

Epidemiology and Overview of the Clinical Spectrum of Degenerative Cervical Myelopathy



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KEYWORDS

• Myelopathy • Degeneration • Cervical spine • Spectrum • Epidemiology

KEY POINTS

- Compressive cervical myelopathy due to degeneration of the spine is a quite common disorder in adults, particularly in the elderly.
- The terminology to describe this condition has not been unified because degenerative pathologies arise in the spine varies widely in each clinical case.
- This inconsistent terminology resulted in poor understanding of the epidemiology of this kind of myelopathy.
- Degenerative cervical myelopathy (DCM) has recently been proposed umbrella term to cover various myelopathic pathophysiologies caused by degeneration of the cervical spine.
- The novel term “DCM” is expected to elucidate the epidemiology of myelopathy caused by degenerative changes of the cervical spine.

INTRODUCTION

Cervical myelopathy stemming from degeneration of the cervical spine is a common cause of neurologic impairment in adults, particularly in the elderly. However, the epidemiology of this type of myelopathy has not been fully understood so far, probably due to inconsistent nomenclature. Degenerative cervical myelopathy (DCM) is a newly coined term to cover wide range of cervical degenerative pathologies causing myelopathy.¹ In this article, we outline this novel concept and its spectrum. Epidemiology of degenerative disorders related to DCM is also discussed.

DEGENERATIVE CERVICAL MYELOPATHY

Concept of Degenerative Cervical Myelopathy

“Degenerative cervical myelopathy” (DCM) is a recently proposed term to encompass compressive myelopathies caused by degenerative changes of the cervical spine.^{1,2} Pathogenesis of DCM can be classified by the following conditions: cervical spondylotic myelopathy (CSM), nonosteoarthritic degeneration, and predisposing factors, such as congenital anomalies.¹ CSM is also an umbrella term used for various osteoarthritic changes causing cervical myelopathy. Nonosteoarthritic degeneration includes ligamentous pathologies that can be associated

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with myelopathy. Representative congenital anomalies predisposing the patients to myelopathy are congenital canal stenosis, Down syndrome, and Klippel-Feil syndrome. To understand the concept of DCM, it might be easy to imagine a small umbrella of CSM is covered by a big umbrella of DCM. The big umbrella also comprises various pathogeneses such as nonosteoarthritic degeneration, congenital anomalies, and other predisposing factors (Fig. 1). Because DCM is a newly coined term, its epidemiology has scarcely been elucidated.² Nouri and colleagues³ reviewed MR images of 458 patients with DCM and found that cervical spondylosis was most frequent cause of DCM with a frequency of 89.7%. Nearly 60% of spondylosis was accompanied by hypertrophy or enlargement of the ligamentum flavum (LF). Each of single-level discopathy, ossification of the posterior longitudinal ligament (OPLL), and spondylolisthesis had a prevalence with approximately 10%. More than 90% of OPLL was accompanied with spondylotic changes. Klippel-Feil syndrome was found in 2.0%. Multiple pathogeneses coexisted frequently in single cervical spine. These lesions might be found in the same spinal level or might be found in different spinal levels (Fig. 2).

Why Do We Need a Comprehensive Term?

Degenerative changes are theoretically possible to arise anywhere in the cervical spine because 7 vertebrae and intervertebral discs are continuously moving in a human’s life. Even in a single vertebra, the spinal cord is surrounded by many components: the intervertebral disc, vertebral body, uncinated processes, facet joints, neural arch (lamina), posterior longitudinal ligament (PLL), and LF. Degenerative pathologies arose in any components of the vertebra may cause compressive myelopathy and such pathologies may arise in a single level or may coexist in multiple segments. Under the existence of multiple pathologies compressing the cervical cord in different spinal levels, it is often difficult to specify the lesion responsible for myelopathy. The responsible lesion may not always be single. In considerable numbers of the cases, the multiplicity of the responsible lesions makes the pathophysiology complicated.

When a physician sees a myelopathic patient with radiological evidence of multiple cervical spondylotic changes, there are several ways to describe this condition. From the semiologic perspective, you can describe the patient simply as cervical myelopathy. When the protruded disc seems to be the responsible lesion, the

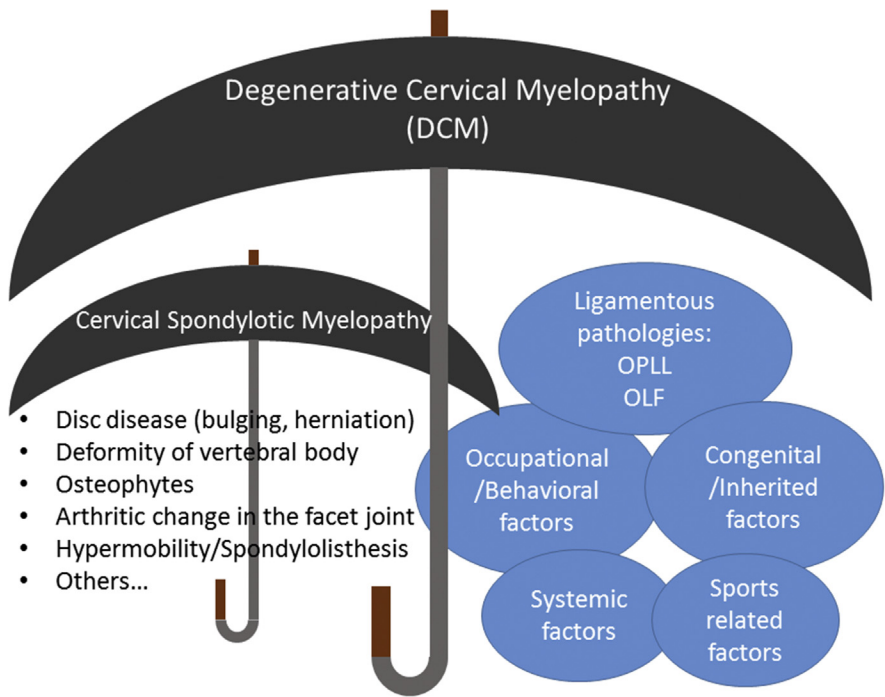


Fig. 1. Schematic drawing indicating the concept of DCM. The large umbrella of DCM covers its predisposing factors. The small umbrella of CSM is comprising various degenerative pathologies that arise in the cervical spine.

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