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Unusual Formation of the Median Nerve at the Level of the Distal Half of the Arm

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ABSTRACT

Median nerve is one of the terminal branches of the brachial plexus associated with several variations most of which are reported in the literature. Some of these variations 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, variations with the areas of innervation of the nerve and also with the number roots forming this nerve. This study reported the formation of the median nerve at an unusually low level in the arm. This unusual level of formation was compared with standard course of this nerve as described in the anatomic literature and atlases.

Key words: Median Nerve, Arm, Unusual Formation

The median nerve is one of the major branches of the brachial plexus formed by nerve roots C5, C6,C7, C8 and T1 (Sinnantamby 2006). It is formed from the fusion of the medial and lateral roots of the median nerve, which are derived from the medial and lateral cords respectively. This nerve is formed at the lower border of the axilla lateral to the axillary artery (Sinnantamby 2006).

This nerve is one of the commonest branches of the brachial cord associated with several variations and the most frequent amongst these variations is the presence of a communicating branch from the muculocutaneous nerve (Venieratos and Anagnostopoulou 1998, Saeed and Rufai 2003, Choi et al 2002). Some other variations on this nerve include communication with the ulnar nerve (Griot et al 2004, Loukas et al 2007), split median nerve (krol et al 2005), innnervation of flexor muscles of the arm (Beheiry 2004), innervation of the flexor muscles of the arm by the lateral root of this nerve, variations in the number of roots forming the nerve (Eglseder and Goldman 1977, Goyal et al 2005). Few reports and studies have been made on the level and side of the arm at which this nerve is formed. Matejcik (2003) carried out a study on the laterality of the point of formation of this nerve with most of the deviation occurring on the left side.

CASE REPORT.

During a supervised dissection of an adult male formalin fixed Negroid cadaver by the medical undergraduate students of the Department of anatomy University of Nigeria, an anomaly in the formation of the median nerve was noted. The dissection procedure was as directed in Cunningham's Manual for dissection (1991). After a careful dissection of the axilla and the arm, the median nerve was observed to be formed at an unusually low level within the distal half of the arm. The medial and lateral roots of the median nerve ran separately through the axilla until the distal half of the arm where they fused to form the median nerve. This variation was observed unilaterally on the left arm of the subject. The course and branches of the median nerve in the forearm and hand were normal. A photograph of this anomaly was taken and a schematic illustration also made and labeled Figure 1 and 2 respectively.

DISCUSSION.

The knowledge of anatomical variations over time has been proved to be invaluable in the understanding of otherwise incomprehensible clinical findings as such variations may present clinically, or be observed at surgery, autopsy, and cadaveric dissection (Saeed and Rufai 2003). A lot of studies have been done on the variations of the entire branches of brachial plexus (Pandey and Shuka

