

# A Brief Report of Polymicrobial Osteomyelitis of Odontoid Process with Epidural Abscess

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## Abstract

**Background & Importance:** Infections of the craniocervical junction are rare.

**Case Presentation:** We present a case of infection by methicillin-sensitive *Staphylococcus aureus* and *Streptococcus mitis* that was not previously reported.

**Conclusion:** Neurosurgeons must suspect for diagnosis and initiate broad antimicrobial therapy, including active agents against gram-negative and then initiate a targeted therapy. The purpose of this report is to highlight the importance of early diagnosis for a successful medical treatment.

**Keywords:** Osteomyelitis; Spinal cord compression; Epidural abscess; Odontoid process; Cervical spine abscess

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## Introduction

Osteomyelitis of the odontoid process associated with epidural abscess is a rare clinical entity characterized by the presence of inflammatory and infectious paranasal or near process with intracranial extension. The existence of predisposing factors for becoming immunocompromised such as diabetes mellitus, HIV infection and steroid use are common.

## Case Presentation

A 55-year-old male patient consuming hallucinogenic drugs (cocaine, marijuana) by inhalation, who developed pain and neck stiffness was studied. He was treated with anti-inflammatory and analgesic for 25 days, but for worsening symptoms he had been referred to our institution, presenting hallucinations and dysarthria. A physical assessment was central glucose of 851 mg/dl and deterioration of neurological status, which required mechanical ventilatory support. MRI of the junction craniovertebral showed a hyperdense epidural mass and presence of air and left odontoid subluxation with Grisel syndrome secondary to inflammation in the parapharyngeal area. Chest radiography showed left pneumothorax of approximately 80%, which was successfully managed with chest tube. MRI with gadolinium showed the craniovertebral epidural abscess around the odontoid process without compression and parafacetary cervicomedullary abscess on the left side of vertebral bodies C2-C3 (Figure 1 A, B, C).

In the cerebrospinal fluid culture a methicillin-sensitive *Staphylococcus aureus* and *Streptococcus mitis* were isolated, treated with ceftriaxone, and metronidazole-dicloxacillin. On the seventh day of stay in critical care unit, successful extubation was achieved. He recovered from mild neck stiffness after completing antibiotic therapy.

## Discussion

Osteomyelitis of the odontoid process is very rare and therefore requires a high degree of clinical suspicion for diagnosis (2-4). The diagnosis requires a careful assessment of history, comorbid conditions, laboratory tests and imaging. Late diagnosis can lead to poor prognosis. MRI is the first imaging modality. The occipitocervical immobilization, broad-spectrum antibiotic therapy and surgical stabilization in selected cases are the foundations of treatment (5,6).

## Conclusion

Osteomyelitis of the odontoid process is an entity of difficult diagnosis that may prove catastrophic when accompanied by epidural abscess. Our patient had a satisfactory condition, demonstrating the beneficial effect of directed antibiotic treatment.



Figure 1. T2-weighted MRI image showing a hyperintense epidural abscess and showing hypointensity of the odontoid process

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