

통증 및 근골격재활

발표일시 및 장소 : 10 월 18 일(금) 14:05-14:15 Room A(5F)

## OP1-1-6

### Differential Diagnosis of Acute Shoulder and Elbow Weakness:

#### C5 Radiculopathy or Neuralgic Amyotrophy?

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#### Purpose

Neuralgic amyotrophy (NA) is an idiopathic neuritis with pain and subsequent muscle weakness. It is difficult to differentiate the nerve root involvement subtype of NA from compressive cervical radiculopathy. The objective of this study is to establish the basis for development of diagnostic criteria of the nerve root involvement subtype of NA through the comparison of clinical features, findings of immunologic tests, electrodiagnostic studies (EDX) and brachial plexus (BP) magnetic resonance imaging (MRI) of the patients with compressive cervical radiculopathy and NA.

#### Methods

We retrospectively investigated 131 patients presented with unilateral shoulder girdle muscle weakness and elbow flexor weakness without trauma (weakness of the shoulder girdle is more severe than weakness of elbow flexion). Based on our classification criteria that were made with clinical findings and cervical spine MRI findings, 12 patients with compressive C5 radiculopathy (C5R) and 15 patients with NA (nerve root involvement subtype) were selected. Clinical manifestation, findings of immunologic tests, EDX and BP MRI were analyzed.

#### Results

Acute severe pain and sudden weakness occurred within 24 hours in both groups. The severity of shoulder girdle and elbow flexor weakness was not significantly different. Seven patients (58.3%) showed positive Spurling's tests among 12 patients with NA. There was no significant difference in immunologic tests. On EDX, the patterns of muscle involvement and the abnormality of the cervical paraspinal muscle in two groups were similar. Eight patients (66.7%) with C5R and 10 patients (66.7%) with NA had abnormal findings in BP MRI. The most frequently affected neural segment was extraforaminal C5 nerve root in both groups. The extent of muscle involvement in BP MRI was also not significantly different. Characteristic image findings, such as abnormal distal C5 nerve root with its normal proximal part (Fig. 1) and multi-beaded swollen C5 nerve root (Fig. 2), were found in two NA patients.

#### Conclusion

There were no statistically significant factors for differentiation in clinical, electrodiagnostic, and radiological findings between C5R and NA. Spurling's test, and denervation evidences of paracervical muscle in needle EMG were not a discriminating point. The abnormalities in C5 nerve root and upper trunk, such as swelling, high T2 signal intensity on BP MRI were shown in both

groups. Two morphologic findings in BP MRI, selective enlargement/T2 hyperintensity of the distal portion of the extraforaminal C5 nerve root (Fig. 1) and multi-beaded appearance with undulating outer surface of the extraforaminal C5 nerve root (Fig. 2) were found only in patients with NA. Further imaging studies for evaluation of these MRI findings were necessary to differentiate NA from C5R.

