

Case Report

An Unusual Formation Of Ulnar Nerve

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Abstract : Variations in the formation, course and distribution of brachial plexus are not uncommon. The classical way of explanation of the emergence of ulnar nerve is from the medial cord of brachial plexus but in the present study it differs. During the routine dissections of the human cadavers in the axillary region it was noted that there was a unilateral variation in the formation of ulnar nerve. Here the ulnar nerve was formed by two roots, a lateral root from the lateral cord and a medial root from the medial cord thus describing like median nerve 'V' pattern formation.

Key Words : Ulnar nerve, Median nerve, Brachial plexus

Introduction

Variations in the formation of infraclavicular part of brachial plexus is not uncommon. The variations in brachial plexus are generally at the level of its formation ie pre-fixed, post-fixed plexus and cords. The classical way of explanation of ulnar nerve emergence is from the medial cord of brachial plexus (C8, T1) but often receives fibres from the ventral ramus of C7. Ulnar nerve has the root value of C7, C8 and T1. The contribution of C7 in ulnar nerve is believed to be entering the nerve through the lateral root of ulnar nerve¹. In the axilla the ulnar nerve descends between the third part of axillary artery and axillary vein. Ulnar nerve supplies mainly the intrinsic muscles of hand. In the present study there was an incidence of more than one root in the formation of the ulnar nerve. The knowledge of these anatomical variations is important for surgeons for the interpretation of pain, motor loss and sensory loss in the area sustained during injuries or surgical procedures.

Case report

During routine dissections of axillary region, we found a unilateral variation in the formation of ulnar nerve on the left. Here the ulnar nerve was formed by the two roots. The lateral root from the lateral cord and a medial root from the medial cord like the formation of median nerve in the form of letter 'V' pattern. Both the medial and lateral roots were medial to the vein and after its formation the ulnar nerve was passing in front of the axillary vein. The formation of median nerve was by the routine lateral and

medial roots from the respective cords and the median nerve was anterior to the axillary artery.



Figure showing two roots of ulnar nerve

M- Median nerve, U- Ulnar nerve
MRM- Medial root of median nerve
LRM- Lateral root of median nerve
MRU- Medial root of ulnar nerve
LRU- Lateral root of ulnar nerve
AA - Axillary artery, AV - Axillary vein

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Discussion

Variations of the brachial plexus and its terminal branches are not uncommon. Communicating branches between the ulnar and median nerves have been described throughout anatomical history.

A communicating branch was first recorded by Berettini² in his anatomical drawings. Fuss FK³ reported the origin of the fibres of ulnar nerve from the lateral fascicle and the lateral root may be either accompanied by the fibres of the median nerve (type I) or may run separately (type 2). In the present case, ulnar nerve was formed by the medial and lateral roots of the medial and lateral cords like the pattern of the median nerve and the lateral root was running separately which falls into (type 2). Fuss FK³ also reported that the lateral root crosses the medial root of the median nerve but in this case the medial root of the median nerve was crossing the lateral root of the ulnar nerve and then continuing as the trunk of the ulnar nerve and anterior to the axillary vein. The median nerve was contributed by the respective medial and lateral roots of the cords. Median nerve was anterior to the axillary artery. It has been reported that C7 fibers reach ulnar nerve either as a direct branch from lateral cord or through roots of median nerve by Rosse C, Gaddum-Rosse P⁴, Satyanarayana et al⁵ reported a case where all the three cords namely lateral, medial and posterior cords of brachial plexus were noted to be lateral to the third part of axillary artery. The fibers of C7 reach ulnar nerve through a root from lateral cord of brachial plexus was reported by Webb Haymaker and Barnes Woodhall⁶. Bharath R. Sontakke⁷ reported an unusual case of asymmetrical formation and distribution of median nerve on both sides. On the right side, median nerve received contribution from lateral cord twice, once in the axilla as lateral root of median nerve-1 and again in the arm as lateral root of median nerve-2. Lateral root of median nerve-1 contributed most of its fibers to ulnar nerve. On the left median nerve had its two roots as usual, lateral root of median nerve and medial root of median nerve. Here on the left, the ulnar nerve and the median nerves were formed by the two roots and on the right there is no such variation. M.M. Hoogbergen and J.M.G. Kauer⁸ reported an unusual ulnar nerve-median nerve communicating branch. Jamuna.M⁹ reported clinically significant variations of the cords of the brachial plexus in relation to axillary artery. In a considerable number of cases the ulnar nerve receives fibers also from the seventh cervical segment. These may reach the ulnar nerve by

way of the lateral cord of the plexus or through the lateral root of the median nerve as reported by A.K. Khan Last's Anatomy¹⁰. In this case it was found that the ulnar nerve is formed by two roots. A lateral root from the lateral cord and a medial root from the medial cord thus describing like median nerve 'V' pattern formation.

Conclusion

Knowledge of anatomical variations of ulnar nerve, median nerve and radial nerve at the level of formation of the brachial plexus is essential in the light of the frequency with which surgery is performed in the axilla and upper limbs

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