Bilateral communication between musculocutaneous nerve and median nerve
- a case report

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Abstract

During routine dissection of an adult male cadaver, we observed bilateral communication between musculocutaneous nerve and median nerve. The level of origin of the communicating branch from musculocutaneous nerve was different in both arms. In left arm it arose before piercing coracobrachialis and in the right arm after piercing it. It is important to be aware of this variation while planning a surgery in the region of arm, as these nerves are more liable to be injured during operations. Any compression over the communicating branch may give rise to varying patterns of weakness that may impose difficulty in diagnosis for the neurologists.

Key words: Musculocutaneous nerve, Median nerve, Coracobrachialis, Communicating branch.

Introduction

Musculocutaneous nerve (MCN) is the continuation of lateral cord of brachial plexus. It pierces coracobrachialis, supplies it and then descends between biceps brachii and brachialis after supplying both the muscles, it continues as the lateral cutaneous nerve of forearm. Median nerve (MN) is formed by the union of terminal branch of the lateral and medial cords of brachial plexus and it gives no branches in the arm. Some fibres of median nerve may run in the sheath of the musculocutaneous nerve and leaves it to join their proper trunk1.

Case report

During routine dissection of an adult male cadaver in the Department of Anatomy, Thoothukudi Government Medical College, a communicating branch from musculocutaneous nerve to median nerve was observed bilaterally. The mode of communication was different in both arms. The level of origin of the communicating branch in relation with coracobrachialis muscle and the level of its union with MN were measured with digital vernier caliper and photographed.

Observations

In the left arm, musculocutaneous nerve divided into two branches (medial and lateral) 3cm above, before piercing coracobrachialis. Both the branches pierced the coracobrachialis. The lateral branch sent a twig to coracobrachialis. Medial branch accompanied by the lateral branch emerged out of the muscle without supplying it. At about 9 cm above inter condylar line, the medial branch joined with median nerve (Fig.1). The lateral branch passed between biceps and brachialis, supplied it and then continued as lateral cutaneous nerve of forearm.

In the right side, musculocutaneous nerve pierced coracobrachialis as a single trunk, supplied it and at about 6cm from its emergence gives three branches, two muscular branches to biceps and brachialis and a communicating branch to median nerve and then continued as lateral cutaneous nerve of forearm (Fig.2).

Discussion

Communicating branch from the MCN and the MN is by far the most common and frequent of all the variations that are observed among the branches of the brachial plexus. Incidence of the communications were reported as 33% by Rao et al2, 63.5% by Loukas et al3, 53.6% by Guerri-Guttenberg4 and 2% by Jamuna et al5.
to the connection and 2b where there were two roots of communication from the musculocutaneous nerve.

In the case presented here in right arm the communicating branch emerged distal to coracobrachialis, hence confirms with type II of classification described by Venieratos et al. In left arm since only one communicating branch was found, which was given even before piercing the coracobrachialis, communicates with MN 6 cm from its emergence of coracobrachialis, and hence confirms with the pattern 2a of Choi et al classification.

A few fibres of the median nerve may travel in the bundle of the musculocutaneous nerve, for varying distances and then leave it to join the proper median nerve as a communicating branch. In selective fascicular neurotomies of MCN for spastic elbow flexion, the fibres of MN can be injured.

While injecting local anaesthetic into the belly of coracobrachialis muscle for MCN block, the communicating nerve can be affected. In drilling the superior surface of clavicle for fracture clavicle, MCN is the most common to be injured in abducted arm. In neuropraxia resulting from excessive traction of coracobrachialis in the surgeries of shoulder joint, the communicating branch to MN can also be involved, hence the orthopaedicians should be aware of the variation in the MCN.

Precise knowledge of communication between musculocutaneous nerve and median nerve may be valuable in post traumatic evaluation, surgeries of shoulder joint, exploratory innervation of the arm in peripheral nerve repair in plastic and reconstructive surgeries.

**Conclusion**

Intercommunications between musculocutaneous nerve and median nerve deserve important interest in view of their clinical significance. It is important to be aware of this variation while planning a surgery in the
region of arm, as these nerves are more liable to be
injured during operations. Any compression over the
communicating branch may give rise to varying patterns
of weakness that may impose difficulty in diagnosis for
the neurologists.

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