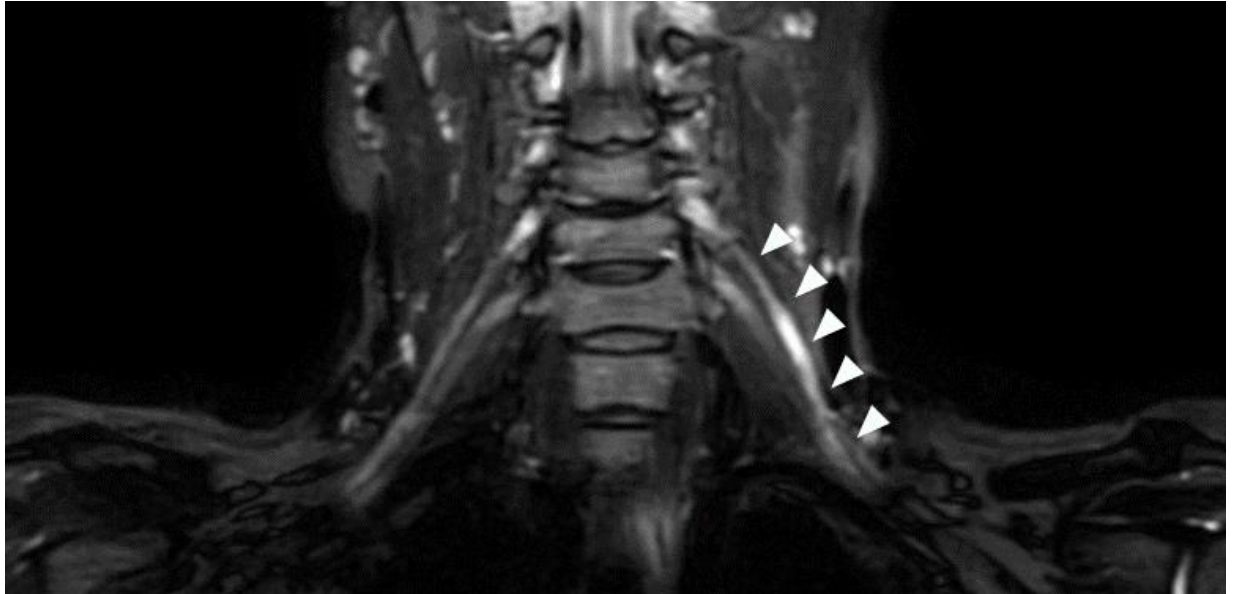


Fig 1. MRI of a 52-year-old woman with neuralgic amyotrophy. Coronal T2-weighted STIR image. Asymmetrical hyperintensity is observed from the distal of left C5 nerve root to upper trunk and the proximal portion of the C5 nerve root has no difference in T2 signal intensity compared to the right side (white arrowhead).

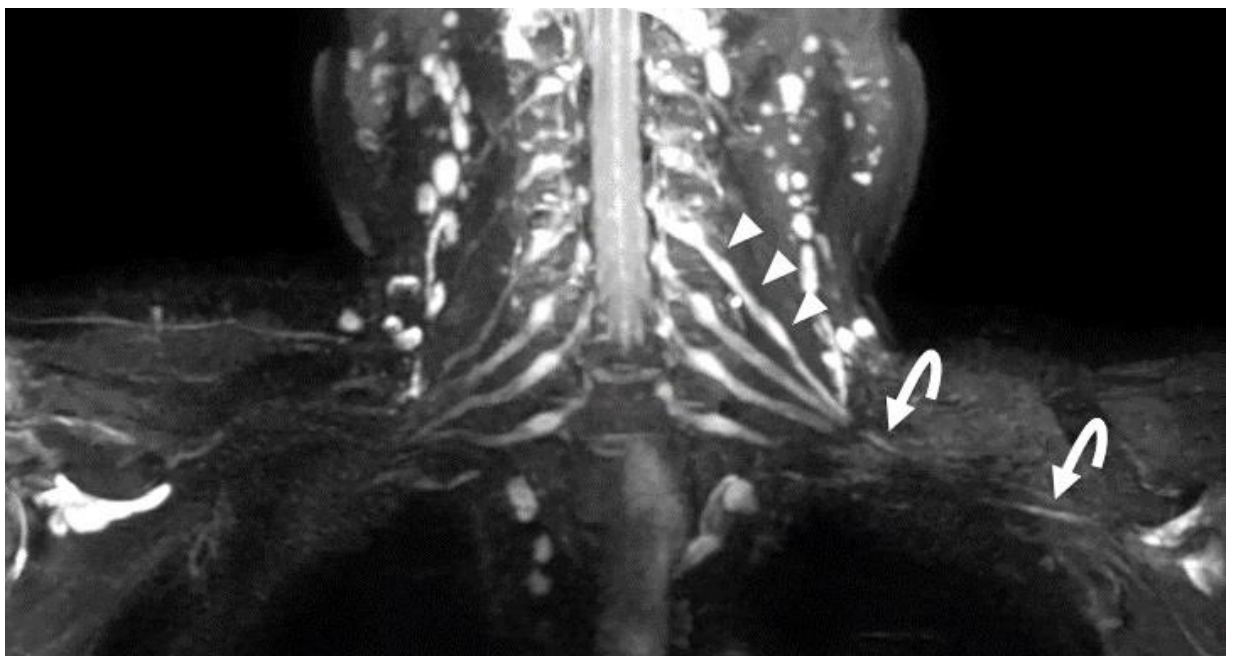


Fig 2. MRI of a 65-year-old man with neuralgic amyotrophy. Coronal maximum intensity projection image. Left C5 nerve root show asymmetrical hyperintensity with undulating pattern (arrowhead) and left upper trunk has higher T2 signal intensity compared with the right (curved arrow).