Case Report
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Assessment a Case Brachial Plexus Variation in Iranian Men Cadaver

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Abstract

The brachial plexus (Figure 1), which is located in the neck and axillary region, was complex and may have variation. During the routine dissection of the axillary region and the brachial plexus in Iranian cadaver in Tehran University of Medical Science, a case of nerve variation was seen, in which a communication branch between the median nerve and musculocutaneous the nerve was seen.

Introduction

The brachial plexus is involved in the motor and sensory nerves of the upper limbs. In the formation of the brachial plexus, the abdominal branches C5 to T1 as well as the communication branches of nerves C4 and T2 are involved. How these roots divide and integrate creates important nerves in the upper limbs. Sometimes these divisions do not follow routine principles and cause diversity. It is clinically important because they are prone to injury during surgery or dissection [1]. One of the most important of these variations is the relationship between the median nerve and the musculocutaneous system, which has been reported in many bodies [2-10]. The median nerve is formed by the fusion of two internal and external roots. The inner root is separated from the inner cord, which itself lies along the anterior branch of the lower trunk. The outer root is replaced by the outer cord, which itself originates from the fusion of the anterior branches of the upper and middle trunk [11]. The musculocutaneous nerve originates from the external rope of the forearm and pierces the coracobrachialis muscle, and in the arm the nerves of the muscles of the anterior compartment of the arm are responsible. The musculocutaneous nerve in the forearm continues in the form of the external cutaneous nerve of the forearm and performs sensory innervation outside the forearm [12]. The pattern of communication between the median nerve and the musculocutaneous system has different divisions, each of which can have a different basis [13-21]. Recognition and reporting of these variations is of great clinical importance, and physicians' familiarity with these abnormalities prevents injury during surgery.

Case Report

During the routine dissection of the upper limb of a male corpse in the Department of Anatomy, Tehran University of Medical Sciences, Iran, a case of variation was observed in the branches of the brachial plexus. The dissection was based on the principles of the Grant dissection [22]. Observed, there was a connection between the median nerve and the musculocutaneous nerve, which was detached from the proximal nerve of the musculocutaneous nerve before the perforation of the coracobrachialis muscle and connected below the median nerve formation (Figure 2).

Discussion

The brachial plexus has a complexity and therefore can have a variety of variations, the most common of which is related to the connections between the median nerve and the musculocutaneous system. In studies conducted by Venieratos et al., On 79 bodies (158 arms), there were communication branches between the median nerve and the musculocutaneous branch in 22 arms (8.13%) [20]. Choi et al's study of 138 bodies (276 arms) and 64 bodies (4.46%) showed a correlation between the median nerve and the musculocutaneous nerve, with 9 in 14 bodies (1.14%). It was bilateral and unilateral in 55 corpses (9.85%). In this study, the relationship between the median nerve and the musculocutaneous system in 73 arms that had a communication branch was divided into three categories; In the first group (14.19% of the 14 arms), the two nerves, the median and the musculocutaneous, merged. In the second group (53.62% of the arms) they had a communication branch, and in the third category (5 arms-6.6%) there were two branches of communication between the median nerve and the musculocutaneous nerve [13]. In some studies,

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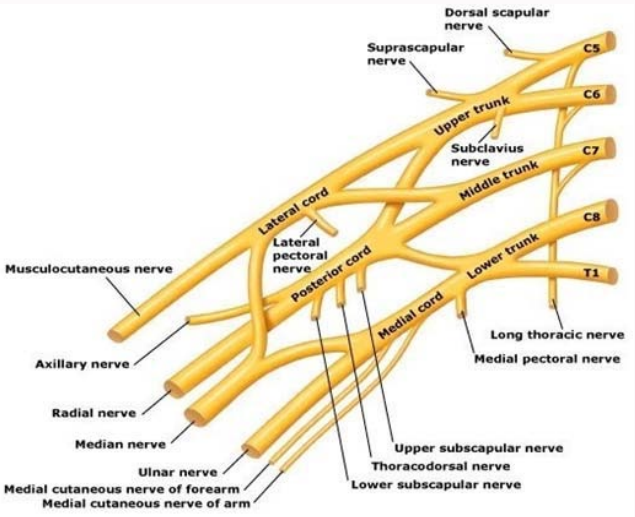

Figure 1: True position of brachial plexus.

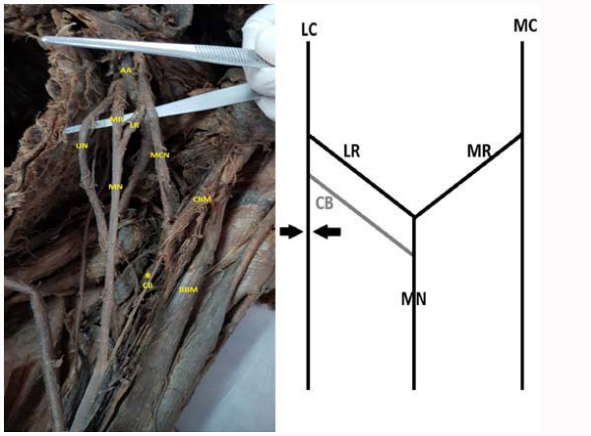

Figure 2: MC: Medical Cord; LC: Lateral Cord; MR: Medial Root; AA-Axillary Artery; MN: Median Nerve; UN: Ulnar Nerve; MCN: Musculocutaneous Nerve; CbM: Choracobranchialis Muscle; BB: Biceps Branchi muscle; CB: Communicating Branch.

the musculocutaneous nerve was not bilateral or unilateral [23-26]. In Shashanka et al's study of 20 bodies, there was no double-sided musculocutaneous nerve in one body, and in the same body in the right arm, the median nerve had three roots, two of which were from the outer rope and one from the root. It comes from the inner rope, but in the left arm, the formation of the median nerve was normal. In studies by Taib et al., On 22 bodies (44 arms), in 12 arms (3.27%) the median nerve had three roots, in one arm (3.2%) it had one root, and also in One arm (3.2%) had four roots. In Nakatani et al's study, in three cases, the musculocutaneous nerve did not pierce the coracoobracialis muscle [27-29], and in the study by Nasrabadi et al.

Fetal Explain

Examining how an embryonic nervous system evolves can give us a better understanding of the creation of anatomical variations. By the end of the fourth week, the motor nerve fibers begin to move from the spinal cord. The strands that develop for a particular group of muscles together form the abdominal nerve root, some of which form large neural networks, such as the brachial plexus. As limb buds develop, these nerves move toward the target structure through the activity of structures called growth cone [30-32]. In this routing process, many molecular settings are involved that any disruption or non-expression of the gene can cause anomalies in the formation of certain nerves [33].

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