

## Variation of Anterior Interosseous Nerve Syndrome: A case series

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### Introduction

The anterior interosseous nerve (AIN) is a pure motor branch from the median nerve and runs deep in the forearm. It innervates three muscles in the forearm; the flexor pollicis longus, the flexor digitorum profundus of the index and middle fingers, and the pronator quadratus. An isolated palsy of these muscles is rare and known as AIN syndrome. Variations of AIN syndrome has been reported a few cases, who were involved pronator teres muscle. We reported two cases of AIN syndrome involved the pronator teres and the flexor carpi radialis muscle.

### Case presentation

Case 1: A 40-year-old male who could not flex his left interphalangeal (IP) joint of the thumb and the distal IP joint of the index finger after slip down injury, and visited our hospital 7 months later. Manual muscle test (MMT) of the thumb IP flexion in and index finger distal IP flexion was grade 0, and the index finger proximal IP flexion was grade 3. Light touch sensation was slightly decreased in the left forearm, and medial and radial sides of the hand. Muscle atrophy was detected on the left abductor pollicis brevis and flexor carpi radialis muscles. Typical "OK" sign was seen in the left hand. Electrodiagnostic study was revealed as follows: 1) Normal compound muscle action potential (CMAP), sensory nerve action potential (SNAP) and normal latency in the left median, ulnar nerves and the bilateral radial nerves, 2) Abnormal spontaneous activities at the left pronator quadratus, flexor carpi radialis, flexor pollicis longus, flexor digitorum superficialis, pronator teres were seen in the needle electromyography. Case 2: A 37-years old male who had weakness on his right thumb flexion after developing forearm pain 4 months ago. He had received unknown injection in his right elbow from local clinic, and the forearm pain was improved without any improvement of the weakness. The muscle power of right thumb flexion was grade 2, and the touch sensation of right lateral forearm was decreased. The muscle atrophy of right flexor carpi radialis was obvious compared to the left side. Typical "OK" sign of the right hand was also seen. Electrodiagnostic Results were as follows: 1) Normal CMAP, SNAP and normal latency in the left median, ulnar and musculocutaneous nerves, 2) Decreased SNAP amplitude in the lateral antebrachial cutaneous nerve, 3) Abnormal spontaneous activities at right biceps brachii, flexor pollicis longus, flexor carpi radialis, pronator quadratus and pronator teres muscles were seen in the needle electromyography.

## **Conclusion**

We reported two cases with the anterior interosseous nerve variation, which is rarely involved the flexor carpi radialis muscle.