

– Abstract –

Symptom Duration and Electrophysiological Findings in Lumbosacral Radiculopathies.

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Objectives : There are debates whether abnormal spontaneous activity (ASA) is related to symptom duration in lumbosacral (LS) radiculopathy. However, most studies have investigated patients with LS radiculopathy confined to abnormal clinical or electrophysiological findings. The purpose of this study was to determine the relationship of symptom duration with ASA in patients in surgically confirmed LS radiculopathies..

Methods : Electrodiagnostic data of 138 patients who had been diagnosed as LS radiculopathy with the findings of operative record were obtained retrospectively. The frequencies of ASA and neurogenic motor unit action potentials (MUAP) in L5, S1 myotomes which had high sampling rate were investigated. The symptom duration was also obtained.

Results : ASA in paraspinal muscle and limb muscles had no correlation with symptom duration. However, there is a tendency to decrease incidence of ASA in paraspinal muscle over symptom duration. Neurogenic MUAP in limb muscle had also no correlation with symptom duration. However, patients with symptom duration over 6 months had higher incidence of neurogenic MUAP in distal limb muscles.

Conclusion : Although these findings suggest that the limitation of using symptom duration to interpret electrodiagnostic findings in LS radiculopathy, paraspinal muscle evaluation may be important in considering symptom duration.

Key Words : Lumbosacral radiculopathy, Surgery, Abnormal spontaneous activity, Motor unit action potential, Symptom Duration

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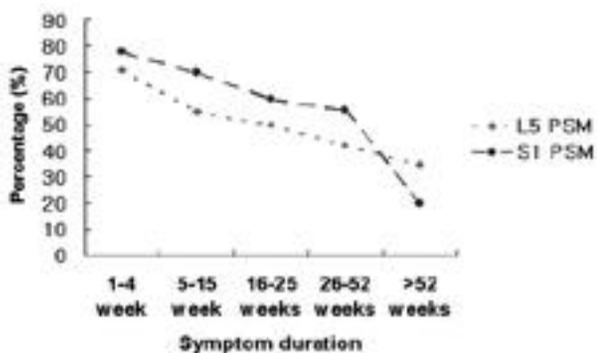


Fig. 1. Incidence of abnormal spontaneous activities of paraspinal muscles according to symptom duration (PSM: Paraspinal muscle).

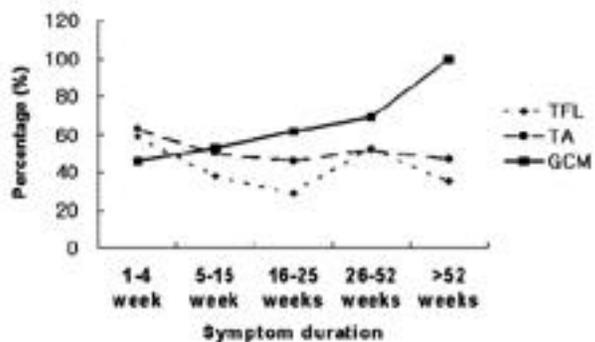


Fig. 2. Incidence of abnormal spontaneous activities of proximal and intermediate muscles according to symptom duration (TFL: Tensor fascia lata, TA: Tibialis anterior, GCM: Medial gastrocnemius).

Table 1. Incidence of Abnormal Spontaneous Activities of L5 Key Muscles according to Symptom Duration in L5 radiculopathy

Symptom duration	L5 PSM ¹⁾	TFL ²⁾	TA ³⁾	EDB ⁴⁾
1~4 weeks (n=19)	12/17 (71%)	10/17 (59%)	13/19 (63%)	10/15 (67%)
5~15 weeks (n=27)	12/22 (55%)	6/16 (38%)	13/26 (50%)	6/11 (55%)
16~25 weeks (n=13)	5/10 (50%)	2/7(29%)	6/13 (46%)	5/7 (71%)
26~52 weeks (n=24)	8/19 (42%)	8/15 (53%)	12/23 (52%)	6/12 (50%)
>53 weeks (n=22)	6/17 (35%)	6/17 (35%)	9/19 (47%)	7/11 (64%)
Total (n=105)	43/83 (52%)	32/72 (44%)	53/100 (53%)	34/56 (61%)

Values are incidence of abnormal spontaneous activities: number of abnormal spontaneous activity(+)/ number that is examined (%). 1. L5 PSM: L5 paraspinal muscle, 2. TFL: tensor fascia lata, 3. TA: tibialis anterior, 4. EDB: extensor digitorum brevis

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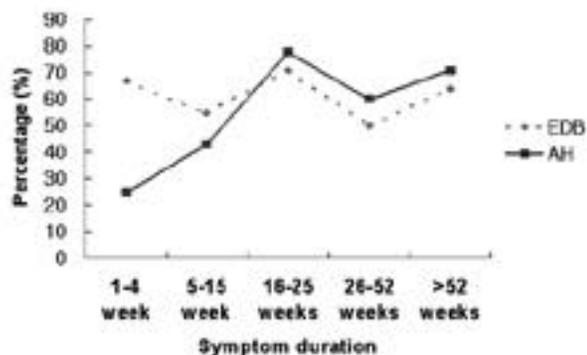


Fig. 3. Incidence of abnormal spontaneous activities of distal muscles according to symptom duration (EDB: Extensor digitorum brevis, AH: Abductor hallucis).

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Table 2. Incidence of Abnormal Spontaneous Activities of S1 Key Muscles according to Symptom Duration in S1 radiculopathy

Symptom duration	S1 PSM ¹⁾	GCM ²⁾	AH ³⁾
1~4 weeks (n=11)	7/9 (78%)	5/11 (46%)	2/8 (25%)
5~15 weeks (n=17)	7/10 (70%)	9/17 (53%)	3/7 (43%)
16~25 weeks (n=13)	6/10 (60%)	8/13 (62%)	7/9 (78%)
26~52 weeks (n=14)	5/9 (56%)	9/13 (69%)	3/5 (60%)
>53 weeks (n=9)	1/5 (20%)	9/9 (100%)	5/7 (71%)
Total (n=64)	26/43 (60%)	40/63 (63%)	20/36 (55%)

Values are incidence of abnormal spontaneous activities: number of abnormal spontaneous activity(+)/ number that is examined (%).
 1. S1 PSM: S1 paraspinal muscle, 2. GCM: medial gastrocnemius, 3. AH: abductor hallucis

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