

Compression of radial nerve between the split tendon of brachioradialis muscle: a case report

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ABSTRACT

Radial nerve, a nerve of the upper extremity is a branch from the posterior cord of the brachial plexus. At the level of the front of the lateral epicondyle of humerus it divides into its two terminal branches, the superficial (SBRN) and the deep branch. Normally, SBRN is found to lie deep to the brachioradialis muscle (BR) in the forearm and passes deep to the tendon of BR before winding round the lateral side of the lower end of radius. In the present case, SBRN was found to be passing between two slips of the tendon of BR before entering the dorsum of hand. *Neuroanatomy; 2006; 5: 4–5.*

Key words [radial nerve] [compression] [Wartenberg's syndrome] [anatomy] [variation]

Introduction

Compression of the superficial branch of radial nerve (SBRN) between the slips of the tendon of brachioradialis muscle (BR) of the forearm has been reported [1, 2] in various parts of the world as a rare case, which may lead to the condition called as the Wartenberg's syndrome. No such a case in India was found to be reported during our search for literature, which makes this report to be the first from India.

Case Report

During a routine anatomy dissection, a variation was found on the right upper extremity of a 50 year old male cadaver. SBRN was found to be passing between two slips of the tendon of brachioradialis before winding round on the lateral aspect of the lower end of radius (Fig. 1). The branching pattern of SBRN was observed to be normal from the radial nerve and the terminal branching of SBRN to the dorsum of hand was also found to be normal.

Discussion

Radial nerve is the largest branch of the brachial plexus. It crosses the arm by winding around the shaft of humerus on the posterior surface in the radial groove. The radial nerve reaches the front of the lateral epicondyle of humerus after piercing the lateral intermuscular septum and it gives off its terminal branches - the superficial branch (SBRN) and the deep branch (DBRN). SBRN lies deep to the BR in the forearm. In its normal course,

SBRN passes deep to the tendon of BR and then winds round the lateral side of the lower end of the radius to become subcutaneous. As it descends further, it gives out the five (sometimes four) dorsal digital nerves after piercing the deep fascia [3].

In this present case, the branching of SBRN from radial nerve was found in front of the lateral epicondyle of the humerus. In the upper one-third of the forearm, SBRN was found lateral to and separated from the radial artery. In the middle one third, SBRN was in close relation to the lateral side of the radial artery as found in the normal cases [4]. But, SBRN was found to be passing through the two slips of the divided tendon of BR before winding round the lower end of the radius on its lateral aspect which resulted in SBRN lying superficial to one of the slips of the tendon of BR instead of passing deep to the tendon. In a living subject, due to this condition whenever the superficial branch gets compressed between the split tendons of BR muscle action, it results in pain over the lower end of forearm on the radial side. These signs increase during the action of pronation and results in a condition called Wartenberg's syndrome.

There are cases reported describing the presence of the superficial branch of radial nerve within the fascia covering the brachioradialis muscle [5].

Wartenberg's syndrome is a condition where the patient complains pain over the distal radial forearm associated with paresthesias over the dorsal radial hand. Symptom

magnification is frequently reported with wrist movement or when tightly pinching the thumb and index digit. These individuals demonstrate a positive Tinel sign over the SBRN and local tenderness. Hyperpronation of forearm can cause a positive Tinel sign [6].

Thus to conclude, anatomical knowledge of such variations are important for neurologists and surgeons performing operative procedures in Wartenberg's disease, Quervain's release and arthroscopy. Any operation for Wartenberg's syndrome should include a thorough investigation of the site where the radial sensory nerve emerges from under the fascia and, if the nerve emerges through a split brachioradialis tendon, the anomalous tendon slip should be divided.

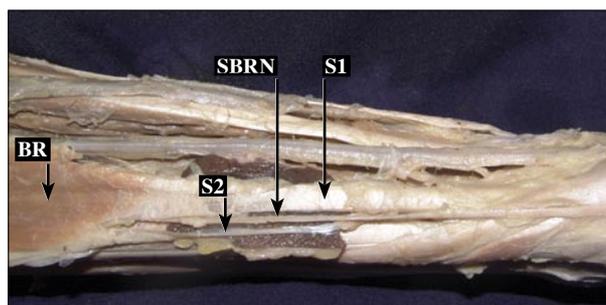


Figure 1. Photograph of the anatomic variation (*SBRN: Superficial branch of radial nerve; S1-S2: Split slips of brachioradialis tendon; BR: Brachioradialis muscle*). Color version of figure is available online.

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