



Riche-Cannieu Anastomosis combined with Sensory Interneural Connection : A Case Report

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Introduction

- ❖ Riche-Cannieu anastomosis (RCA) refers to the neural interconnection between a deep branch of the ulnar nerve and either the main motor branch or recurrent branch of the median nerve in the palm.
- ❖ In RCA, several patterns can be seen depending on the extent of the area innervated by the ulnar nerve. The presence of such anastomosis leads to diagnostic challenges during electrophysiologic studies of patients with suspected median or ulnar nerve injury.
- ❖ We present a case of a patient with median neuropathy, accompanied by RCA anastomosis combined with superficial radial to median sensory nerve interneural connection.

Case report

- ❖ A 27-year-old woman visited an orthopedic clinic with a history of right intrinsic hand muscle weakness since childhood. She has no previous history of trauma or surgery. She worked in an office and complained of intermittent wrist pain but had no other uncomfortable symptoms.
- ❖ During the physical examination, the right hand was noticeably smaller than the left hand, and overall muscle mass was less in the right hand. Physical examination showed decreased muscle strength in the right intrinsic hand muscles with the overall hand muscle atrophy on the ipsilateral side. Also, the sensation in the right second and third fingers was decreased by about 80%, compared to the left side. Deep tendon reflexes were normal in both upper extremities. There was no Tinel’s sign at the wrist and the elbow.
- ❖ The patient showed no motor and sensory responses to median nerve stimulation on routine nerve conduction studies, suggesting median nerve injury. However, in needle electromyography, the median-innervated hand and forearm muscles , including abductor pollicis brevis (APB), showed a partial interference pattern without denervation potentials.
- ❖ As the clinical symptoms and the electrophysiological findings didn’t match, we suspected the possibility of anastomosis and accordingly performed additional exams. Stimulation of the right ulnar nerve at the wrist elicited a motor response in the APB muscle. (Fig.1).
- ❖ Furthermore, sensory response in the second finger was observed during the stimulation of the right superficial radial nerve.(Fig.2).
- ❖ Based on these results, we concluded that neural connection of motor fibers of ulnar and median nerve and sensory fibers of superficial radial and median nerve might exist along with chronic median nerve injury or hypoplasia.

