



<b>Title</b>	<b>Cervical spine disease in Asian populations</b>
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## Case illustration

A 53-year-old male of Southern Chinese descent presented to an orthopaedic clinic with a 3-week history of paraesthesiae in all extremities and left-sided upper and lower limb weakness. He had no neck symptoms. A physical examination revealed a positive Romberg's sign, an unstable gait, clumsy hand functions, brisk reflexes in all four limbs and up-going plantar responses. His power was mildly reduced to 4/5 in his left upper and lower extremities and his sensation was reduced bilaterally from C4 down. His Japanese Orthopaedic Association (JOA) score was 9.5 out of 17 (the lower the score the worse the function). Plain radiographs and magnetic resonance images (MRI) of his cervical spine were assessed (Figs 1 and 2).

What is your diagnosis?

- Congenital narrowing of the cervical spinal canal
- Diffuse idiopathic skeletal hyperostosis
- Cervical spondylotic myelopathy
- Ossified yellow ligament
- Ossified posterior longitudinal ligament
- Multiple level disc prolapse

## Discussion

The diagnosis was cervical myelopathy secondary to an ossified posterior longitudinal ligament (OPLL) from C2 to C7. It was managed surgically with an expansive cervical laminoplasty. The patient recovered all motor function, but had residual paraesthesiae in his fingertips 3 months after surgery.

An OPLL is a common problem among Japanese and seen to a lesser extent in other Asian populations, but is rare in Caucasians.<sup>1,2</sup> This condition is a heterotrophic ossification of the posterior longitudinal ligament of the spine, occurring predominantly in the cervical spine. It causes progressive anterior compression of the spinal cord, which manifests clinically as chronic cervical myelopathy. Most patients present with paraesthesiae in their hands and feet, clumsy fine motor hand functions, and unsteady, spastic gaits. Many patients are asymptomatic because the spinal cord has high tolerance to slowly increasing mechanical compression due to canal accommodation. Nonetheless, patients with OPLL are susceptible to minor trauma, which readily causes acute tetraplegia.<sup>1</sup>

Making a clinical diagnosis of cervical



FIG 1. Lateral X-ray of the cervical spine



FIG 2. T2-weighted sagittal magnetic resonance image of the cervical spine

myelopathy is simple when there are upper motor neuron signs in all four limbs and pathognomonic Hoffmann, reverse brachio-radialis and scapulo-humeral reflexes, 10-second test, and finger escape signs. Ossification is readily seen in standard X-rays and computed tomographic scans, and is classified into segmental, continuous, or mixed types. Spinal cord compression can be assessed using MRI.<sup>1,3</sup>

The JOA scores are used to monitor clinical disability. Surgery is usually indicated in order to improve function and prevent further neurological deterioration, which may even manifest as sudden, catastrophic tetraplegia.<sup>1,2,4,5</sup> The available surgical options are numerous, but largely dependent on the extent and characteristics of the OPLL pathology, and additional co-morbidities. Surgical correction may entail posterior expansive cervical laminoplasty, posterior laminectomy with instrumented fusion, and anterior decompression with strut grafting, with or without instrumentation.<sup>1,2,4,5</sup> The extent of

clinical recovery usually depends on the patient's age, the severity and duration of the symptoms, the degree of compression, and the operative method.<sup>1,2,5</sup> An accurate diagnosis of OPLL is essential for understanding the pathological mechanism underlying the clinical manifestation and to enable the good clinical decision-making needed to achieve an optimal outcome.

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