



A case of Crowned dens syndrome mimicking meningitis

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Introduction

- CDS accounts for approximately 2% of acute neck pain cases. The main cause of CDS is crystal deposition disease, including calcium hydroxyapatite and CPPD diseases.
- CDS is often underdiagnosed due to limited knowledge about the disease.

Case

- An 82-year-old female with a history of atrial fibrillation, diabetes, hypertension, and gout was admitted with fever, chills, and neck pain.
- She reported pain extending from her shoulders to her feet and constant right foot aching causing difficulties in ambulation for 2 days.
- She also reported increased urinary frequency, shortness of breath, poor appetite, and nausea.
- Vital signs on presentation include temperature 38.1 C, HR 112 bpm and BP 122/60 mmHg.
- Exam revealed positive nuchal rigidity, unable to perform kerning test due to severe pain, and palpable lymph nodes in the cervical region.
- Despite broad-spectrum antibiotics, she had persistent neck rigidity and fever.
- Labs revealed leukocytosis of 19,000 and elevated D dimer. CRP 34.3 mg/dl and ESR 116 mm/hr.
- Blood cultures were negative. CT right foot and ankle showed osteoarthritis changes and calcification of the Achilles tendon, plantar fascia, and tibialis posterior tendon.

Learning Objectives

- Diagnostic evaluation of neck pain
- Signs and symptoms of Crowned dens syndrome

Figures



Ct Neck showing characteristic "Halo sign" suggestive of CDS

Hospital Course/Treatment

- Rheumatology was consulted and recommended checking CT neck which showed soft tissue inflammation and calcifications posterior to the odontoid process and along the cruciform and alar ligaments suggestive of CDS.
- The patient was started on colchicine 0.6 mg daily and oral prednisone 40 mg for 3 days with marked improvement in her symptoms.

Summary

- The diagnostic criteria for CDS include a history of acute neck pain and limited cervical activity, elevated inflammatory markers, and calcium deposition around the odontoid in cervical CT scans.
- CT scan of C1-C2 segments of the neck showing calcification deposits around the odontoid process is the "gold standard" for clinical diagnosis.
- Our case highlighted the importance of considering CDS in the evaluation of neck pain and fever as it may prevent expensive and invasive workup.

References

- Salaffi F, Carotti M, Guglielmi G, et al. The crowned dens syndrome as a cause of neck pain: clinical and computed tomography study in patients with calcium pyrophosphate dihydrate deposition disease. Clin Exp Rheumatol. 2008;26:1040–1046