Diffuse idiopathic skeletal hyperostosis with cervical myelopathy

Aria Nouri MD MSc, Michael G. Fehlings MD PhD

■ Cite as: *CMAJ* 2017 March 13;189:E410. doi: 10.1503/cmaj.160487

A 58-year-old man with diabetes mellitus who did not smoke presented to the hospital with a 12-month history of back pain, progressive numbness in his extremities and difficulty walking. Upon physical examination, the patient had reduced neck motion, bilateral weakness in arm extensors below the elbow, positive Hoffmann sign bilaterally and spastic gait. Radiographic examination showed multilevel contiguous ossification of the anterior longitudinal ligament, ligamentum flavum and posterior longitudinal ligament. We diagnosed diffuse idiopathic skeletal hyperostosis (Figure 1). The patient was treated with a posterior laminectomy and fusion to decompress the spinal cord. His neurologic status improved markedly at six months and remained stable two years after the procedure.

Criteria for a diagnosis of diffuse idiopathic skeletal hyperostosis include four contiguous levels of ossification, relative preservation of disc spaces and absence of apophyseal joint degeneration. In addition, diabetes mellitus may be a risk factor.[1,2] Prevalence of diffuse idiopathic skeletal hyperostosis is estimated between 2.9% and 27.3%, and is predominate among men and those who are over 50 years of age.[2]

Ankylosing spondylitis can appear similar to diffuse idiopathic skeletal hyperostosis on imaging, but it can be excluded after a negative radiograph of the sacroiliac joint and on the basis of age, because ankylosing spondylitis typically presents at a young age.[2]

Although diffuse idiopathic skeletal hyperostosis is usually a benign condition encountered incidentally, problematic symptoms of extensive disease can include dysphagia or, uncommonly, stridor caused by compression of the esophagus and glottis, respectively.

Ossification of the posterior longitudinal ligament may also occur and can result in substantial narrowing of the spinal canal, cord compression and myelopathy as seen in our patient (Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.160487/-/DC1). This predisposes the patient to catastrophic spinal cord injury in the event of a fall.

Surgical treatment for cervical myelopathy caused by the ossification of this ligament and other degenerative diseases can halt disease progression, improves neurologic function and quality of life.[3,4]

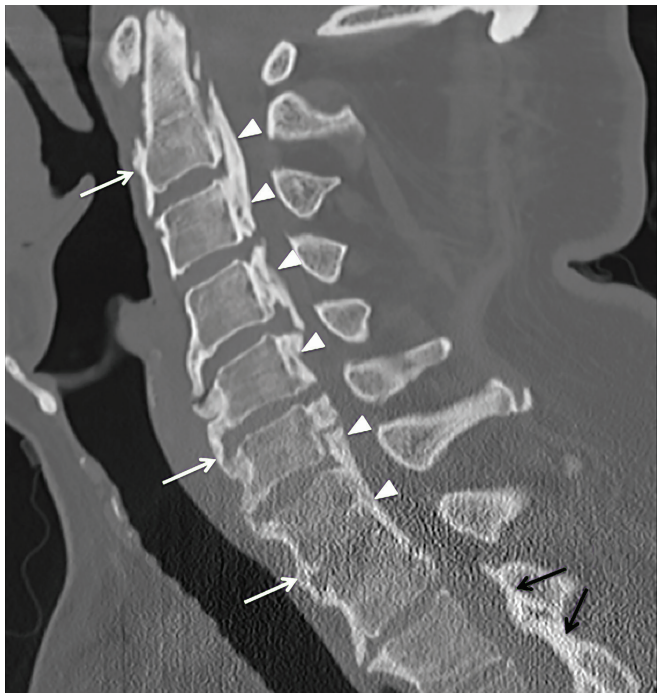

Figure 1: Sagittal computed tomography scan of the cervical and upper thoracic spine of a 58-year-old man with diffuse idiopathic skeletal hyperostosis, including substantial contiguous ossification of the posterior longitudinal ligament spanning the entire cervical region and terminating at T1 (arrowheads). Ossification of the anterior longitudinal ligament located at the anterior aspect of the cervical spine at C2 and from C4 to T2 is visible (white arrows). Ossification of the ligamentum flavum can be seen at T2–T3 (black arrows).

References

1. Nascimento FA, Gatto LA, Lages RO, et al. Diffuse idiopathic skeletal hyperostosis: a review. *Surg Neurol Int* 2014;5(Suppl 3):S122-5.
2. Olivieri I, D'Angelo S, Palazzi C, et al. Diffuse idiopathic skeletal hyperostosis: differentiation from ankylosing spondylitis. *Curr Rheumatol Rep* 2009;11:321-8.
3. Fehlings MG, Wilson JR, Kopjar B, et al. Efficacy and safety of surgical decompression in patients with cervical spondylotic myelopathy: results of the AOSpine North America prospective multi-center study. *J Bone Joint Surg Am* 2013;95:1651-8.
4. Fehlings MG, Ibrahim A, Tetreault L, et al. A global perspective on the outcomes of surgical decompression in patients with cervical spondylotic myelopathy: results from the prospective multicenter AOSpine international study on 479 patients. *Spine* 2015;40:1322-8.

Competing interests: None declared.

This article has been peer reviewed.

The authors have obtained patient consent.

Affiliations: Spinal Cord Injury Clinical Research Unit (Nouri), Toronto Western Hospital, University Health Network; Division of Neurosurgery, Department of Surgery, and Spinal Program (Fehlings), University of Toronto, Toronto, Ont.

Correspondence to: Michael G. Fehlings, Michael.Fehlings@uhn.on.ca