신경근육재활 및 전기진단
게시일시 및 장소 : 10 월 18 일(금) 13:15-18:00 Room G(3F)
질의응답 일시 및 장소 : 10 월 18 일(금) 15:45-16:30 Room G(3F)

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## Anterior Interosseous Nerve Syndrome combined with flexor tendon tear of thumb and index finger

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**Introduction**
The anterior interosseous nerve(AIN) syndrome is a rare focal neuropathy with typical clinical and electromyographic features. We report a case of AIN combined with flexor tendon tear of thumb and index finger.

**Case Report**
A 73-year-old man was presented with suddenly weakness of his right thumb and index finger. The patient was diagnosed with carpal tunnel syndrome(CTS) a few years ago. Muscle strength was MRC grade 1 in flexors of the interphalangeal joint of the right thumb, and the flexors of the distal phalanx of the right index finger, MRC grade 4 in the right forearm pronator. Sensation was slightly reduced over the right thumb, index and middle fingers. Right thenar eminences showed slight wasting. Deep tendon reflexes of the right upper extremities was normal. There was no limitation of range of motion. Typical "OK" sign was present. The right median and anterior interosseous nerve motor conduction study revealed delayed latency and decreased amplitude. The right median nerve sensory conduction study showed delayed latency and decreased amplitude (Table 1,2). The needle electromyography showed abnormal spontaneous activities and reduced recruitment pattern in the right FPL, FDP of index finger, and pronator quadratus(PQ) muscles. There was no motor unit action potentials(MUAPs) in the right FPL, and an polyphasic MUAPs with reduced recruitment pattern in the right APB muscle (Table 3). Considering the results of the electrodiagnostic studies. the patient was diagnosed with severe CTS and AIN. The forearm MRI showed no space-occupying lesions from the course of the AIN and vessels. Therefore, additional wrist and hand MRI were performed. It revealed severe tenosynovitis, FPL, and index of FDP tendon tear at metatarsal bone level.

**Discussion**
In the case of clinical symptoms such as weakness of the thumb and index finger, it shoulde be considered that both electrodiagnostic study and imaging studies such as hand sono or MRI. We report an unusual case of AIN combined with FPL and FDP tendon tear in patients with weakness of thumb and index finger.

Table 1. Motor nerve conduction study findings

| Nerve/ stimulation | Recording site | Latency (ms) | Amplitude (mv) | Duration (ms) | Distance (cm) | Velocity (m/s) |
|---|---|---|---|---|---|---|
| R Median | | | | | | |
| Wrist | APB | *6.61 | *6.7 | 8.33 | 7 | |
| Elbow | APB | 11.51 | 6.4 | 8.80 | 21 | *43 |
| Axilla | APB | 13.33 | 6.0 | 8.70 | 9 | *49 |
| L Median | | | | | | |
| Wrist | APB | 3.96 | 11.8 | 6.77 | 7 | |
| Elbow | APB | 8.49 | 9.6 | 7.08 | 25.5 | 56 |
| Axilla | APB | 9.58 | 9.3 | 7.03 | 8 | 73 |
| R Ulnar | | | | | | |
| Wrist | ADM | 2.55 | 11.9 | 6.15 | 7 | |
| B.Elbow | ADM | 5.99 | 11.9 | 6.25 | 19.5 | 57 |
| A.Elbow | ADM | 7.29 | 11.6 | 5.52 | 10 | 77 |
| R Radial | | | | | | |
| Forearm | EIP | 2.45 | 9.5 | 8.65 | 7 | |
| Elbow | EIP | 5.57 | 9.2 | 8.85 | 19 | 61 |
| R Anterior interosseous | | | | | | |
| Elbow | PQ | *4.27 | *2.9 | 8.59 | | |
| L Anterior interosseous | | | | | | |
| Elbow | PQ | 3.91 | 3.5 | 10.31 | | |

Table 2. Sensory nerve conduction study findings

| Nerve/ stimulation | Recording site | Pk Lat (ms) | Pk Amp (μV) | Distance (cm) | Vel. Pk (m/s) |
|---|---|---|---|---|---|
| R Median | | | | | |
| Palm | Digit II | 1.98 | 16.7 | 7 | 35.4 |
| Wrist | Digit II | *4.32 | 11.0 | 7 | 29.9 |
| L Median | | | | | |
| Palm | Digit II | 1.93 | 6.6 | 7 | 38.4 |
| Wrist | Digit II | *NR | *NR | 7 | *NR |
| R Ulnar | | | | | |
| Wrist | Digit V | 3.44 | 26.6 | 14 | 40.7 |
| R Radial | | | | | |
| Forearm | Wrist | 2.40 | 16.8 | 10 | 41.7 |

Table 3. Needle electromyographic findings

| Muscle | Spontaneous | | MUAP | Recruitment |
|---|---|---|---|---|
| | Fibrilation | PSW | | |
| Rt. APB | None | None | polyphasic | reduced |
| Rt. ADM | None | None | None | None |
| Rt. FDP | 1+ | None | None | reduced |
| Rt. FPL | 1+ | None | No MAUPs | reduced |
| Rt. PQ | None | 1+ | None | reduced |
| Rt. PT | None | None | None | None |
| Rt. FCR | None | None | None | None |
| Rt. FCU | None | None | None | None |
| Rt. ECRL | None | None | None | None |
| Rt. Biceps | None | None | None | None |
| Rt. Triceps | None | None | None | None |
| Rt. C5 PSP | None | None | None | None |
| Rt. C6 PSP | None | None | None | None |
| Rt. C7 PSP | None | None | None | None |