AN ANOMALOUS FORMATION OF THE MEDIAN NERVE

Mustafa Fevzi SARGON*, M.D., Hüseyin BORMAN, M.D.

Hacettepe University, Faculty of Medicine, Departments of Anatomy* and Plastic and Reconstructive Surgery, Ankara, Turkey
Gazi Medical Journal 1 : 51-53, 1994

SUMMARY : The median nerve has two roots from the lateral C (5), 6, 7 and medial (C8, T1) cords, which embrace the third part of the axillary artery, uniting anterior or lateral to it. In our cadaver, the medial root of the median nerve was formed by the fusion of two branches coming from different cords of the brachial plexus. One of them was the normal medial root arising from the medial cord and the other one was an unnamed, an abnormal branch of the lateral cord.

***Key Words :** The Median Nerve.*

INTRODUCTION

The brachial plexus extends from the neck into the axilla and supplies motor, sensory and sympathetic nerve fibers to the upper limb. It is formed by the union of the ventral rami of nerves C5 to C8 and T1. As the ventral primary rami enter the posterior triangle of the neck; they from the superior (C5, C6), middle (C7) and inferior (C8, T1) trunks. Each of the three trunks then divide into anterior and posterior divisions posterior to the clavicle. The three posterior divisions unite to form the posterior cord. The anterior divisions of the superior and middle trunks unite to form the lateral cord, and the anterior division of the inferior trunk continues as the medial cord. The lateral cord of the brachial plexus has 3 branches : The lateral pectoral nerve, the musculocutaneous nerve, the lateral root of the median nerve. The medial cord of the plexus has 5 branches : The medial pectoral nerve, the medial brachial cutaneous nerve, the medial antebrachial cutaneous nerve, the ulnar nerve, the medial root of the median nerve (Fig 1). The posterior cord also has 5 branches : The upper subscapular nerve, the thoracodorsal nerve, the lower subscapular nerve, the axillary nerve, the radial nerve (3).

The median nerve is one of the most important branches of the brachial plexus. It has two roots from the lateral C (5), 6, 7 and medial (C8, T1) cords, which embrace the third part of the axillary artery, uniting anterior or lateral to it (8).

We have encountered this variation during the dissection of a 24 year-old male cadaver.

CASE REPORT

During the dissection of the right axillary region, an anomalous formation of the median nerve was observed in our cadaver. The lateral cord of the brachial plexus had given 4 branches : The lateral pectoral nerve, the musculocutaneous nerve, the lateral root of the median nerve and an unnamed branch (Fig 1). This abnormal branch of the lateral cord had arisen proximal to the origin of the muscu-

locutaneous nerve and joined the medial root of the median nerve just 1 cm proximal to the formation of the median nerve (Fig 1-2).

During its course through the axilla, the axillary artery passed between the abnormal branch laterally and the medial root of the median nerve medially. Therefore, the medial root of the median nerve was formed by the combination of branches from the medial and lateral cords of the brachial plexus (Fig 1-2).

DISCUSSION

Unusual branching of the median nerve at the wrist and hand are reported by many authors (5, 6, 7, 9). They observed these variations during the treatment of the "Carpal Tunnel Syndrome". Tumors, such as schwannoma may be associated with a variation of the division of the median nerve at the wrist (2). O'Neil et al described the case of a missing median nerve. In this case, the median motor nerve was terminated in the forearm and all internal hand muscles were supplied by the ulnar nerve (4).

In conclusion; we can say that there might be so many variations of the median nerve, but only a few of them have a clinical importance. The anomalous formation of the median nerve in our cadaver is one of these clinically important abnormalities. Considering that the medial root forming the median nerve recieves a branch from the lateral cord of the brachial plexus, it means that any pressure applied externally such as by axillary lymph node enlargements or axillary artery aneursyms, may have very little effect on the total innervation of the median nerve. Also, during the penetrating injuries of the axilla, it is probable that the median nerve may not be completely out of function.

Fig - 2 : The median nerve in our cadaver showing variation in its formation.
1 : The lateral root of the median nerve
2 : Musculocutaneous nerve
X : Abnormal brach of the lateral cord
3 : The medial root of the median nerve
4 : Axillary artery
5 : Ulnar nerve
6 : The medial cutaneous nerve of forearm

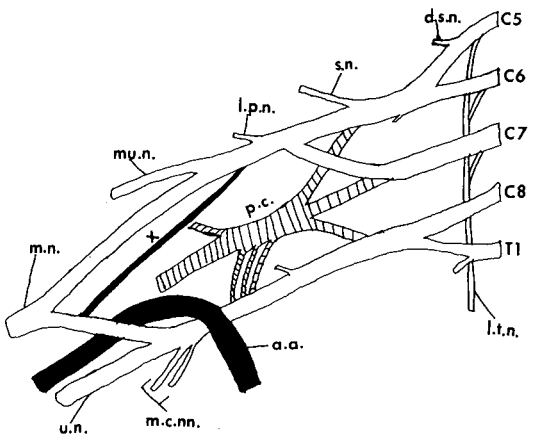

Fig - 1 : Diagram of an anterior view of the right brachial plexus of nerves in our cadaver.
d.s.n. : Dorsal scapular nerve
s.n. : Suprascapular nerve
l.p.n. : Lateral pectoral nerve
mu.n. : Musculocutaneous nerve
m.n. : Musculocutaneous nerve
u.n. : Ulnar nerve
m.c.nn. : Med. cutaneous nerves of arm and forearm
a.a. : Axillary artery
l.t.n. : Long thoracic nerve
X : Abnormal branch of the lateral cord
p.c. : Posterior cord

Correspondence to : Dr.Mustafa Fevzi SARGON
Hacettepe Üniversitesi Tıp Fakültesi
Anatomi Anabilim Dalı
06100 ANKARA - TÜRKİYE
Phone : 312 - 488 71 28

REFERENCES

1. Crandall RC, Hamel AL : Bipartite median nerve at the wrist. J Bone and Joint Surg 1979; 61-A(2) : 311.
2. Mintz A, Carneiro R : Schwannoma associated with anomalous division of the median nerve. Neurosurgery 1989; 25 (6) : 965-968.
3. Moore KL : Clinically Oriented Anatomy, 2. Ed. Williams and Wilkins 1985; pp. 639-643
4. O'Neil T, Giancarlo T, Spitzer AR : The case of the missing median nerve; an all ulnar hand. Muscle and Nerve 1990; 13 (9) : 882.
5. Ogden JA : An unusual branch of the median nerve. J Bone and Joint Surg 1972; 54-A(8) : 1779-1781.
6. Papathanassiou BT : A variant of the motor branch of the median nerve in the hand. J Bone and Joint Surg 1968; 50-B (1) : 156-157.
7. Schultz RJ, Endler PM, Huddleston HD : Anomalous median nerve and an anomalous muscle belly of the first lumbrical associated with Carpal Tunnel Syndrome. J Bone and Joint Surg 1973; 55-A(8) : 1744-1746.
8. Williams PL, Warwick R, Dyson M, Bannister LH : Gray's Anatomy, 37 Ed. Churchill Livingston, pp : 1133.
9. Wood VE, Frykman GK : Unusual branching of the median nerve at the wirst. J Bone and Joint Surg 1978; 60-A (2) : 267-268.