

Absence of musculocutaneous nerve associated with clinically important variations in the formation, course and distribution of the median nerve — a case report

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Satheesha NAYAK †

Melaka Manipal Medical College (Manipal Campus), International Centre for Health Sciences, Madhav Nagar, Manipal, Karnataka State, INDIA.



† Dr. Satheesha Nayak B.
Associate Professor of Anatomy
Melaka Manipal Medical College (Manipal Campus)
International Centre for Health Sciences
Madhav Nagar, Manipal, Udipi District
Karnataka State, 576104, INDIA.
☎ +91 820 2822519
✉ +91 984 4009059
✉ nayaksathish@yahoo.com

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ABSTRACT

Variations in the nerves of the upper limb are not uncommon. We saw the variations in the origin, course and distribution of the median nerve in the left upper limb. The musculocutaneous nerve was absent. The median nerve was formed in the upper part of the arm, in front of the brachial artery. The nerve passed deep to the brachial artery from lateral to medial side. Median nerve supplied the biceps, coracobrachialis and brachialis muscles and gave lateral cutaneous nerve of the forearm. The third part of the axillary artery was compressed by two abnormal bands connecting medial root of median nerve with its lateral root. *Neuroanatomy; 2007; 6: 49–50.*

Key words [median nerve] [brachial artery] [variation] [arm] [musculocutaneous nerve]

Introduction

The median nerve is usually formed just lateral to the third part of the axillary artery by the union of its medial and lateral roots coming from medial and lateral cords of the brachial plexus respectively. It then descends down in the front of the arm and crosses superficial to the brachial artery from lateral to medial side. It enters the cubital fossa along with the brachial artery. Normally it does not supply the muscles of the arm.

The musculocutaneous nerve is a branch of the lateral cord of the brachial plexus. It pierces the coracobrachialis muscle and enters the front of the arm. It supplies the biceps, brachialis and coracobrachialis muscles.

We saw a variation in the median nerve associated with the absence of musculocutaneous nerve.

Case Report

During the routine dissections for medical undergraduates, variations were found in the anterior compartment of the arm of an approximately 60 year-old male cadaver. The variations found were unilateral. The musculocutaneous nerve was absent. The median nerve was formed in the upper part of the arm by union of its lateral and medial roots (Figs. 1, 2). It was formed anterior to the brachial artery. Then the nerve passed down lateral to the artery till the lower part of the arm. Here it crossed the artery from lateral to medial, passing deep to it (Fig. 2). It supplied coracobrachialis, biceps and brachialis muscles in the arm and gave lateral cutaneous nerve of the forearm and

it coursed in the arm. The course and distribution of the median nerve beyond the cubital fossa was normal.

The third part of the axillary artery was compressed by two tight bands joining the medial root of median nerve with its lateral root (Figs. 1, 2).

Discussion

Variations in the formation of the median nerve have been noted. Such variations include formation of median nerve by four roots, one from medial cord and other three from the lateral cord [1]. Variations such as passing through a bony canal [2] and abnormal communications with the musculocutaneous nerve have been reported [3,4]. Abnormal passage and compressions in the fibromuscular canals are also known [5,6].

The reported variations of the musculocutaneous nerve include its total absence [7] and communications with the median nerve at various levels [3,4]. The musculocutaneous nerve, not piercing the coracobrachialis is also known [8]. The abnormal bands crossing and compressing axillary artery have not been reported hitherto. These two short bands connecting the medial and lateral root of the median nerve may compress the axillary artery and lead to vascular symptoms in the limb. The median nerve was formed in front of the brachial artery. It might compress the brachial artery at this point or it might get compressed by the brachial artery where it passed deep to the brachial artery. This may lead to neurovascular symptoms such as numbness.

Anatomical variations of peripheral nerves constitute a potentially important clinical and surgical issue. Precise knowledge of variations in median and

musculocutaneous nerves may prove valuable in traumatology of the arm, as well as in plastic and reconstructive repair operations.

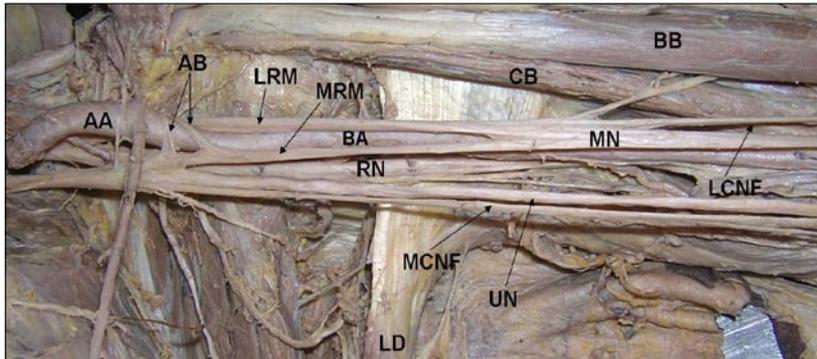


Figure 1. Dissection of the axilla and the upper part of the arm. Color version of figure is available online. (AA: axillary artery; BA: brachial artery; MRM: medial root of median nerve; LRM: lateral root of median nerve; MN: median nerve; AB: abnormal bands; RN: radial nerve; UN: ulnar nerve; MCNF: medial cutaneous nerve of the forearm; LCNF: lateral cutaneous nerve of the forearm; LD: latissimus dorsi; BB: biceps brachii; CB: coracobrachialis)

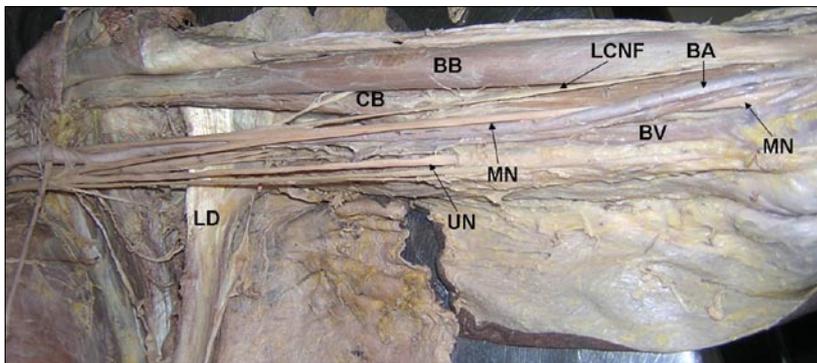


Figure 2. Dissection of the front of the arm and cubital fossa. Color version of figure is available online. (BA: brachial artery; MN: median nerve; UN: ulnar nerve; LCNF: lateral cutaneous nerve of the forearm; LD: latissimus dorsi; BB: biceps brachii; CB: coracobrachialis; BV: basilic vein)

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