



ORIGINAL RESEARCH PAPER

Anatomy

AN UNUSUAL COURSE OF RADIAL NERVE- A CASE REPORT

KEY WORDS: Radial Nerve, Brachial Plexus, Cadaver

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ABSTRACT

The radial nerve is continuation of the posterior cord of the brachial plexus. Variation in the branching pattern of the posterior cord of the brachial plexus is common but variation in the branching pattern of the radial nerve is rare. A rare and unreported variation in the branching pattern of the radial nerve was noted in the left cubital fossa of an embalmed male cadaver during routine gross dissection. After division of radial nerve, the superficial branch enter in the forearm region by piercing between brachioradialis and extensor carpi radialis longus in front of the lateral epicondyle and deep branch goes deep to supinator and wind around head of the radius. However, this present report demonstrates that the radial nerve lies posterior to the lateral epicondyle. The present report can be useful for pain managing therapists as well as surgeons dealing with nerve entrapment or compressive neuropathies and reconstructive surgeries and anaesthetists for ultrasonic pain therapy.

INTRODUCTION

The radial nerve is continuation of the posterior cord of the brachial plexus with root value of C5,6,7,8 and T1 (1). It emerges below the latissimus dorsi between long and medial heads of triceps. It gives branches to long and medial head of the triceps and few cutaneous branches in the radial groove. Then it pierces the lateral intermuscular septum to the lateral epicondyle (2). The nerve then divides in front of the lateral epicondyle into superficial and deep branches. The deep branch a motor nerve also known as posterior interosseous nerve twist around radius and supplies the extensor compartment of forearm and then dips in the interosseous membrane and ends at the wrist joint (3).

The superficial branch which is a sensory branch of the radial nerve travels underneath the brachioradialis and becomes subcutaneous by passing between the brachioradialis and extensor carpi radialis longus tendon (4).

The variation of the radial nerve particularly the superficial branch had been reported earlier also (4). The present report demonstrates that the superficial branch of the radial nerve emerges posterior and lateral to the lateral epicondyle to become cutaneous in the forearm. Such variation in the anatomy of the nerves will be helpful for orthopaedic surgeons, neurophysicians, Plastic surgeons, physiotherapists and radiologists. This knowledge will be useful in term of nerve grafting, donor for sensate flap and neurophysiologic evaluation to diagnose peripheral neuropathies (3).

CASE REPORT

During routine gross dissection at Department of Anatomy, Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, an anatomical variable branching pattern of the radial nerve was found showing different pattern of the course of the superficial and deep branch of the radial nerve of an embalmed male cadaver. Usually the radial nerve bifurcates into superficial and deep branches in front of the lateral epicondyle but we noted that the superficial branch of the radial nerve passed posterior and lateral to the lateral epicondyle and emerges in the forearm beneath the lateral epicondyle to become subcutaneous to pass between the brachioradialis and extensor carpi radialis longus. The deep branch of the radial nerve passes deep to. It enters the

posterior compartment of the forearm and continued as posterior interosseous nerve of the forearm.

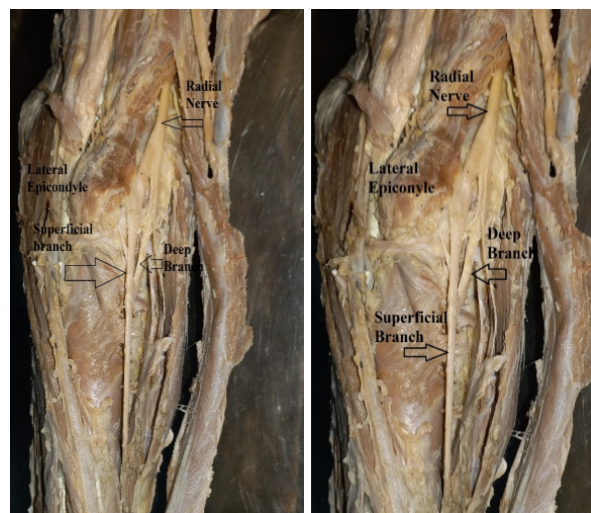


Fig:1

Fig:2

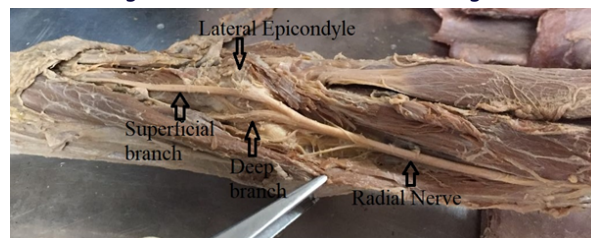


Fig:3

DISCUSSION

In this case study, at about the level of the lateral epicondyle, the radial nerve bifurcates into superficial and deep divisions. The superficial branch deviated to the lateral side and then it goes deep to the deep fascia and come out in the forearm as subcutaneous branch to supply the extensor carpi radialis longus.

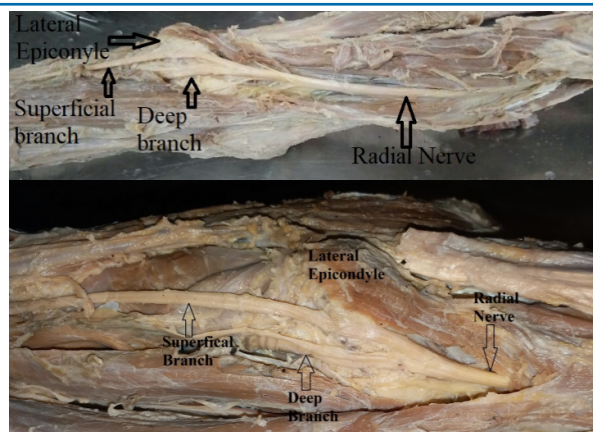


Fig:4 (Lateral view showing Radial nerve division lateral and beneath the lateral epicondyle)

There are many variations of the course of the superficial branch of the radial nerve reported previously that the superficial branch of the radial nerve was piercing the brachioradialis muscle tendon to become subcutaneous (5).

It has been stated earlier that the superficial branch of the radial nerve showed fusion with the tendon of brachioradialis and extensor carpi radialis longus. Since nerve palsy syndromes can be caused by the anatomical variations of the peripheral nerves, awareness of this variation is useful in clinical practice (Peripheral neuritis).

Superficial branch of the radial nerve is pure sensory nerve can be compressed between the tendon of brachioradialis and extensor carpi radialis longus (7). At posterior border of the brachioradialis, superficial branch of radial nerve is more prone for compression as it becomes subcutaneous. Wartenberg et al (8) described such compression as mononeuritis.

The clinical significance of this variation may be observed in the traumatic transection. Traumatic injury of the superficial branch of the radial nerve may result in a painful neuroma (9). The present report can be useful for pain managing therapists as well as surgeons dealing with nerve entrapment or compressive neuropathies and reconstructive surgeries and anaesthetists for ultrasonic pain therapy.

CONCLUSION

The variation of the branching pattern of the radial nerve is extremely useful for the surgeons as the variant will make them more careful in dealing with nerve entrapment surgery, compressive neuropathies, reconstructive surgery and in the pain management services. The awareness of the variation of branching pattern of the radial nerve is significant in clinical scenario specially by physiotherapists and anaesthesiologists as pain managing therapy

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