

Options of Management of the Patient with Mild Degenerative Cervical Myelopathy

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KEYWORDS

- Cervical spondylotic myelopathy • Ossification of the posterior longitudinal ligament
- Degenerative cervical myelopathy • Surgical treatment • Mild myelopathy

KEY POINTS

- Degenerative process of the cervical spine with age causes various pathologic conditions such as disc protrusions, bony spur formation, malalignment of the spinal column, and hypertrophied or ossified spinal ligaments.
- These degenerative changes result in cervical disc hernia, cervical spondylosis, or ossification of the longitudinal ligament (OPLL) according to the affected areas.
- Indication for surgical treatment is controversial because the clinical course often shows spontaneous recovery and patients' needs are different by general and social conditions.
- To understand surgical management of degenerative cervical myelopathy in the actual clinical practice, a personal series of subjects with cervical spondylotic myelopathy or OPLL who underwent surgical treatment were reviewed.

INTRODUCTION

Degenerative process of the cervical spine with age causes various pathologic conditions such as disc protrusions, bony spur formation, malalignment of the spinal column, and hypertrophied or ossified spinal ligaments. These degenerative changes result in cervical disc hernia, cervical spondylosis, or ossification of the longitudinal ligament (OPLL) according to the affected areas. They are the most popular spinal disorders for cervical myelopathy. Indication for surgical treatment is controversial because the clinical course often shows spontaneous recovery and patients' needs are different by general and social conditions. In this study, clinical features and surgical treatment of the degenerative cervical spine disorders,

especially the mild form of myelopathy, are reviewed and discussed. To understand surgical management of degenerative cervical myelopathy (DCM) in the actual clinical practice, personal series of the subjects with cervical spondylotic myelopathy (CSM) or OPLL who underwent surgical treatment were reviewed.

CLINICAL FEATURES OF DCM

In the past 5 years, 84 subjects with CSM (50 subjects, 59.5%) or OPLL (34 subjects, 40.5%) were surgically treated. The subjects with reoperation, significant comorbidities, radiculopathy, soft disc herniation, and atlantoaxial lesions were excluded. There were 53 men and 31 women, ages 41 to 90 years (mean 68.9, median 70). Preoperatively,

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44 subjects (52.4%) presented with walking difficulty. Eleven (13.1%) showed severe gait disturbance and needed a wheel chair. Anterior decompression and fusion was performed in 30 subjects (35.7%). Threaded titanium cage was used for discectomy, osteophylectomy, and fusion in 15 subjects, whereas 15 subjects underwent corpectomy and fusion with a titanium mesh cage. Fifty-two subjects (61.9%) underwent posterior decompression by bilateral open-door laminoplasty. The other 2 subjects were treated with laminectomy alone or laminectomy with posterior fusion.

The preoperative neurologic state was evaluated by Neurosurgical Cervical Spine Scale (NCSS) (Table 1).¹ This scoring system evaluates motor functions of the lower and upper extremities on a scale of 1 to 5 and sensory function and/or pain from 1 to 4. In total, the neurologic state is scored from 3 to 14 (total disability to normal). The mean of the total NCSS score, lower extremity motor function, upper extremity motor function, and sensory function of 84 subjects were 8.8 (range: 5–11), 3.3 (1–5), 3.1 (2–4), and 2.4 (1–4), respectively.

MILD DCM

In this study, mild myelopathy was defined as 11 or more of the total score of NCSS. Nine (10.7%) out of the 84 subjects met the criteria (Table 2). There were 7 men and 2 women, ages 50 to 79 years (mean 62.7, median 62.0). Three subjects were associated with OPLL. Numbness of upper extremities was the most common symptoms at onset (6 subjects). Three had neck pain (Fig. 1) or headache (Fig. 2). In 1 subject, neck pain was the only symptom (Fig. 3). Two subjects presented with motor weakness of upper extremities or 4 extremities. Duration from onset of symptoms to surgery ranged from 1 month to 3 years (mean 11.7 months). Preoperative total NCSS score was 11 in all subjects, with the mean of lower extremity motor function 4.3, upper extremity motor function 3.8, and sensory function 2.9. Preoperative MRI revealed spinal cord compression of various degrees in all subjects. Five subjects showed intramedullary hyperintensity on T2-weighted MRI at the compressed segment. Despite the intramedullary signal changes due to spinal cord compression, these subjects

Table 1
Neurosurgical Cervical Spine Scale for degenerative cervical spine diseases. Total score is 3 to 14, indicating total disability to normal

Score	Lower Extremity Motor Function
1	Total disability: chair-bound or bedridden
2	Severe disability: needs support in walking on flat, and unable to ascend or descend stairways
3	Moderate disability: difficulty in walking on flat, and needs support in ascending or descending stairways
4	Mild disability: no difficulty in walking on flat, but mild difficulty in ascending or descending stairways
5	Normal: normal walking, with or without abnormal reflexes
Score	Upper Extremity Motor Function
1	Total disability: totally unable to perform daily activities
2	Severe disability: severe difficulty in daily activities with motor weakness
3	Moderate disability: moderate difficulty in daily activities with hand and/or finger clumsiness
4	Mild disability: no difficulty in daily activities, but mild hand and/or finger clumsiness
5	Normal: normal daily activities, with or without abnormal reflexes
Score	Sensory Function and/or Pain
1	Severe disturbance: severe difficulty in daily activities with incapacitating sensory disturbance and/or pain
2	Moderate disturbance: moderate difficulty in daily activities with sensory disturbance and/or pain
3	Mild disturbance: normal daily activities, but mild sensory disturbance and/or pain
4	Normal: neither sensory disturbance nor pain

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