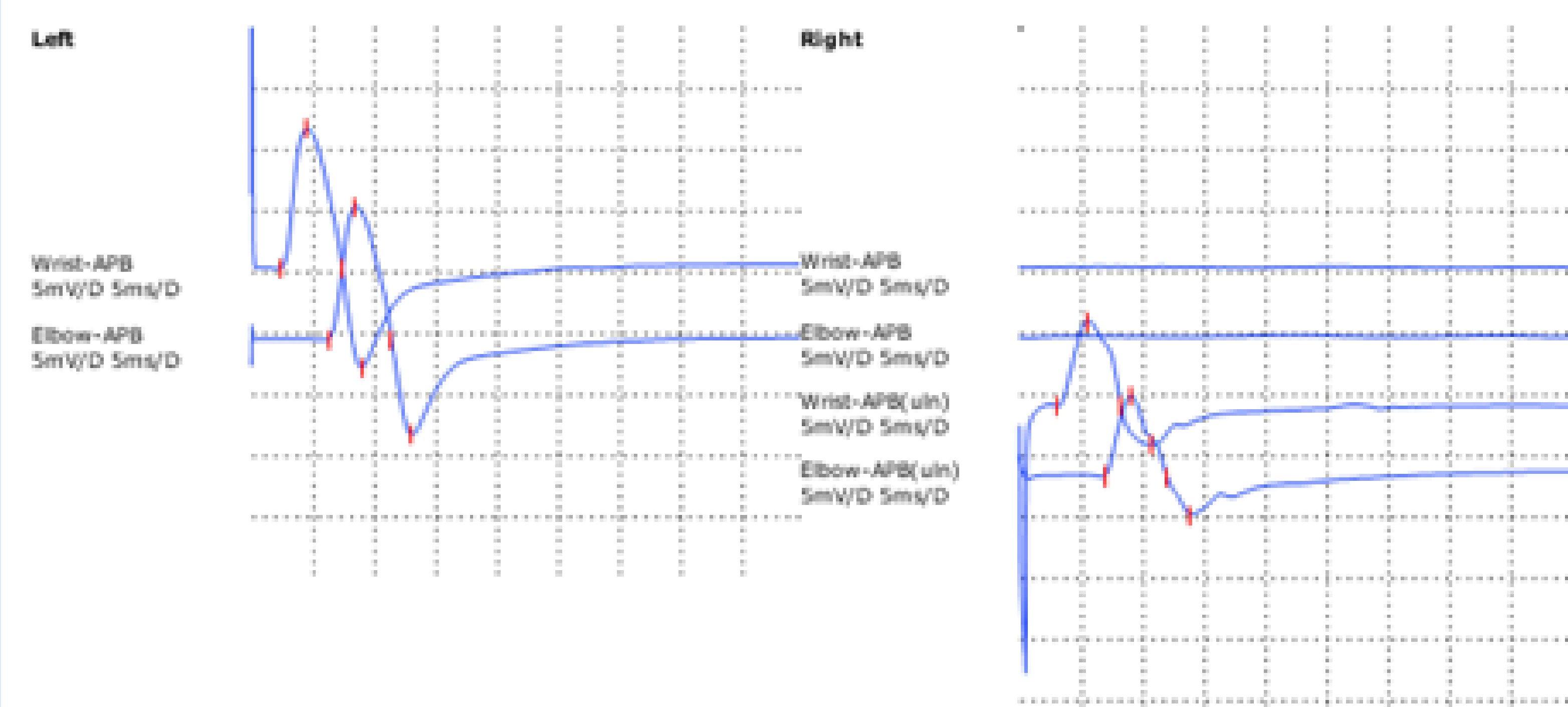


Figure 1. Nerve conduction study showing findings of Riche-Cannieu anastomosis.

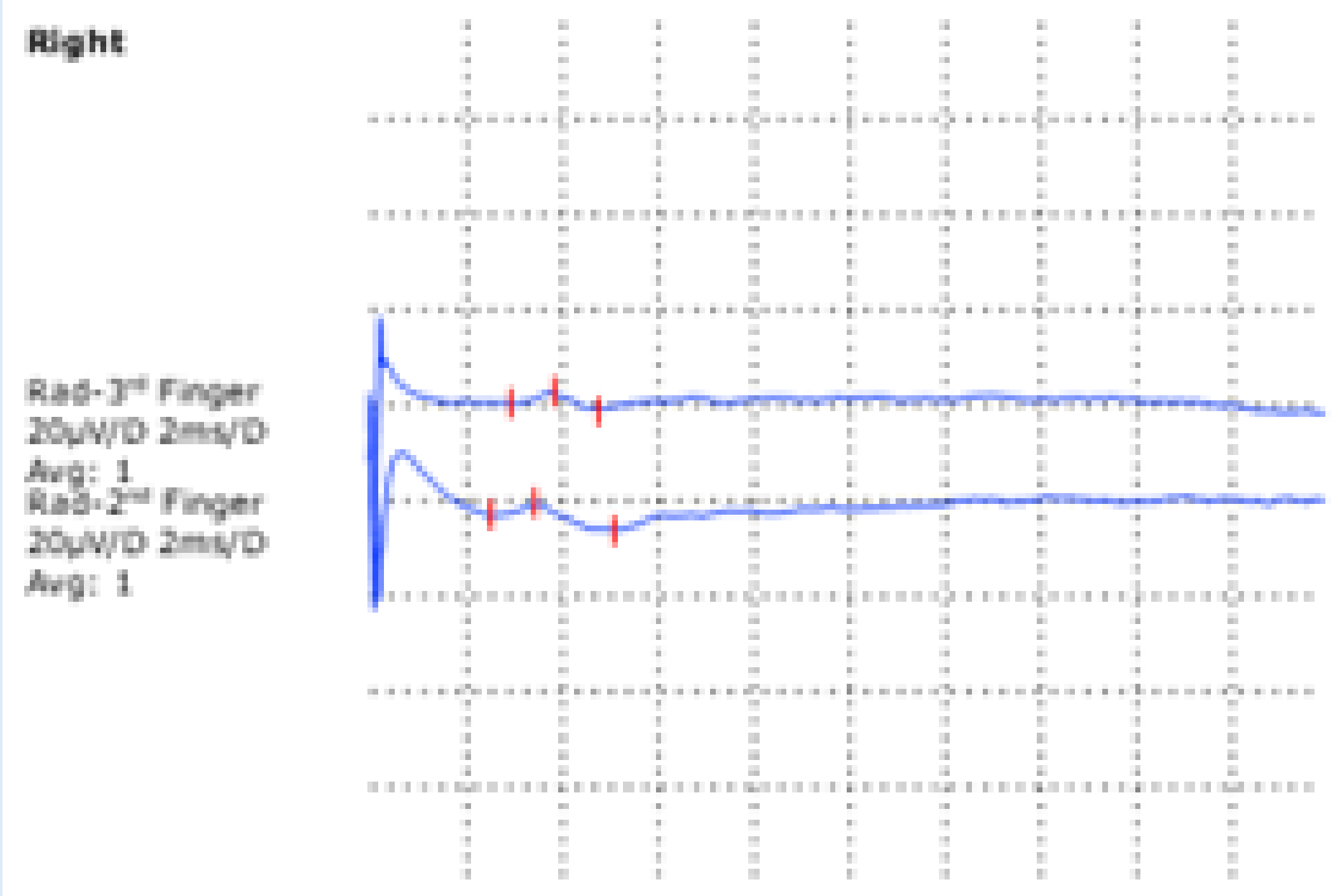


Figure 2. Nerve conduction study demonstrating sensory nerve response following superficial radial nerve stimulation

Conclusion

- ❖ Possibility of anomalous anastomosis should be suspected if discrepancies exist between clinical and electrophysiological studies.
- ❖ Understanding the RCA anastomosis and conducting appropriate tests based on that is important in clinical practice for accurate diagnosis.