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UNUSUAL LOCATION OF CORACOBRACHIALIS MUSCLE AND COURSE OF MUSCULO CUTANEOUS NERVE – A CASE REPORT

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ABSTRACT

Musculocutaneous nerve typically pierces the coracobrachialis muscle. During gross anatomy dissections of the upper extremities, for freshman undergraduates, in the department of Anatomy, Mamata Medical College, Andhra Pradesh, the coracobrachialis muscle was found to be innervated by a nerve branch arising from the lateral cord of the brachial plexus. The musculocutaneous nerve was found to course downwards medial to coracobrachialis and biceps brachii muscles and then pierce the biceps brachii instead of coracobrachialis muscle. The coracobrachialis was found in deeper plane, posterior to short head of biceps brachii rather than medial to it. No other abnormality was observed in the branching pattern of the brachial plexus on both sides. Knowledge of the anatomical variations of the location of coracobrachialis and peripheral nervous system is important to clinicians and surgeons in interpreting unusual clinical presentations.

Keywords: Coracobrachialis, Biceps brachii, Musculocutaneous nerve, Brachial plexus.

INTRODUCTION

Coracobrachialis takes origin from the coracoid process, together with the tendon of the short head of biceps and inserts on to the medial border of the shaft of the humerus. This muscle forms an inconspicuous rounded ridge on the upper medial side of the arm. Usually the muscle is perforated by the musculocutaneous nerve. Biceps and brachialis muscles are related laterally to this muscle whereas pectoralis major, brachial vessels and median nerve are related anteriorly¹.

The musculocutaneous nerve arises from the lateral cord (C5–7) of brachial plexus. It pierces coracobrachialis and descends laterally between biceps and brachialis to the lateral side of the arm. Just below the elbow it pierces the deep fascia lateral to the tendon of biceps, and continues as the lateral cutaneous nerve of the forearm. It supplies coracobrachialis, both heads of biceps and most of brachialis muscle¹.

CASE REPORT

During routine dissection labs for freshman undergraduate students of Mamata Medical College, Andhra Pradesh, a variation of abnormal location of coracobrachialis muscle and unusual course of musculo cutaneous nerve in relation the muscle is observed in 60 yr old male cadaver.

Morphological variations of coracobrachialis muscle are common but the variation in the location of muscle was not reported so far. In this present case coracobrachialis muscle was found originating from the medial border of coracoid process of scapula along with the tendon of short head of biceps. Then muscle coursed unusually deep and posterior to short head of biceps brachii muscle rather than descending medial to it. Insertion of the muscle was observed on the anterior surface of mid shaft of humerus instead of medial surface. A nerve branch from the lateral

cord was found to innervate the muscle near its origin rather than from musculocutaneous nerve. Musculo cutaneous nerve was observed arising from lateral cord of brachial plexus as usual. Interestingly the nerve did not pierce the coracobrachialis, instead continued downwards medial to it and then passed between the biceps and brachialis muscles after giving nerve branches to both (Picture No 1). Nerve supply to coraco brachialis was derived from lateral cord of brachial plexus rather than from musculo cutaneous nerve. The muscular braches to biceps and brachialis were originated from musculocutaneous nerve. Finally the musculocutaneous nerve continued as lateral cutaneous nerve of forearm).

DISCUSSION

This case report presents the abnormal location of coracobrachialis muscle and unusual continuation of musculo cutaneous nerve without piercing the coracobrachialis muscle in right upper limb of 60 yr old Indian male cadaver.

Jakubowicz², Kopuz C³, Mehmet⁴, Nakatani⁵, Lee⁶, Mostafa⁷ and Sargon⁸ observed an accessory head of coracobrachialis but loactation of coracobrachialis as deep and posterior to biceps short head and its insertion on the anterior surface of shaft of humerus has not been reported previously.

Absence of musculocutaneous has been reported by many authors. Prasad rao et al⁹, Pacholczak R et al¹⁰, Guerry Guttenberg RA¹¹, Natakani et al¹², Jamuna et al¹³, Uzel AP¹⁴ reported unilateral absence of musculocutaneous nerve and Ihunwo et al¹⁵ observed the same bilaterally. In the present case the nerve was observed to be arising from the lateral cord as usual.

