



## Case Report

# Ossification of the posterior longitudinal ligament at the craniocervical junction presenting with Brown-Séquard syndrome: A case report

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Received : 16 July 2021

Accepted : 31 August 2021

Published : 06 October 2021

### DOI

10.25259/SNI\_704\_2021

### Quick Response Code:



## ABSTRACT

**Background:** Several case reports about spinal cord compression due to hyperostosis at the craniocervical junction are available. However, compression at C1-C2 solely due to ossification of the posterior longitudinal ligament (OPLL) is rare.

**Case Description:** A 50-year-old Asian male, with a history of lumbar spinal canal stenosis, presented with a progressive quadriparesis within 3 months. Imaging showed central OPLL at the C1-C2 level contributing to severe spinal cord compression. The patient improved neurologically after a C1-C2 laminectomy.

**Conclusion:** A patient presented with a progressive Brown-Séquard syndrome due to OPLL at the craniocervical junction (C1-C2 level) and improved following a decompressive laminectomy.

**Keywords:** Brown-Séquard syndrome, Craniocervical junction, Myelopathy, Ossification of the posterior longitudinal ligament

## INTRODUCTION

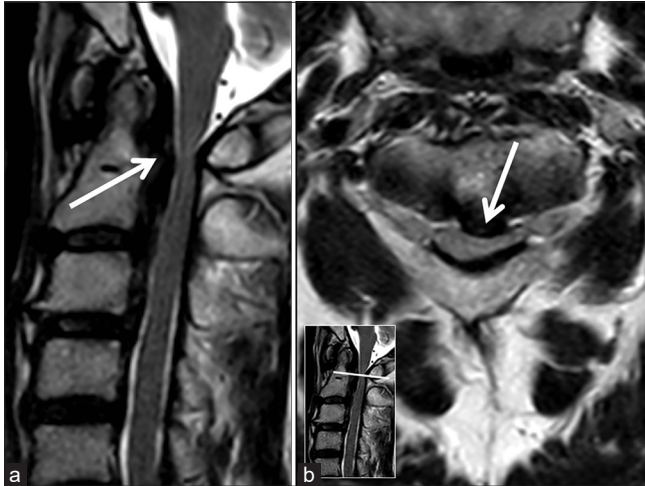
The literature about high cervicomedullary junction ossification of the posterior longitudinal ligament (OPLL) is limited. Here, we report a case in which OPLL contributed to severe C1-C2 spinal cord compression resulting in myelopathy/quadriparesis that largely resolved following posterior decompressive surgery.

## CASE PRESENTATION

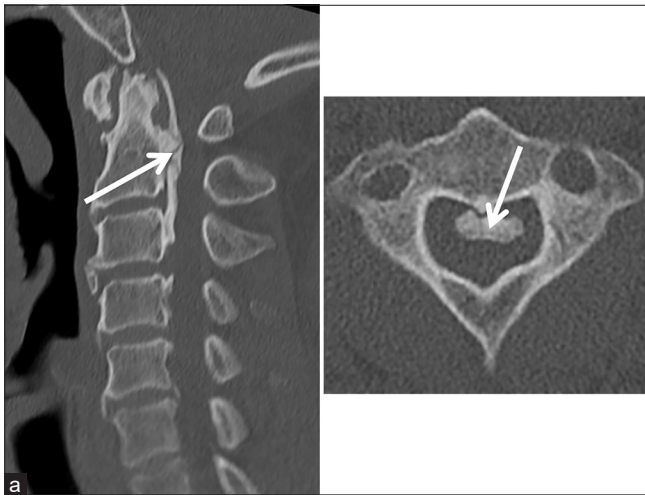
A 50-year-old male of Asian origin presented with a progressive quadriparesis of 3 months' duration [Table 1]. He had undergone lumbar surgery for spinal stenosis at the L4L5 level in the same year. The cervical MRI and CT scans both showed C1-C2 central anterior compression due to OPLL [Figures 1 and 2].

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**Figure 1:** Sagittal (a) and axial T2-weighted MR images (b) at the level of the upper cervical cord demonstrate narrowing of the spinal canal due to massive ossification of the posterior longitudinal ligament (white arrows) with cord compression and myelopathy.



**Figure 2:** CT reconstructions in the sagittal (a) and axial plane show that the ossification of the posterior ligament (white arrow) is most pronounced at the C1-C3 level with narrowing of the spinal canal.

### Surgery

The patient underwent a C1-C2 laminectomy without fusion. The postoperative MR performed 6 months later confirmed adequate cord decompression [Figure 3]. Over the next 2 years, the patient’s neurological deficit largely resolved.

### DISCUSSION

Stenosis of the spinal canal at the craniocervical junction due to OPLL and/or ossification of the transverse atlantal ligament is rare.<sup>[1]</sup> Certo *et al.* described a series of seven patients with retro-odontoid masses who were successfully treated with a C1 laminectomy and C1-C2 fixation.<sup>[2]</sup> Takemoto *et al.* also described a series of 10 patients with retro-odontoid pseudotumors that were similarly treated



**Figure 3:** Sagittal CT (a) and T2-weighted MR images after laminectomy of C1 and partial laminectomy of C2 (\*) demonstrate adequate decompression of the spinal cord at the craniocervical junction.

**Table 1:** Case presentation.

Case presentation	Preoperative	Postoperative
Medical history	Diabetes mellitus Type II Hypertension Myocardial infarction Gastric band surgery ILD L4L5	
Motor function	Left upper limb MRC 3 Left lower limb MRC 4	Left upper limb MRC 4 Left lower limb MRC 5
Sensibility	Hypoesthesia both upper limbs Hypoesthesia left side thorax Right-sided loss of temperature	Incidental paresthesia left upper limb Loss of temperature in the right hand
Coordination	Left-sided loss of proprioception	-

with a C1 laminectomy without instrumentation.<sup>[4]</sup> Although posterior decompression with instrumentation is generally recommended following upper cervical spine decompression to avoid instability to avoid and progressive kyphosis, in this case, a focused C1-C2 laminectomy without instrumentation sufficed.<sup>[3,5]</sup>

## CONCLUSION

A patient with central C1-C2 OPLL was successfully decompressed with a partial laminectomy without instrumentation.

## Ethical statement

The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

The patient has consented to submission of the case report and publication in the journal.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013).

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

## Financial support and sponsorship

Dr. A. Postma has received institutional grants from Siemens Healthineers and Bayer.

## Conflicts of interest

There are no conflicts of interest.

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**How to cite this article:** Schuermans VNE, Van Aalst J, Postma AA, Smeets AYM. Ossification of the posterior longitudinal ligament at the craniocervical junction presenting with Brown-Séquard syndrome: A case report. *Surg Neurol Int* 2021;12:501.