

## Unilateral Superficial Brachial Artery With High Origin Of Profunda Brachii Artery

Saim Hasan\*, Pant MK\*\*and Zaidi SHH\*\*\*

\*Assistant Professor, Department of Anatomy, SHKM GMC, Nalhar, Mewat, Haryana. \*\*Assistant Professor, Department of Anatomy, GMC, Haldwani, Uttarakhand. \*\*\*Professor, Department of Anatomy, RMCH, Bareilly, UP. India.

**Abstracts:** Variations of the axillary artery have been frequently observed during routine anatomy dissection classes. These variations of vascular system are of considerable significance for surgical and radiological procedures. Accurate knowledge of these variations is desirable as well as essential as they may be mistaken for veins that may lead to formation of gangrene and even loss of hand during surgical procedures. Reported here is one such case of A unilateral superficial brachial artery with a high origin of Profunda Brachii artery (PBA) as observed during routine dissection class of medical students at Rohilkhand Medical College, Bareilly, India. [Hasan S NJIRM 2015; 6(5):123-124]

**Key Words:** Axillary artery, deep brachial artery, superficial brachial artery, median nerve variation.

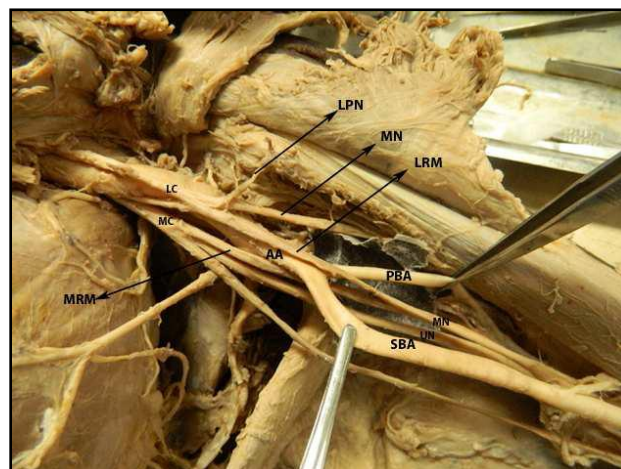
**Author for correspondence:** Dr.Saim Hasan, B1- flat no 201, SHKM Govt. Medical College campus, Nalhar, Nuh, Mewat- 122107, Haryana, India. Email: saimhasan99@gmail.com

**Introduction:** There is a wide variation in course and origin of the main arteries of upper limb as observed in routine dissections or in clinical practice<sup>1</sup>. These include a high origin of profunda brachii artery from the axillary artery instead of the brachial artery and the superficial brachial artery (SBA) where the brachial artery crosses the two roots of median nerve and lies superficial to median nerve as reported by different authors with a varying prevalence rate of 0.2 – 25 %. However no such report is there on its unilateral occurrence. Presented here is one such case found during routine dissection class in Department of Anatomy, Rohilkhand Medical College, Bareilly, Uttar Pradesh, India, where superficial brachial artery along with anomalous higher origin of profunda brachii aretery was found as unilateral occurrence.

**Case report:** During routine under graduate dissections on a 55 year male cadaver, it was observed unilaterally that the axillary artery in its third part after giving subscapular artery bifurcated into two branches superficial brachial artery and deep brachial artery. SBA arising from 3rd part of axillary artery emerges out in between the two roots of median nerve after crossing both the roots of median nerve. SBA crossed the lateral root in posterior relation while it crossed the medial root in anterior relation. Superficial brachial artery passed superficial to the medial and deep to lateral roots of the median nerve and then superficial to the median nerve till lower third of arm. The artery then crossed over to take a medial course to the median nerve. It finally divided into the radial and ulnar arteries at the cubital fossa. The deep brachial artery descended deep to the medial root

of median nerve and continued as profunda brachii artery. Then it terminated by giving twigs to muscles of arm. These findings indicate the presence of unilateral superficial brachial artery overlying the median nerve alongwith the higher origin of profunda brachii artery (fig.1). A normal pattern of arteries was seen in the other limb.

