

# A Pain in the Neck Diagnosis: Crowned Dens Syndrome

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## CASE REPORT

A man in his 70s presented to the Emergency Department with two days of atraumatic neck pain. The patient reported no significant medical history and was on no medications. The patient described acute onset of midline neck pain, which was worse with movement of the neck and associated with low-grade fevers. On examination, the patient has elicitation of symptoms with passive flexion and rotation of the neck. Vital signs were notable for temperature of 100.4°F.

A CT of the cervical spine was obtained. (Figures 1,2)

## DIAGNOSIS

CT scan demonstrated attenuation in the location of the transverse ligament of the atlas consistent with Crowned Dens Syndrome.

## DISCUSSION

Crowned Dens Syndrome (CDS) is a rare condition characterized by the deposition of calcium pyrophosphate (CPP) crystals in and around the atlanto-axial articulation resulting in pseudogout of the cervical spine. Crystal deposition results in a crown-shaped distribution of calcifications surrounding the dens, leading to both its radiographic appearance as well as its descriptive name. Most commonly, patients with CDS present with neck pain, neck rigidity, and fever.<sup>1</sup> Inflammatory markers are typically elevated. Given the clinical overlap with other life-threatening conditions, many patients undergo invasive procedures such as lumbar puncture prior to diagnosis of CDS.<sup>2</sup> Diagnosis is most often made after CT imaging. Treatment is similar to that of pseudogout of other joints, with NSAIDs resulting in rapid clinical improvement in the majority of cases. Steroids have also been shown to be useful in severe or refractory cases.<sup>3</sup> While rare, cases have been reported of severe depositions resulting in myelopathy or atlas fracture.<sup>4</sup>

## References

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Figure 1. Cervical Spine, Axial View



Figure 2. Cervical Spine, Sagittal View



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