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Review

Cervical spondylotic myelopathy in the young adult: A review of the literature and clinical diagnostic criteria in an uncommon demographic

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ABSTRACT

Background: Cervical spondylotic myelopathy (CSM) is typically encountered in the elderly population. Significant inconsistencies currently exist regarding the definition of the disorder, the true incidence of CSM in younger populations, and the established diagnostic criteria.
Objective: To highlight the lack of standardization in the definition and diagnosis of CSM.
Methods: A PubMed literature search was conducted spanning the years 2001–2011. The search was limited by the following terms: (1) English language, (2) adults (19–44 years old), and (3) "cervical spondylotic myelopathy." Each article was reviewed to determine if the presence of the definition of CSM existed in the article. The clinical characteristics used to make the diagnosis of CSM were recorded for each article. Cochran's *Q* statistic was used to determine whether some clinical characteristics were more frequently used than others.
Results: Ninety-three papers were reviewed in detail and 16 case reports, reviews, and articles concerning less than 3 patients were excluded, resulting in 77 articles in the final analysis. The most common clinical definitions were gait disturbance (22/77 articles (28.6%)), upper limb paresthesias or sensory disturbance (21/77 (27.3%)), and clumsy hands (15/77 (19.5%)). Hyperreflexia, spasticity, and pathologically increased reflexes were identified as diagnostic criteria in a minority of patients.
Conclusion: The literature employs a wide range of neurologic signs and symptoms to make the diagnosis of CSM, with a majority of studies failing to rely on strict diagnostic criteria. The clinician should not discount CSM as an explanation for the aforementioned findings, as it is well-reported in the literature among the ages 18–44.

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1. Introduction

Cervical spondylotic myelopathy (CSM), the most common disorder of the spinal cord in persons older than 55 years of age, remains a challenging pathology to manage in modern neurosurgical practice [1]. As the mean age of the population continues to rise, it can be expected that an increasingly frequent number of patients will present with the signs and symptoms of CSM. However, among patients with CSM, there is considerable variability in both the clinical presentation and imaging findings (Figs. 1–4) [2]. The temporal evolution of symptoms covers a wide range, spanning from acute to chronic progression and neurologic deterioration [3–5], the optimal management strategy must be tailored to each individual patient and multiple surgical approaches are routinely utilized [6–9]. Despite the high frequency with which CSM is encountered in clinical practice, the diagnostic criteria continues to suffer from a significant lack of uniformity.

Fig. 1. MRI, sagittal T2-weighted imaging of the cervical spine demonstrating pronounced focal cervical stenosis between C3 and C6. Hyperintensity of the cervical spinal cord is seen, most pronounced at C4.

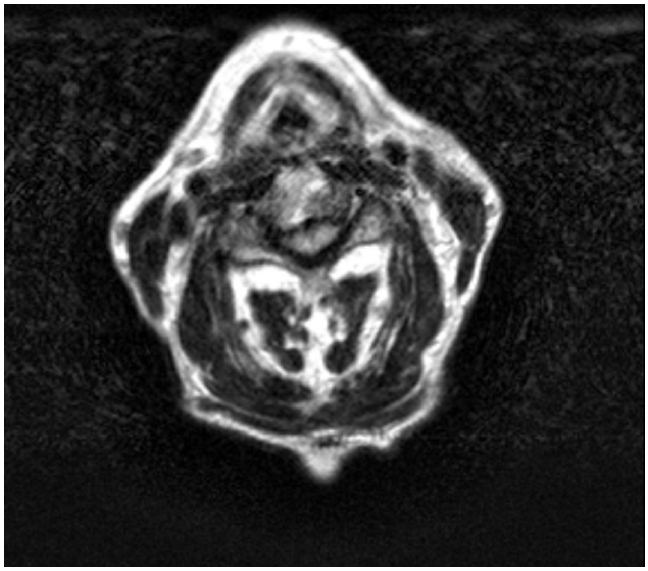

Fig. 2. MRI, axial T2-weighted imaging of the cervical spine at the level of C4–C5 showing a circumferential absence of cerebrospinal fluid signal.

Figs. 3 and 4. CT, sagittal and corresponding C4–C5 axial views of the cervical spine showing minimal to moderate degenerative spondylosis of the neck.

The diagnosis of CSM is primarily based on the clinical signs found on physical examination and is supported by imaging findings of cervical spondylosis with cord compression [2]. Numerous authors have addressed the defining clinical characteristics and diagnostic criteria, however, a careful analysis of the literature reveals multiple inconsistencies. The underlying discrepancies are multifactorial in nature, stemming from the complexity of the disease and the vast number of treatment options currently available. Additionally, the existing literature emanates from diverse specialties, including, neurology, neurosurgery, internal medicine, and rehabilitation medicine. Practitioners from different specialties encounter patients of varying acuity of symptom onset, thereby contributing to the multiple approaches to treatment. As a result, the comparison of data across studies, such as, indications for surgery, complications, and treatment efficacy is of limited utility.

Utilizing the PubMed search engine, the literature over the last ten years (2001–2011) pertaining to the clinical presentation, diagnosis, and surgical management of CSM were reviewed. Specifically, articles were reviewed to determine if CSM was explicitly defined, to pin point the diagnostic criteria used, and to identify discrepancies and inconsistencies between manuscripts. Additionally, we also present a review of the presenting findings in the literature of younger patient populations affected with CSM (ages 19–44).

2. Methods

Using the PubMed search engine, a search was conducted spanning the years 2001–2011. The search specifically focused on the following limiting terms: (1) English language, (2) adults (19–44 years old), and (3) “cervical spondylotic myelopathy.” Each article was individually reviewed and analyzed to determine if the authors explicitly defined CSM within the manuscript. The clinical characteristics used to make the diagnosis of CSM were recorded for each