

신경근육재활 및 전기진단

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:24-10:28 Room G(3F)

## **P 1-54**

### **Botulinum toxin in the treatment of Cubital Tunnel Syndrome Caused by Anconeus Epitrochlearis muscle**

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#### **INTRODUCTION**

Cubital tunnel syndrome is the second most common compression neuropathy after carpal tunnel syndrome. Several space-occupying lesions and anomalous muscles have been described to cause ulnar nerve compression at the elbow. Anconeus epitrochlearis (AE) muscle is an accessory muscle that extends between the medial border of the olecranon and the medial epicondyle on the humerus. AE protects the ulnar nerve and prevents subluxation of the nerve, but it can also cause ulnar nerve entrapment at the elbow. EMG is the most important diagnostic tool, and ultrasonography or MRI is used to confirm the presence of the AE muscle. We present three cases with cubital tunnel syndrome caused by AE muscle, which showed improvement with botulinum toxin injection.

#### **CASE SERIES**

CASE 1: A 30-year-old woman complained of tingling sensation of the 4th and 5th finger of her right hand. The ulnar motor nerve conduction study showed slow conduction velocity across the elbow segment and the ulnar sensory nerve showed low amplitude. Ultrasonographic examination revealed right AE muscle with swelling of the ulnar nerve. 15 Units of Clostridium botulinum toxin A were injected to the right AE muscle. After 1 month, her symptom was relieved. After 3 months, motor nerve conduction velocity was improved and ultrasonographic examination showed decreased size of right AE muscle. Case 2: A 48-year-old woman complained of nocturnal paresthesia of the both 4th and 5th fingers. Ultrasonographic examination revealed bilateral AE muscles. Despite the injection of the steroid to the ulnar nerve and medical treatment, her symptom persisted. As the patient refused the surgical treatment of AE muscle, 20 Units of clostridium botulinum toxin A were injected to the each AE muscle. After 1 month, her symptom improved completely and ultrasonographic examination showed decreased size of the both AE muscles. Case 3: A 44-year-old man complained of left hand weakness and tingling sensation of the left 4th and 5th fingers. The ulnar motor nerve conduction study showed slow conduction velocity across the elbow segment and the ulnar sensory nerve showed low amplitude. Ultrasonography and MRI revealed left AE muscles with swelling of the ulnar nerve. 50 Units of clostridium botulinum toxin A were injected to the left AE

muscle. After 2 weeks, his symptom improved and both ultrasounographic and electrodiagnostic findings showed some improvement.

## CONCLUSION

Although rare, Cubital tunnel syndrome caused by AE muscle should not be ignored. Ultrasonography or MRI is used to confirm the presence of AE muscle. In our 3 patients, after the injection of botulinum toxin A to AE muscle, symptoms improved. Also, ultrasonographic examination showed decreased size of AE muscle and electrodiagnostic examination showed some improvement. Although surgical treatment of AE muscle is recommended for AE muscle-associated ulnar neuropathy, botulinum toxin A for the AE muscle should be considered.

Clinical and electrophysiologic findings in cubital tunnel syndrome															
Patient data						Before injection					After injection				
Cases	Side	Age (years)	Sex	Duration (months)	Follow up (weeks)	UMA_W (mV)	AR (%)	CV_F (m/s)	CV_E (m/s)	SNAP amp ( $\mu$ V)	UMA_W (mV)	AR (%)	CV_F (m/s)	CV_E (m/s)	SNAP amp ( $\mu$ V)
1	R	30	F	1	12	12.3	6	55	43	8	14.8	5	54	50	10
2	L	48	F	24		8.2	10	58	59	50					
3	L	44	M	1	2	10.1	87	62	23	18	10.5	75	58	28	22

UMA\_W, amplitude of distal ulnar motor response; AR, amplitude reduction between the above and the below responses; CV\_F, conduction velocity in forearm segment; CV\_E, conduction velocity in elbow segment; SNAP amp, amplitude of ulnar sensory nerve action potentials;

Ultrasonographic Measurements of Anconeus epitrochlearis muscle								
Before injection					After injection			
Case	Short diameter (msec)	Long diameter (mm)	Length (mm)	Cross sectional area (mm <sup>2</sup> )	Short diameter (msec)	Long diameter (mm)	Length (mm)	Cross sectional area (mm <sup>2</sup> )
1	4.8	10.6	17.3	33.0	5.0	8.3	10.1	27.7
2L	4.8	6.6	15.9	24.0	3.5	6.5	11.9	21.0
2R	5.8	9.6	21.6	41.0	4.5	7.9	19.6	29.0
3	4.2	11.2	18.6	32.6	3.3	9.9	18.4	24.0



Figure 1. Cross-sectional sonograms of the elbow (Case 3). The volume of AE muscle decreased after the injection of botulinum toxin A. Ulnar nerve (\*). Anconeus epitrochlearis (\*\*). ME: Medial epicondyle.