

## Case Report

# An Unusual Bilateral Variation of Musculocutaneous Nerve

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### Abstract

Musculocutaneous nerve arises from the lateral cord (C5,6,7) of brachial plexus. Communications between the branches of brachial plexus are not so common. During routine dissection, we observed bilateral variation in 60-year-old female cadaver. In the present case, median nerve represented as a musculocutaneous nerve which supplied biceps brachii and brachialis, further continued into forearm as lateral cutaneous nerve of forearm on the right arm. This branch did not pass through coracobrachialis muscle but the coracobrachialis was innervated by a branch from lateral cord of brachial plexus. We also observed an abnormal communicating branch between the musculocutaneous and median nerve on left side of the arm. These kinds of variations are important for surgeons while performing surgeries of axilla and upperlimb.

**Keywords:** Brachial plexus, communication, median nerve, musculocutaneous nerve, lateral cutaneous nerve of forearm.

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### Introduction

Musculocutaneous nerve (MCN) is the nerve of anterior compartment of arm. It arises from the lateral cord of brachial plexus (C5,6,7) at the lower border of pectoralis minor. It passes through coracobrachialis muscle, and also supplying to it, later innervates both heads of biceps brachii and brachialis muscles, then enters the cubital fossa, lateral to the biceps tendon where it continues as the lateral cutaneous nerve of forearm. The median nerve (MN) has two roots from the medial (C8,T1) and lateral (C5,6,7) cords of the brachial plexus formed at lateral to third part of axillary artery, then passes through anterior compartment of arm crossing the brachial artery from lateral to medial side enters into the cubital fossa (1). Bilateral variations of terminal branches of the brachial plexus are uncommon.

### Case Report

During routine dissection in the department of Anatomy, we observed bilateral variations in the

anterior compartment of the arm region in 60-year-old female cadaver. In the right upper arm the motor branches to the biceps brachii and brachialis muscles found to arise from the branch of the right median nerve (Fig. 1) and the same nerve continued as the lateral cutaneous nerve of forearm. This branch was not passing through the coracobrachialis muscle, but this muscle was innervated by direct branch from lateral cord of brachial plexus. We also observed another variation at left side of arm where MCN and MN communicated by an abnormal communicating branch (Fig. 2), which measured about 5 cm in length.

### Discussion

In present case, it was found that MN innervated the brachialis and the biceps brachii and the MCN was reported to be absent. Previous studies reported the MCN was absent or not separated from MN (2,3,4,5,6,7) but its real prevalence is still remains unknown.



**Figure 1:** Right side of Arm showing Cb: Coracobrachialis, Bb: Biceps brachii, Bh: Brachialis, Mn: Median nerve, Ncb: Nerve to coracobrachialis, Nbb: Nerve to Biceps brachii, Lcnf: Lateral cutaneous nerve of forearm.



**Figure 2:** Left side of Arm showing Mn: Median nerve, Mcn: Musculo cutaneous nerve, Cn: Communication, Bb: Biceps brachii, Lcnf: Lateral cutaneous nerve of forearm.

Musculocutaneous nerve did not pierce the coracobrachialis muscle in three cases (8) similar to the present case.

According to Le Minor (9), variations in the communications between MN and MCN classified as 5 types, in type I there is no communication between the MN and MCN. In type II the fibres of medial root of MN pass through MCN and join the MN in the middle of the arm, in type III MN and MCN run together later that lateral root of MN separates from it. In type IV MCN arises from median nerve after joining to lateral root of the MN. In type V MCN is absent. The fibers of the MCN run within the MN along its course. In this type the MCN does not pierce the coracobrachialis muscle. Veinreratos and Anagnostopolou conducted studies on 79 cadavers and found communications between mcn and mn in 22 cadavers (10) and they reported the following three

types of communications between MCN and MN, in relation to coracobrachialis muscle. In type I the communication was proximal to the entrance of the MCN into the coracobrachialis (9/22), in type II it was distal to the muscle (10/22) and in type III the nerve did not pierce the muscle (3/22). So according to this classification the present variation, fits to type III. Lokanadham (11), Chauhan (12) Himabindhu (13) who reported the communications between median nerve and musculo cutaneous nerve-

## Conclusion

The present variation was found to be bilaterally which not yet reported, so the knowledge of anatomical variations of these nerves at the level of upper arm is essential while performing surgeries in the axilla and post-traumatic evaluations and exploratory interventions of the arm for peripheral repair.

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