30 cadavers, unknown sex were selected for this present study. This study was conducted in Department of Anatomy, RIMS medical college, Kadapa, Andhra Pradesh, south Indian region. Cadavers were preserved by procedure of embalming by injecting the 5% formalin and observed carefully, the branches of axillary and brachial artery by dissecting the axillary region, cubital fossa and front of forearm. The origin and course of major branches of axillary and brachial arteries were studied for identifying the superficial brachioradial artery.

## RESULTS

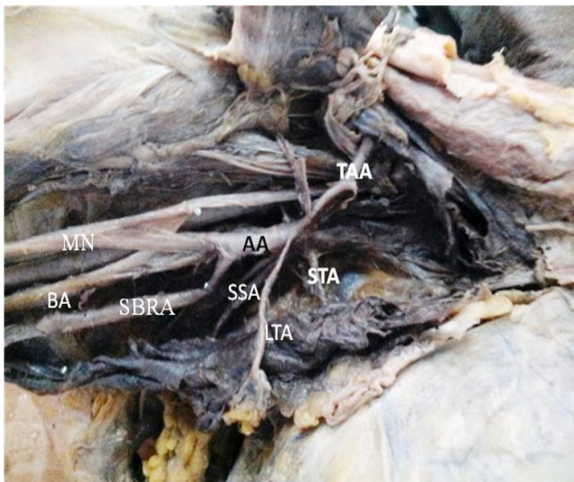


FIG: 01: Right axilla shows: AA: Axillary Artery, STA: Superior Thoracic Artery, LA: Lateral Thoracic artery, TAA: Thoraco Acromial Artery, SSA: Sub Scapular Artery, SBRA: Superficial Brachio Radial Artery, BA: Brachial Artery, MN: Median Nerve.

## DISCUSSION

Variations in the branching pattern of arteries in the upper limb are common, this may be due to the failure of regression of some paths of embryonic arterial trunks [Tountas et al., 1993].<sup>[3]</sup> According to [Rodríguez-Niedenführ et al., 2001] the incidence of superficial brachioradial artery was 0.26%.<sup>[4]</sup> [Singh et al., 2010]<sup>[5]</sup>

Variations in the patterns of vessels are usually the result of developmental anomaly during the formation of blood vessels in any respective part of the body. In the present study we conducted a survey in 60 upper limbs for superficial brachioradial artery, but this study noticed only one case of superficial brachioradial artery, that was observed on right side and this study incidence was 1.7%. This variant branch arising from the third part of the axillary artery just proximal to formation of lateral and medial root of median nerve [FIG: 01]. The superficial brachioradial artery was superficial, throughout its course from its origin to termination. Axillary artery continues as brachial artery and it was continued as ulnar artery and given common interosseous artery in the forearm [FIG: 02].



FIG: 02: Right forearm shows: SBRA: Superficial Brachio Radial Artery, BA: Brachial Artery, MN: Median Nerve, UN: Ulnar Nerve, UA: Ulnar Artery, AIA: Anterior Interosseous Artery.

Observed the existence of higher division of brachial artery with superficial radial artery. [Kadanoff et al., 1966]<sup>[6]</sup> Reported high division of the axillary artery into superficial and deep brachial arteries. [Shiny Vinila B H et al., 2013]<sup>[7]</sup> Noticed superficial brachioradial artery from third part of axillary artery, on right side in a female cadaver. [Sharmila Bhanu et al., 2010]<sup>[8]</sup>

Reported a superficial brachioradial artery in 52 years old male cadaver in right side upper limb. [Patnaik et al., 2001] <sup>[9]</sup> Given the embryological explanation about the preset study that, persistence of communicating branch between normal and superficial brachial artery is the reason for existence of superficial brachial artery. [Sharma et al., 2009] <sup>[10]</sup> Reported bilateral occurrence of superficial brachial artery from the third part of the axillary artery.

## CONCLUSION

The present study is important for radiologists during colour Doppler and digital subtraction studies because, Radial artery is the regular choice for the angiography. In this study Superficial brachioradial artery arose at right angle from the third part of the axillary artery, so if the subjects with present variation undergo the Trans radial approach for angiography, it may result in failure of passage of catheter. Such variations are important for diagnostic evaluation and surgical management of vascular diseases and injuries.

## REFERENCES

1. Standring S. Gray's anatomy. The anatomical basis of the Clinical Practice. 40 th edition. Edinburg. Churchill Livingstone, Elsevier. 2008; 815-817.
2. Rodríguez-Niedenführ M, Vázquez T, Nearn L, Ferreira B, Parkin I and Sañudo JR .Arterial patterns of the human upper limb: update of anatomical variations and embryological

- development. European Journal of Anatomy. 2003; 7 21-28.
3. Tountas CH.P and Bergman RA. Anatomic Variations of the Upper Extremity. Churchill Livingstone, New York .1993: 196-210.
4. Rodríguez-Niedenführ M, Vázquez T, Nearn L, Ferreira B, Parkin I and Sañudo JR. Variations of the arterial pattern in the upper limb revisited: a morphological and statistical study, with a review of the literature. Journal of Anatomy. 2001; 199: 547-566.
5. Singh H, Gupta N, Bargotra RN, Singh NP. Higher Bifurcation of Brachial Artery with Superficial Course of Radial Artery in Forearm. JK Science. 2010; 12(1): 39-40.
6. Kadanoff D and Balkansky G. Two cases with rare variations of arteries of the upper extremities. Anat Anz. 1966; 118: 289-296.
7. Shiny Vinila B. H., Sangeeta M, Sanikop M. B. and Venkateshu K. V. superficial brachioradial artery with its embryological basis -a case report. Ijbams. 2013; 3(1):10-13.
8. Sharmila Bhanu P, Devi sankar K, Susan PJ. High origin and superficial course of radial artery. International Journal of Anatomical Variations (2010) 3: 162–164.
9. Patnaik VVG, Kalsey G, Singla RK. Bifurcation of axillary artery in its 3rd part- a case report. J Anat. Soc. India. 2001; 50(2): 166-169.
10. Sharma T, Singla RK, Sachdeva K. Bilateral superficial brachial artery. Kathmandu Univ Med J. 2009; 7:426-428.

How to cite this article: Peera SA, Sugavasi R, Indira DB et. al. Cadaveric study of the superficial brachio radial artery. Int J Health Sci Res. 2014;4(1):62-64.

\*\*\*\*\*