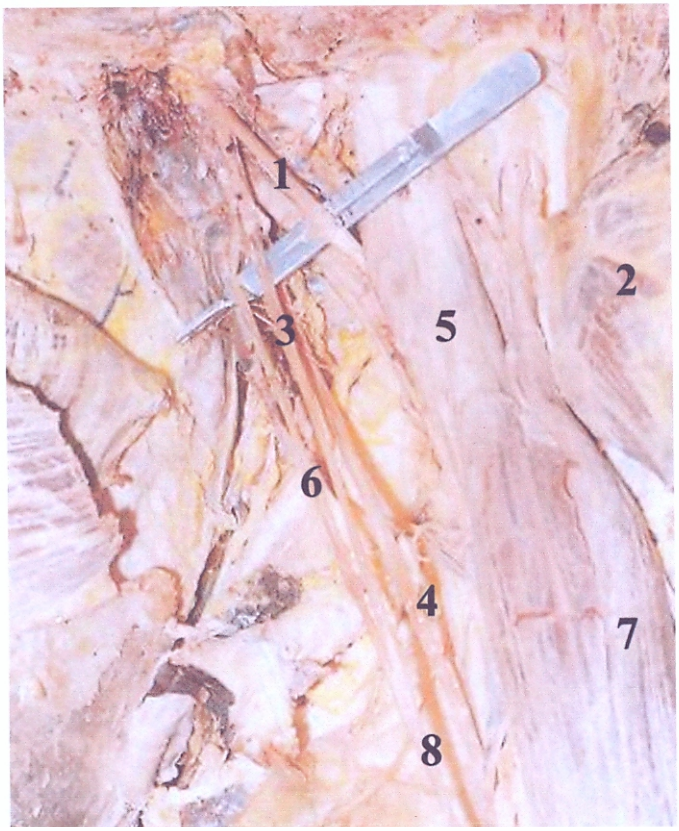

Fig. 1: Photograph showing the formation of the median nerve at the level of distal half of the left arm. (1) Musculocutaneous N, (2) Reflected deep surface of Pectroalis major M, (30 Lateral root of the median N, (4) Ulnar N, (5), belly of corachobrachialis, (6) Medial root of the median nnerve, (7) Belly of biceps brachi (8) Median N.

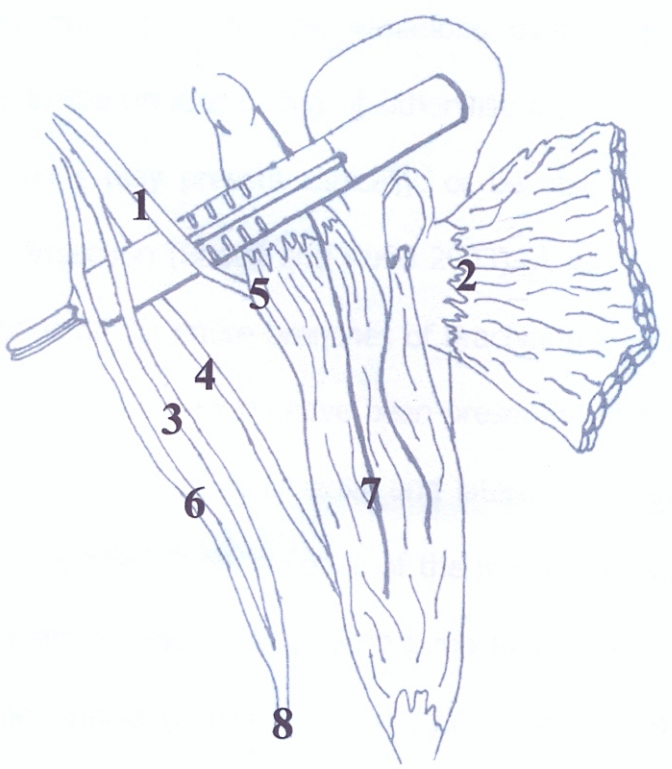

Fig. 1: Schematic representation of the formation of the median nerve at the level of distal half of the left arm. (1) Musculocutaneous N, (2) reflected deep surface of Pectoralis major M, (3) Lateral root of the median N, (4) Ulnar nerve (5) Belly of corachobrachialis, (6) Medial root of the median nerve (7) Belley of biceps brachi (8) Median N.

2007, Miller 1937). Several reports have been presented with their various prevalence in the occurrence of abnormal medial and lateral roots and cords of median nerve. Ker (1918) reported 2.9% absence of the medial root of the median nerve. Other reports on similar anomalies include Uzun and Bilgic (1999), Dysal et al (2003). Pandey and Shukla (2007) reported 7% prevalence in the abnormal formation, location and course of median nerve with 3.5% prevalence on the right, 0.6% on the left, and 2.3% bilaterally.

The various variations in the formation, location, and course of the cords of brachial plexus have been attributed mainly to abnormal embryological relation between the cords of brachial plexus and cervical segmental branches of the dorsal aorta (Pandey and Shukla 2007, Nakatani et al 1997).

The reported formation of the median nerve at the level of the middle of the arm is one of the uncommon variations of the median nerve formation to be documented in the literature.

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