

## ANATOMICAL CASUISTRY

**Atypical course of the median nerve**

Haviarova Z, El Falougy HAK, Killingerova A

*Department of Anatomy, Faculty of Medicine, Comenius University, Bratislava, Slovakia. haviarova@fmed.uniba.sk***Abstract**

**Work in the form of anatomical casuistry is presenting and describing the atypical course of the median nerve found in both upper limbs of one of the cadavers in the Department of Anatomy of Medical Faculty of Comenius University in Bratislava. This atypical course was found during the students' dissection of the peripheral nerves and vessels.**

**This non-standard course of the median nerve is compared with standard course described in anatomical literature and atlases, and confronted with the possible variations of the median nerve and its course described by the available literature. (Fig. 4, Ref. 4.)**

**Key words: median nerve, course.**

The median nerve (C5—Th1) is formed by uniting of: medial root from the medial cord (C8—Th1) and lateral root from the lateral cord (C5—C7) of the brachial plexus (C5—Th1). The two roots unite anterior or lateral to the third part of axillary artery. The median nerve passes in the arm at first lateral to brachial artery and near the insertion of musculus coracobrachialis. It crosses in front of (rarely behind) the artery, descending medial to it in cubital fossa where it passes posterior to the bicipital aponeurosis and anterior to musculus brachialis.

In forearm, it passes between the heads of musculus pronator teres and crosses lateral to the ulnar artery. Median nerve descends after that between musculus flexor digitorum superficialis and musculus flexor digitorum profundus. Near retinaculum flexorum the nerve descends lateral to musculus flexor digitorum superficialis, and passes to the palm between the muscle and retinaculum flexorum.

In arm, the nerve passes without giving out any branches, but in forearm and palm it gives motor branches for the flexors and sensitive branches to the skin of lateral side of the palm.

The previous mentioned story of the median nerve recorded to occur in 82.8 % of 1000 dissections (2).

**Casuistry**

During the students' dissections of the peripheral nerves and vessels it was found in cadaverous material of the Department of Anatomy atypical course of the median nerve in both upper limbs of cadaver of 60-years old man.

In right upper limb, the median nerve was formed in the infraclavicular part of brachial plexus in axilla by uniting its both roots,

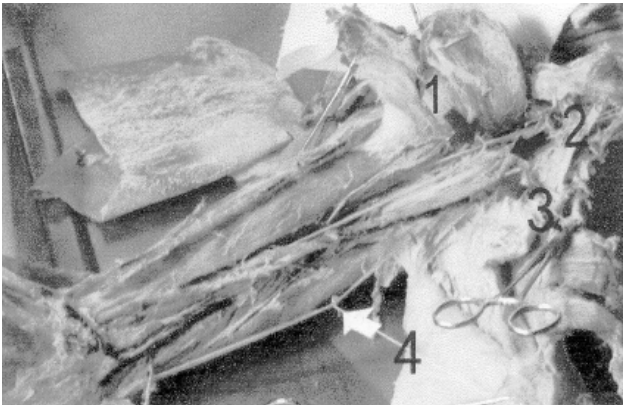
medial and lateral roots coming respectively from medial and lateral cords of the brachial plexus, behind the axillary artery. From the lateral cord arose also musculocutaneous nerve. From the medial cord arose ulnar nerve, medial cutaneous nerve of the arm and medial cutaneous nerve of the forearm. From the posterior cord arose axillary nerve and radial nerve without any further variation in their story (Fig. 1, 2). Axillary artery continues its story as brachial artery, which also courses in front of the median nerve.

In left upper limb, the median nerve was formed also from the infraclavicular part of brachial plexus in axilla, with typical uniting of medial and lateral roots from medial and lateral cords of brachial plexus. Cords of brachial plexus (medial, lateral and posterior) were in typical order around the axillary artery that means from medial, lateral and posterior sides. The axillary artery continues its story as brachial artery, however in continuation axis we found only the deep brachial artery, the brachial artery itself passes through the "fork" of the median nerve and in front of it along the whole of its course (Fig. 3, 4). We didn't record other variations in forming and course of other nerves of the infraclavicular part of

Department of Anatomy, Faculty of Medicine, Comenius University, Bratislava

**Address for correspondence:** Z. Haviarova, MD, Dept of Anatomy, Faculty of Medicine, Comenius University, Sasinkova 2, SK-813 72 Bratislava, Slovakia.  
Phone: +421.2.59357390

Special thanks to: documentarist Mrs M. Hlavačková (Dept of Anatomy) for the technical co-operation, and J. Zlatoš, MD, DSc (Department of Histology and Embryology) for his expert remarks.



**Fig. 1.** Right upper limb — dissected infraclavicular part of the brachial plexus. 1 — radix lateralis n. mediani, 2 — radix medialis n. mediani, 3 — a. brachialis, 4 — n. ulnaris.



**Fig. 2.** Right upper limb — dissected infraclavicular part of the brachial plexus (detailed view). 1 — radix lateralis n. mediani, 2 — radix medialis n. mediani, 3 — a. brachialis.



**Fig. 3.** Left upper limb — dissected infraclavicular part of the brachial plexus. 1 — radix medialis n. mediani, 2 — radix lateralis n. mediani, 3 — a. brachialis.



**Fig. 4.** Left upper limb — dissected infraclavicular part of the brachial plexus (detailed view). 1 — radix medialis n. mediani, 2 — radix lateralis n. mediani, 3 — a. brachialis.

brachial plexus. As well in the next dissected story of axillary and brachial arteries, we didn't find any variations.

#### Discussion and conclusion

The upper mentioned variations in forming and constitution of the median nerve from medial and lateral cords are conceded by both the world known anatomical literature Gray's Anatomy (2) and Cunningham's anatomy (1) even they didn't give percentage of these variations. Detailed and wider extent information about variations of forming and story of the median nerve, as well as other spinal nerves, is mentioned by Bergman, Afifi and Miyauchi (4) in the Illustrated Encyclopaedia of Human Anatomic Variations, which is freely accessed through the Internet, even these authors didn't mention percentage of forming of these variations we found.

The next story and branching of the median nerve in both upper limbs didn't show any variations, also no variations were found in the next course of axillary and brachial arteries in both upper limbs.

We must remark that the mentioned variations were found in cadaver in the end of students' dissections. Variation in left arm could have clinical significance, but now and after many years post-mortem it can not be realised.

We were interested in this variation because every arm showed other variant in forming of the median nerve. Also as curiosity

with which I didn't meet before during my pedagogic work for 10 years at Department of Anatomy in Medical Faculty of Comenius University in Bratislava.

#### References

1. Cunningham's Textbook of Anatomy. 12th Edition. International student edition. Oxford Medical Publications, 1995, 1078 s.
2. Gray's Anatomy. 38th Edition. Churchill Livingstone, 1995, 1598 s.
3. Kahle W., Leonhardt H., Platzer W.: Color Atlas Text of Human Anatomy. Vol 3. George Thieme Verlag, Stuttgart. 1993. 376 s.
4. Bergman R.A, Afifi A.K, Miyauchi R.: Illustrated Encyclopedia of Human Anatomic Variations: Part III: Nervous System: Plexuses. (from Internet)

Received May 10, 2001.

Accepted July 6, 2001.