

Case report

## Abnormal formation of Median nerve in Arm with lateral cord piercing the Coracobrachialis

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### Abstract:

Anatomical variations of median nerve in arm with lateral cord of brachial plexus and the communication between its branches are being observed commonly but the abnormal formation of median nerve is not much reported in the literature. Comprehensive knowledge pertaining to abnormal formation of median nerve is extremely important in clinical and surgical procedures so as to avoid their injury. The present report describes an abnormal formation of median nerve with lateral cord is directly piercing the coracobrachialis muscle, observed in the arm region of a 55 years old Indian male cadaver. Thus, only in one specimen low formation of median nerve in the middle third of the arm was observed along with lateral cord piercing the coracobrachialis. Dissection method was employed and 32 upper limbs were studied, in one arm there is an abnormal formation of median nerve obtained from the Department of Anatomy, Government medical college, Nagpur, Maharashtra, India.

**Keywords:** abnormal formation, cadaver, median nerve, lateral cord, coracobrachialis.

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### 1. Introduction

The Median nerve is normally formed by the union of two roots, lateral root of median nerve (LRM) coming from the lateral cord (C5, C6, C7) of Brachial plexus and medial root of median nerve (MRM) coming from medial cord (C8, T1) of brachial plexus

in front of third part of Axillary artery, It does not give any branch to muscle of arm and go straightway to forearm. Anomalies related to the forearm, relations and distribution of median nerve are fairly common [1]. Median nerve is associated with several variations which include abnormal communications with other nerves such as musculocutaneous and

ulnar nerves, splitting of the nerve, penetration of the nerve by other vessels such as brachial artery [2]. Lateral cord was formed by anterior division of upper trunk alone (C5, C6), but an additional intermediate cord between medial & lateral cord was found which was a continuation of anterior division of middle trunk (C7) [3]. The lateral cord gives its first branch the lateral pectoral nerve to the pectoralis major muscle and then divides into musculocutaneous and lateral root of median nerve. The musculocutaneous nerve pierces the coracobrachialis muscle and passes obliquely to the lateral side of the arm between the biceps brachii and the brachialis muscle, also supplying their musculature [4, 5]. The fibres from the median nerve may accompany the musculocutaneous as it transits the coracobrachialis muscle [6-8] but very rarely the lateral cord pierces the coracobrachialis and then divide into musculocutaneous and the lateral root of median nerve [9]. Nerve variations of the upper limb are very important in routine surgery and during radical neck dissections where these variations are more prone to injury [10]. These variations may also help in interpretation of a nervous compression having unexplained clinical symptoms.

### 2. Materials and Methods

The 10% formaline fixed 16 cadavers 32 upper limbs constitute the material for study. During routine educational gross anatomy dissection of axilla for medical undergraduate's skin and various muscles were reflected, superficial fascia and deep fascia separated to visualize the formation of median nerve and variation in its formation were noticed. The reports were observed during routine dissection of well embalmed,

around 55 year old male cadaver in department of anatomy, Government medical college, Nagpur, Maharashtra, India. Dissection method was employed as per instructions given in Cunningham's manual of practical anatomy. The variation observed in the right axilla showing that the lateral cord piercing the coracobrachialis was studied and photographs were taken accordingly.

### 3. Results

During dissection of Axilla and Arm of adult male cadaver in our dissection hall, there was abnormal formation of median nerve in the right axilla was observed in only one upper limbs. In this variation Median nerve is formed by the union of medial root of medial cord and branch from the lateral cord in the lower part of arm. Here the lateral cord is directly piercing coracobrachialis.

### 4. Discussion

Median nerve as reported in literature is associated with several variations which include abnormal communications with other nerves such as musculocutaneous and ulnar nerves [11], splitting of the median nerve [12] and unusual innervations of flexor muscles of arm by the median nerve [13]. Variations in formation of median nerve were reported earlier by some authors [14]. Thus, the coracobrachialis is a flexor muscle of the arm and is vulnerable to the injury from the retractors placed under the coracoid muscles as required during shoulder reconstructive surgery. The operative management by coracoid graft transfers in the recurrent dislocations of shoulder and shoulder arthroscopies could be the source of lesions to the structures piercing the muscle [15, 16]. The muscle has been suggested for possible

use as flap for coverage in infraclavicular defects of exposed axillary vessels, especially in postmastectomy reconstructive surgery [17]. Although, the interpretation of the anomaly of the atypical course of lateral cord requires consideration of the development and innervation of upper limb musculature. Muscles of the limbs are derived from somatic precursor muscle cells from the ventrolateral edges of the somites opposite the developing limbs, which lie lateral to the neural tube and causes bulge in the overlying ectoderm [4].

Knowledge of such anatomical variations is of interest to the anatomist and clinician alike. Variations assume significance during surgical exploration of the axilla and can even fail nerve block of infraclavicular part of brachial plexus. Surgeons who perform procedures involving neoplasm or repairing trauma needs to be aware of these variations. In the present study we looked for abnormal formation of median nerve in only one arm with lateral cord piercing the Coracobrachialis muscle.

### 5. Conclusion

Though the variation that we are reporting here may not alter the normal functioning of the limb of the person, but it is very important in clinical neurosurgery and orthopedic procedures.

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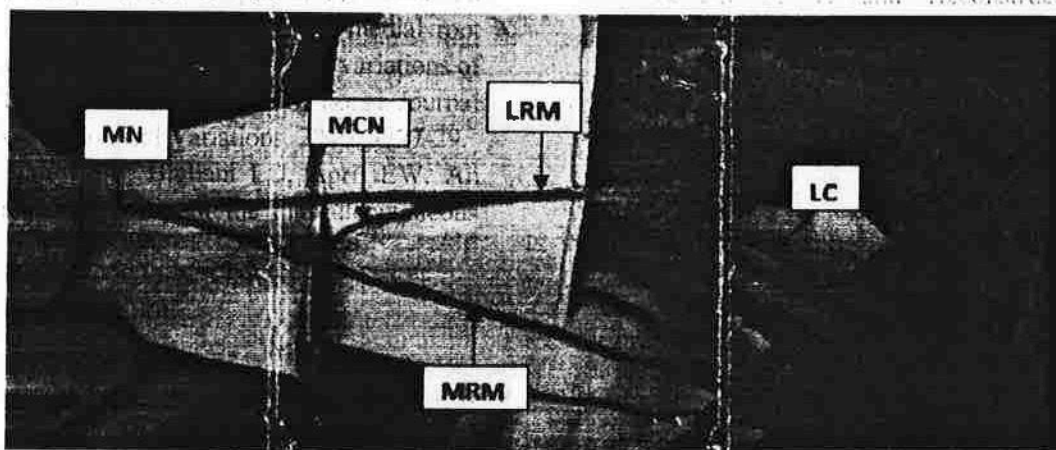
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**Fig.1 Showing Normal Formation of Median nerve by two root**



**Fig.2 Low formation of median nerve with lateral cord piercing the coracobrachialis**