**Figure 1. Photograph showing superficial brachial artery emerging out in between the the two roots of median nerve.**



**Discussion:** A superficial brachial artery is by definition runs superficial to median nerve<sup>2</sup>. It may be the only brachial artery as seen in the present case or it may be accompanied by another equally important, less important or more important trunk running parallel and deep to median nerve in normal position<sup>3</sup>. The superficial brachial artery arises from axillary artery or from proximal 1/3<sup>rd</sup> of brachial artery usually between contributions of medial and lateral cords of brachial plexus to median nerve. It is superficial to muscles of the arm

under brachial fascia lying slightly more lateral than brachial artery and in the elbow region divides into radial and ulnar arteries. Various authors have commented on the prevalence of superficial brachial artery but there are only few reported cases of the unilateral presence of the superficial brachial artery including the present one.

**Table 1: Prevalence of superficial brachial artery**

Name of Author	Year	%
Quains <sup>4</sup>	1844	0.2
Gruber <sup>5</sup>	1848	0.4
Linell <sup>6</sup>	1921	6.0
Treves and Rogers <sup>7</sup>	1947	15
Skopakoff <sup>8</sup>	1959	19.7
Lanz and Wachsmuth <sup>9</sup>	1959	25
Lippert & Pabst <sup>10</sup>	1985	22.0
Baeza et al <sup>1</sup>	1995	11.9
Patnaik et al <sup>11</sup>	2002	6.0

The embryological explanations for the anomalies which affect the arterial patterns of the limbs are based on an unusual selection of channels from a primary capillary plexus wherein the most appropriate channels enlarge while others retract and disappear, thereby establishing the final arterial pattern<sup>12,13</sup>.

**Conclusion:** The presence of superficial brachial artery increases its vulnerability to trauma that may lead to bleeding during orthopaedic and surgical procedures. Being superficial, the brachial artery may be mistaken for a vein and if used repeatedly for sampling and injections could lead to arteritis resulting in gangrene and even loss of limb.

#### References:

- Baeza AR, Nebot J, Ferreira B et al. An anatomical study and ontogenic explanation of 23 cases with variations in the main pattern of the human brachio-antebrachial arteries. *J Anat.* 1995;187:473-39.
- Adachi B. Arterensystem des japaner. *Kyoto* 1928; 1: 205-10.
- Anson BJ: Morris 'Human Anatomy In: The Cardiovascularsystem-Arteries & Veins. Thomas, M. Edr. McGraw Hill Book C. New York,1966:708-724.
- Quains. The Anatomy of Arteries of Human Body. London: Taylor & Walton,1844;43-54.
- Gruber W: Cited by Mc Cormack L.J. et al (1953):Brachial & antebrachial arterial patterns. *Surgery Gynaecology obstetrics*,1848; 96:43-54.
- Linell EA. The distribution of the nerves in upper limb with reference to variability & their clinical significance.*Journal of Anatomy*.1921; 55:79.
- Treves FB & Rogers L. Surgical applied anatomy In: The upper extremity. 11th Edn. Cassell & Co.Ltd. London:1947; 247.
- Skopakoff C. Ober die variabilitat der of and verzweigung der a. brachialis superficialis. *Anatomical anzelas*1959; 106:356-368.
- Lanz T & Wachsmuth W. *Praktische Anatomie*. Vol. I Part B. Arm Springer Berlin.1959; 124-125.
- Lippert H, Pabst R. Arterial Variations in Man. New York: Springer,1985; 68-73.
- Patnaik VVG, Kalsey G, Singla RK. Branching Pattern of Brachial Artery- A Morphological Study. *J Anat Soc Ind*.51 2002; 2:176-86.
- Arey, L.B. The development of peripheral blood vessels. In the peripheral blood vessels (Ed Orbison J L&Smith D E 1-16, Baltimore: Williams and Wilkins, 1963.
- Fitzerald MJT. *Human Embryology*, New York, Harper International,1978;38-56.

Conflict of interest: None

Funding: None

Cite this Article as: Saim Hasan, Pant MK, Zaidi SHH. Unilateral Superficial Brachial Artery With High Origin Of Profunda Brachii Artery. *Natl J Integre Res Med* 2015; 6(5): 123-124