

# Ossification of Posterior Longitudinal Ligament (OPLL) with Central Cord Syndrome in a Post-Traumatic Diparesis Patient

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## Introduction

Ossification of the posterior longitudinal ligament (OPLL) is an uncommon condition characterized by abnormal calcification of the ligament along the spinal column, most commonly in the cervical region. While it typically affects older adults, its presence in younger individuals is unusual and can increase the risk of spinal cord injury (SCI) even with minor trauma. This case report highlights a patient with traumatic central cord syndrome (CCS) in the context of OPLL, emphasizing the importance of early identification and management.

## Case Description

A 41-year-old male fell into a 4-foot-deep drain, landing in a hyperflexion position. He had immediate weakness in all four limbs, with spontaneous resolution in the lower limbs after five minutes, while upper limb weakness persisted. In the ED, he was hemodynamically stable, with motor weakness (left 2/5, right 3/5) and sensory deficits in the C5-T1 region. CT imaging revealed OPLL from C2 to C6 (Figure 1), and MRI confirmed multilevel disc prolapses and spinal stenosis at the C3-C5 levels (Figure 2). The patient was diagnosed with traumatic CCS with underlying OPLL and underwent posterior cervical laminoplasty.



Figure 1: Ossified PLL over C2-C6

## Discussion

OPLL is often asymptomatic condition that predisposes patients to cervical spinal stenosis and increases susceptibility to SCI even after minor trauma. Although CCS is typically linked to hyperextension injuries, this case is unique due to the hyperflexion mechanism and the patient's relatively young age. The incidental finding of OPLL highlights the need for comprehensive imaging in patients with unexplained neurological deficits. Early surgical decompression has been shown to improve outcomes in patients with CCS, particularly when pre-existing spinal abnormalities are present.



Figure 2: Disc prolapse with stenosis C3-C5 level

## Conclusion

This case underscores the importance of recognizing OPLL as a potential risk factor for traumatic SCI, even in younger patients and non-typical injury mechanisms. Early diagnosis through advanced imaging, prompt cervical immobilization, and timely surgical intervention are crucial in optimizing patient outcomes. Further research is needed to explore the underlying causes of early-onset OPLL and to facilitate earlier identification in emergency settings.

**Keywords:** Ossification of Posterior Longitudinal Ligament, Central cord syndrome, Spinal cord injury

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