

Septic Necrosis of the Odontoid Apophysis and Cervical Spondylodiscitis from *Enterococcus faecalis* Endocarditis: A First Report

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ABSTRACT

We describe a 75-year-old male patient who developed a general syndrome, with a fever of 39°C, weight loss, and cervical pain, during the month following a urological procedure. The presence of positive blood cultures for *Enterococcus faecalis*, aortic vegetations, and severe aortic regurgitation observed with echocardiogram confirmed the diagnosis of infective endocarditis (IE). Magnetic resonance imaging of the spinal cord showed significant erosion and irregularities of the odontoid apophysis, with hyperintensity of bone marrow in T2-weighted images because of edema and inflammation. These findings suggested an infective necrosis of the odontoid apophysis. Despite the common occurrence of rheumatologic manifestations in IE, with prevalence rates of 25% to 44%, spondylodiscitis is rarely observed (5%-13%). The lumbar region is the most commonly involved. We found only one other reported case of cervical spondylodiscitis. The case we describe is the first report of septic necrosis of the odontoid apophysis associated with IE.

INTRODUCTION

Spondylodiscitis most frequently affects the lumbar region and is rarely observed in association with infective endocarditis (IE). Only one case of cervical spondylodiscitis associated with IE has been reported previously. The case we describe is the first reported case of septic necrosis of the odontoid apophysis associated with IE.

CASE DESCRIPTION

A 75-year-old man who had undergone transurethral prostatectomy 5 months previously and who required urological manipulation 1 month later because of residual urethral stenosis was admitted to our institution because of a

general syndrome with fever up to 39°C and weight loss of 5 kg in 1 month. The patient also reported a 3-week history of cervical pain, which increased with lateral movements of the neck.

Physical examination was remarkable only for a grade 4/6 pansystolic murmur, loudest at the apex. Pulmonary and abdominal exam results were normal. Initial neurologic exam results were normal. The laboratory work-up showed leukocytosis and neutrophilia, anemia, and an elevation of acute-phase reactants. Blood cultures were positive for *Enterococcus faecalis*. On the basis of antibiogram results, treatment was initiated with ampicillin and ceftriaxone.

An abdominopelvic computed tomographic scan was performed and showed neither abdominal nor pelvic abnormalities.

Transthoracic echocardiogram revealed severe aortic regurgitation with the presence of several sessile masses on the



Magnetic resonance imaging of the case patient. A, T2-weighted image of the spinal cord shows erosion and irregularities of the odontoid apophysis (white arrow) with hyperintensity of bone marrow (black arrow) in the context of septic necrosis. B, T1-weighted image of the spinal cord shows high-signal tissue due to inflammation surrounding the odontoid apophysis (black arrow). The white arrow marks signs of active spondylodiscitis.

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right coronary and noncoronary sinus. Magnetic resonance imaging (MRI) of the spinal cord showed significant erosions and irregularities of the odontoid apophysis with hyperintensity of bone marrow attributable to edema and inflammation visible in T2-weighted images. MRI also demonstrated signs of initial spondylodiscitis at the C6-C7 level that affected C3-C4 interapophysis articulation (Figure).

Because of the high risk of spinal injury and tetraplegia, the Physical Medicine and Rehabilitation Service was consulted and decided to place the patient in traction in a halo vest apparatus to prevent neurological spinal injury.

The patient was hemodynamically stable and had no signs of heart failure, so surgery was delayed to allow 4 weeks of antibiotic treatment. The patient underwent surgery while immobilized in the halo vest apparatus, which was made from titanium to avoid interaction with the diathermy blade and maintained only posterior immobilization to allow the sternotomy. The aortic valve was replaced with a bioprosthetic valve.

After 4 days in the intensive care unit, the patient was discharged to the hospitalization ward to complete the intravenous antibiotic treatment. The halo vest apparatus immobilization was maintained for 3 months, until fusion of the vertebral lesion.

DISCUSSION

In spite of the common occurrence of rheumatologic manifestations in IE, with prevalence rates from 25% to 44% [Churchill 1977; Azevedo 1984; Le Moal 2002], spondylodiscitis is rarely observed (5%-13%) [Le Moal 2002]. The lumbar region is most commonly involved [Le Moal 2002]. We found

only one other reported case of cervical spondylodiscitis [Mund DJ], and our case is the first reported instance of septic necrosis of the odontoid apophysis associated with IE.

The main hypothesis for the pathogenesis in this case is that the necrosis of the odontoid apophysis was caused by bacterial emboli, which affected the branch of the vertebral artery that irrigates this apophysis. In most cases of spondylodiscitis associated with IE, group D *Streptococcus* is the most frequent causative organism, followed by coagulase-negative staphylococci [Churchill 1977; Morelli 2001; Le Moal 2002].

Analysis of the data reported in the literature suggests that the association between spondylodiscitis with IE does not worsen patient prognosis [Morelli 2001; Le Moal 2002]. In our case patient, however, the odontoid apophysis caused instability of the atlanto-odontoid articulation, with high risk of severe injury of the spinal cord and tetraplegia.

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