



## VARIATION IN TERMINATION OF BRACHIAL ARTERY -BILATERAL

### Anatomy

**Dr.Mohd Imtesal  
Ali Zishaan**

Post graduate,dept of anatomy ,Osmania Medical college,HYDERABAD.

**Dr. Aparna Veda  
Priya K.\***

Incharge Professor and HOD,Dept of Anatomy,Osmania medical college ,Hyderabad.  
\*Corresponding Author

**Dr Tuniki Meena**

Post graduate,dept of anatomy,Osmania medical college,HYDERABAD.

**Dr.heena Fatima**

Post graduate,dept of anatomy,osmania medical college,HYDERABAD.

### ABSTRACT

**INTRODUCTION:** Brachial artery being the direct continuation of axillary artery at the lower border of teres major. Deviations in the normal course and branching pattern of the brachial artery and its detail knowledge of such arterial variations is essential not only to anatomist but also to radiologists, orthopaedicians, Vascular and plastic surgeons. **AIMS AND OBJECTIVES:** The present study was done to evaluate the incidence of brachial artery anatomical variations & enumerate its impact on clinical implications. **METHODOLOGY:** This study was conducted in dept of anatomy of Osmania medical college ,koti, Hyderabad. During routine undergraduate dissection on human cadavers(44upperlimbs)-20 males and 2 female cadavers were dissected for the study. The cadavers with visible trauma , pathology or prior surgeries were excluded from study. Routine dissection of the upper limb was followed . During the dissection of the anterior compartment of the arm and flexor compartment of forearm, the brachial artery was identified and carefully dissected at first, the brachial artery was confirmed that it is continuation of the third part of axillary artery at the lower border of teres major and then , it was traced towards its branches. Any variations found were noted and photographed . The results were analysed and compared to previous studies. **RESULTS:** Bilateral termination of brachial artery was found in a male cadaver at the distal part of front of arm above the elbow joint[on right side 3.5 cms and on left 2.5 cms from the elbow joint] **CONCLUSION:** High division of brachial artery has profound clinical importance varying across the spectrum, from a simple procedure of recording blood pressure using auscultatory method to advanced radiovascular procedures & nevertheless vascular surgeries .These variation are to be considered before proceeding on to any vascular surgeries and interpretation of arteriograms of these vessels. Therefore sound knowledge of unusual variations or deviation in brachial artery is important for both radiologist and surgeons for diagnostic and therapeutic uses .

### KEYWORDS

Axillary artery, brachial artery, ulnar artery , radial artery

#### INTRODUCTION :

The brachial artery , a continuation of the axillary artery ,begins at the lower border of teres major , initially the brachial artery lies medial to the humerus and gradually crosses over to anterior aspect of the humerus as its journey continues to the cubital fossa . In the cubital fossa ,brachial artery crossed superficially by the median nerve via a lateral to medial course and then at the level of neck of the radius, the brachial artery terminates by dividing into right and left branches named corresponding to the antebrachial bones as radial and ulnar arteries .The brachial artery gives off the following branches before terminating into radial and ulnar arteries i.e, profunda brachii, nutrient artery ,superior and inferior collateral ulnar artery along with muscular branches.

#### MATERIAL AND METHODS:

This study was conducted in Dept of anatomy of Osmania medical college ,koti, Hyderabad. During routine undergraduate dissection on human cadavers(44upperlimbs)-20 males and 2 female cadavers were dissected for the study. The cadavers with visible trauma , pathology or prior surgeries were excluded from study. Routine dissection of the upper limb was followed . During the dissection of the anterior compartment of the arm and flexor compartment of forearm, the brachial artery was identified and carefully dissected at first, the brachial artery was confirmed that it is continuation of the third part of axillary artery at the lower border of teres major and then , it was traced towards its branches. Any variations found were noted and photographed . The results were analysed and compared to previous studies.

#### RESULTS:

Bilateral termination of brachial artery was found in a male cadaver at the distal part of front of arm above the elbow joint[on right side 3.5 cms and on left 2.5 cms from the elbow joint] respectively FIG1 AND FIG2.

#### DISCUSSION :

In the present study , bilateral termination of brachial artery into radial and ulnar artery was about 3.5cm above the elbow joint on right side

and 2.5 cm above elbow joint on the left side .The remaining 42 limbs the mean average was taken and it was about 1.05 cm below elbow joint terminating into radial and ulnar arteries at the level of neck of radius. The results of the present study and previous studies is depicted in table no 1.

Arterial variations in the upper limb were noted for the first time by von haller in 1813 [2,3] . It is not uncommon to find variation in the branching pattern of arteries of upper limb[4].

Arey and jurjus mentioned six explanations for the variations in the blood vessels of upper limb [1,5].

- 1] The choice of unusual paths in the primitive vascular plexus.
- 2] The persistence of vessels which are normally obliterated.
- 3] The disappearance of vessels which are normally retained.
- 4] An incomplete development.
- 5] the fusion and absorption of parts which were normally distinct .
- 6] A combination of factors leading to atypical pattern normally encountered.

Chandrika Teli et al reported a case of high division of brachial artery into radial and ulnar arteries, about 1.5cm distal to the lower border of the teres major muscle in the upper third of the arm [6].

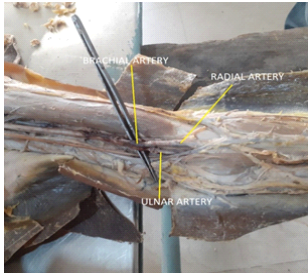
Sharad kumar et al reported a case of high division of brachial artery in the middle of the arm with radial artery giving rise to the common interosseous artery in the cubital fossa which terminated into anterior and posterior interosseous arteries [7].

Jacomo et al reported a case of high division of brachial artery in the proximal portion of the middle of the arm into radial and ulnar arteries of which ulnar artery gave rise to common interosseous artery [8].

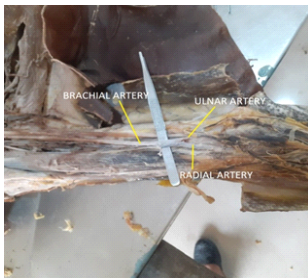
Namani satyanarayana et al reported a case of high division of brachial artery at the level of insertion of coracobrachialis muscle in the middle of right arm [9].

**CONCLUSION:**

High division of brachial artery has profound clinical importance varying across the spectrum, from a simple procedure of recording blood pressure using auscultatory method to advanced radiovascular procedures & nevertheless vascular surgeries. These variations are to be considered before proceeding on to any vascular surgeries and interpretation of arteriograms of these vessels. Therefore sound knowledge of unusual variations or deviation in brachial artery is important for both radiologist and surgeons for diagnostic and therapeutic uses.



**FIG 1**



**FIG 2**

S.NO	Study	Level of bifurcation of brachial artery
1.	Present study	3.5 cms above the elbow joint on right side ,2.5 cms above the elbow joint on left side
2.	Chandrika teli et al[6]	1.5 cms distal to the lower border of teres major in upper third of arm.
3.	Jacomo et al[8]	7.5 cms distal to lower border of teres major
4.	Namani satyanarayana et al[9]	At the level of insertion of coracobrachialis in the middle of right arm.

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