



MORPHOLOGICAL VARIATION IN THE BRANCHING PATTERN OF MEDIAN NERVE IN ARM IN TELANGANA REGION

Anatomy

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ABSTRACT

INTRODUCTION: Median nerve is formed in axilla by the union of medial root and lateral roots. The medial root is derived from the medial cord of brachial plexus it crosses downward and laterally in front of the third part of axillary artery and joins with lateral root. The musculocutaneous nerve arises from the lateral cord (C5-7). It pierces coracobrachialis and descends laterally between biceps brachii and brachialis to the lateral side of the arm. Just below the elbow it pierces the deep fascia lateral to the tendon of biceps brachii, and continues as the lateral cutaneous nerve of the forearm.

AIM AND OBJECTIVE : To study the variation in branching pattern of Median nerve in arm as knowledge of such variations is important in clinical practice for evaluation of injuries and misinterpretation of clinical symptoms and to prevent accidental injury to the nerves during diagnostic, prognostic and surgical treatment.

MATERIAL AND METHODS: This study was conducted in Department of Anatomy of Osmania Medical College, Koti, Hyderabad. During routine Dissection on 22 formalin fixed Human Cadavers 20 males & 2 female (44 upperlimbs); were dissected for the study. The cadavers with visible trauma, pathology or prior surgeries were excluded from the study. Routine dissection of the Axilla and upper limb was followed. During the dissection of the axilla the formation of brachial plexus and its branches were identified and traced down. Any variations found were noted and photographed. The results were analysed and compared to previous studies.

RESULTS: A branch from Median nerve in arm which is communicating with Musculocutaneous nerve in middle of arm was identified in one cadaver on left side. The percentage of a branch from Median nerve in arm which is communicating with Musculocutaneous nerve in middle of arm is 2% among 44 upper limbs.

CONCLUSION: Knowledge of this communicating branch between Median nerve and Musculocutaneous nerve in arm helps in assessment and appropriate management of peripheral nerve lesions causing motor deficits of upper limb. It also helps the surgeon in proper planning of the surgical approach to avoid iatrogenic neurological damage while operating in the region of arm and fractures of humerus^[1]. The knowledge of these variations may be helpful for the anatomists, radiologists, anaesthetist, neurosurgeons and orthopaedic surgeons during surgical operation of the upper limb.

KEYWORDS

Median Nerve, musculocutaneous Nerve, communicating Branch, lateral Cutaneous Nerve Of Forearm.

INTRODUCTION:

Median nerve is formed in axilla by the union of medial root and lateral roots. The medial root is derived from the medial cord of brachial plexus and conveys the fibers from ventral branches of ventral rami of C₈ and T₁; it crosses downward and laterally in front of the third part of axillary artery and joins with lateral root. The lateral root is continuation of lateral cord of brachial plexus and conveys fibers from ventral branches of ventral rami of C₅, C₆, C₇. After originating from the brachial plexus in the axilla the median nerve descends down the arm, initially lateral to the **brachial artery**. Halfway down the arm, the nerve crosses over the brachial artery, and becomes situated medially. The median nerve enters the anterior compartment of the forearm via the cubital fossa.

At the infra-clavicular level, the lateral cord of the brachial plexus bifurcates into the musculocutaneous nerve, lateral pectoral nerve and the lateral root of the median nerve (MN)^[2]. The musculocutaneous nerve (MCN) pierces the coracobrachialis muscle supplies it and descends between biceps muscle and brachialis muscle to supply them, and below the elbow continues as the lateral cutaneous nerve of forearm^[3,4].

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To study the variation in branching pattern of Median nerve in arm as knowledge of such variations is important in clinical practice for evaluation of injuries and misinterpretation of clinical symptoms and to prevent accidental injury to the nerves during diagnostic, prognostic and surgical treatment.

MATERIAL AND METHODS:

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RESULTS:

A branch from Median nerve in arm which is communicating with Musculocutaneous nerve in middle of arm was identified in one cadaver on left side. The percentage of a branch from Median nerve in arm which is communicating with Musculocutaneous nerve in middle of arm is 2% among 44 upper limbs.

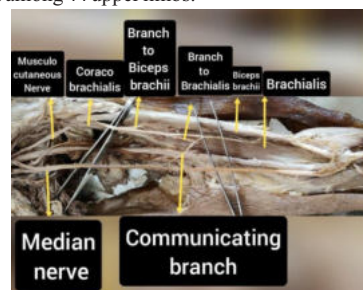


Fig-1- A branch of Median nerve communicating with MCN in arm.

DISCUSSION

Normally the Median nerve and the Musculocutaneous nerve pass through the flexor compartment of the arm without having any communicating branch between them [5]. The incidence of communication between Median nerve and the Musculocutaneous nerve have been reported in the Luis et al study^[1]. In this study the Type II the communicating branch was found from median nerve to musculocutaneous nerve in 3 specimens (2.8%). Whereas the Communication between musculocutaneous nerve and the median nerve is the most common and frequently observed variation amongst branches of brachial plexus and is reported by many investigators^[1,6,7,8].

In present study the percentage of a branch from Median nerve in arm which is communicating with Musculocutaneous nerve in middle of arm is 2% among 44 upper limbs. This type of intercommunication can be due to the nerve fibres from the C5 and C6 ventral rami hitch hiking along the MN and rejoining the MCN in the lower 1/2 of the arm. This may be the effect of "neurobiotaxis" occurring during fetal development^[9].

CONCLUSION:

Existence of the branch from Median nerve in arm and its communication with musculocutaneous nerve in the arm may be the cause of unusual presentation of peripheral neuropathies. Knowledge of these communications is of great significance, especially when considering the physical examination, diagnosis, prognosis and surgical treatment of upper limb motor disorders caused by peripheral nerve injuries. This may be of value in correct surgical planning and approaches of axilla and arm, in the peripheral nerve surgery, especially in nerve transfers techniques or muscle grafts from arm. There is also possibility of injury to the muscular branches of median nerve in arm by surgeons as usually Median nerve does not give branches in arm. Surgeons performing procedures involving Neoplasm or repairing trauma need to be aware of these variations.

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