Authors Guerry Guttenberg¹¹, Gumusalan¹⁶, Himabindu¹⁷, Jamuna¹³, Chitra¹⁸, Nayak¹⁹& Natakani²⁰ observed that the musculo cutaneous nerve did not pierce the coracobrachialis in its course, rather found it passing downwards and medial to the muscle. They observed that the nerve

either ended up by joining the median nerve or continued as lateral cutaneous nerve of forearm. In the present study also musculo cutaneous nerve did not pierce the muscle instead continued downwards medial to the biceps muscle then entered it and finally continued as lateral cutaneous nerve of forearm. No communicating branches were observed between musculo cutaneous nerve and median nerve.

CONCLUSION

Upper extremity is a frequent site of injury and various surgical and invasive procedures. Coracobrachialis muscle has been suggested for use in coverage in infraclavicular defects of postmastectomy reconstructive patients²¹ and also in free vascularized muscle transfer for treatment of longstanding facial paralysis²². So knowledge of such anatomical variations in muscles and nerves of upper limb is of utmost importance to clinicians.

Competing Interests

The authors declare that we have no competing interests

Ethical committee clearance

As the study included only human cadavers, ethical committee clearance was not taken into consideration. Authors will take the responsibility of any further allegations regarding ethical clearance that arise from the study.

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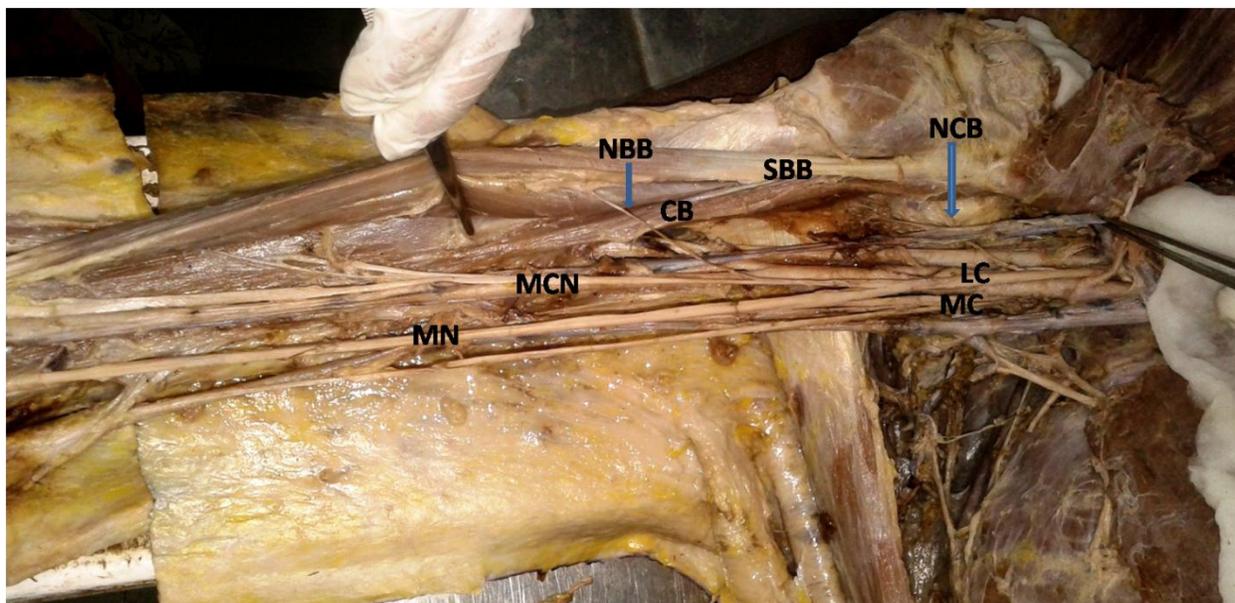
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SBB – Short head of biceps brachii, CB – Coracobrachialis, LC – Lateral Cord, MC – Medial cord, MCN – Musculo cutaneous nerve, MN – Median nerve, NCB – Nerve branch to coracobrachialis muscle, NBB – Nerve branch to Biceps brachii muscle.

Picture: Showing deep location of coracobrachialis muscle and musculo cutaneous nerve not piercing coracobrachialis.