

Crowned Dens Syndrome: A Rare Cause of Cervicalgia

Síndrome do Dente Coroado: Uma Causa Rara de Cervicalgia

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A 69-year-old male presented with cervical pain and restricted neck movement following a fall from his bed, associated with fever. His medical history included diabetes mellitus with diabetic neuropathy and sarcopenia, for which he received monthly erythropoietin treatment due to chronic kidney disease-related anemia. Physical examination revealed pain with upper limb movements and tenderness on cervical palpation, with limitation of rotation, lateral flexion, flexion, and extension.

Laboratory tests showed elevated C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). Cervical computed tomography (CT) ruled out fractures and instability and revealed calcifications predominantly in the transverse ligament of the atlas adjacent to the odontoid process (Fig. 1). Although not pathognomonic, this finding, in combination with the

clinical presentation, raised the suspicion of crowned dens syndrome (CDS).¹ Importantly, other differential diagnoses such as meningitis were considered and excluded.² The patient was treated with non-steroidal anti-inflammatory drugs (NSAIDs) for five days, with significant clinical improvement.

CDS is a rare clinical and radiological entity characterized by calcium crystal deposition around the odontoid process, potentially leading to acute neck and occipital pain, fever, and elevated inflammatory markers.³ First described by Bouvet *et al* in 1985,⁴ the hallmark radiological feature is a “crown-like” or halo pattern of calcifications, typically involving the apical and alar ligaments rather than the transverse ligament alone.⁵ Since similar calcifications can occur in other conditions, CDS diagnosis requires careful correlation of clinical findings, exclusion of other inflammatory or

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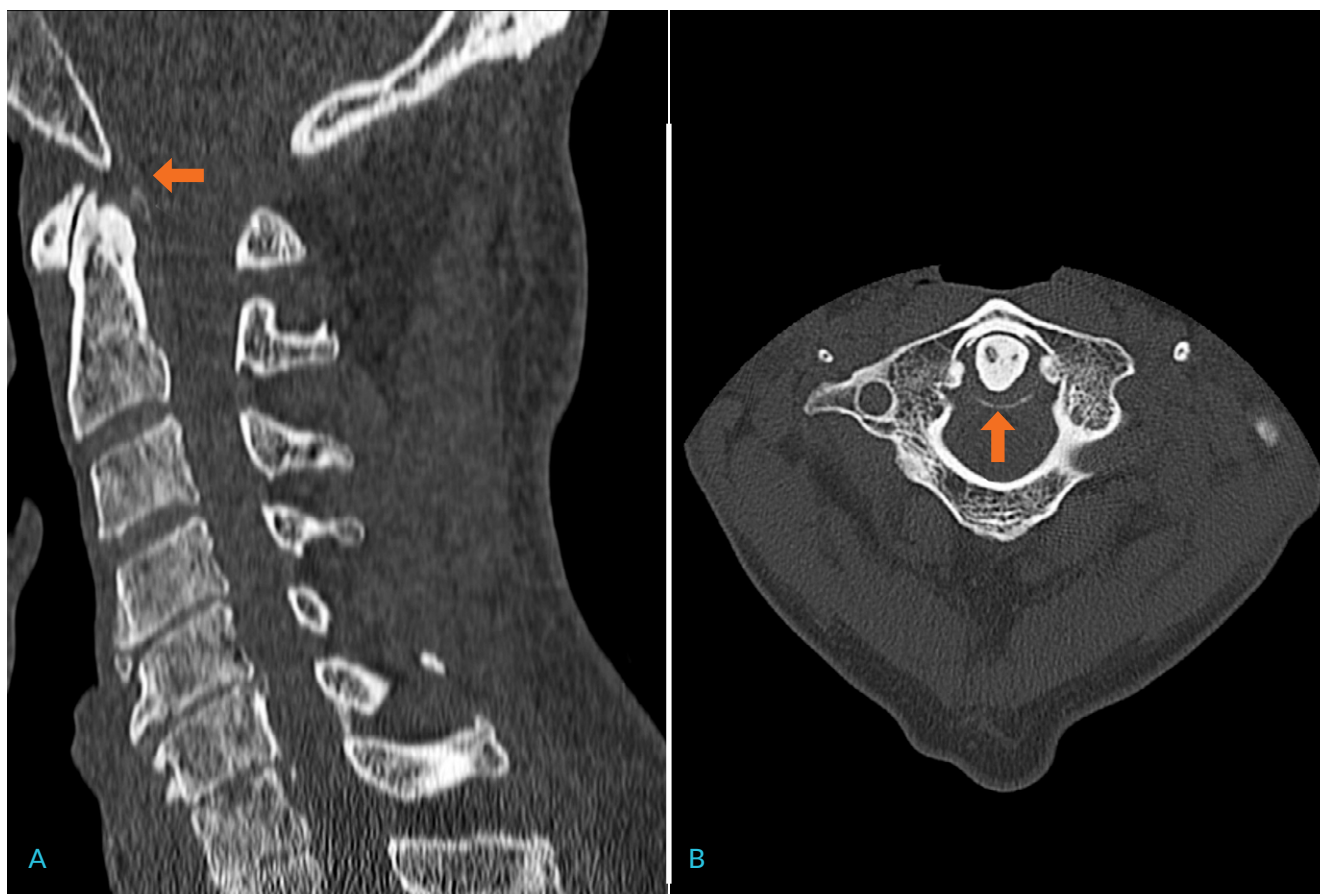


FIGURE 1. Sagittal (A) and axial (B) computed tomography images demonstrating a calcification in the transverse ligament of the atlas adjacent to the odontoid process.

infectious causes, and appropriate imaging – with CT focused on the C1–C2 region being the gold standard.²

CDS may have a self-limiting course or progress to chronic cervicalgia. Treatment includes NSAIDs as first-line therapy, with colchicine or corticosteroids reserved for refractory cases.¹ This case highlights the importance of considering CDS in elderly patients presenting with acute neck pain, especially when imaging shows peri-odontoid calcifications, but also underlines the need for thorough exclusion of traumatic and infectious causes.

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REFERENCES

1. Hamdan O, Alajlouni Y, Mussa Q, Alsawalmeh A, Sabbah Q, Al-Zou'bi M, et al. Clinical features and diagnostic challenges in crowned dens syndrome: a systematic review and meta-analysis. *Rheumatol Int.* 2025;45:124. doi: 10.1007/s00296-025-05884-6.
2. Palmowski A, Riedel J, Kamieniarz P, Haibel H, Bartsch L, Diehl-Wiesenecker E. Crowned dens syndrome: a rare differential diagnosis of meningitis. *CJEM.* 2025;27:233-4. doi: 10.1007/s43678-024-00850-w.
3. Younis AA. Crowned dens syndrome as a cause of acute neck pain: a case report and review of the literature. *Mediterr J Rheumatol.* 2017;28:101-5. doi: 10.31138/mjr.28.2.101.
4. Bouvet JP, le Parc JM, Michalski B, Benlahrache C, Auquier L. Acute neck pain due to calcifications surrounding the odontoid process: the crowned dens syndrome. *Arthritis Rheum.* 1985;28:1417-20. doi: 10.1002/art.1780281215.
5. Jain N, Verma R, Garga UC, Baruah BP, Jain SK, Bhaskar SN. CT and MR imaging of odontoid abnormalities: A pictorial review. *Indian J Radiol Imaging.* 2016;26:108-19. doi: 10.4103/0971-3026.178358.