Osteomyelitis complicating *Streptococcus milleri* endocarditis

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Summary: A patient with osteomyelitis of the spine complicating bacterial endocarditis due to *Streptococcus milleri* is discussed. To our knowledge, this is the first time this organism has been associated with this complication.

Introduction

*Streptococcus milleri* causes only 8% of cases of viridans endocarditis, but has a high incidence of suppurative complications.\(^1\) Osteomyelitis is an unusual complication of endocarditis today. We describe a patient who developed osteomyelitis of the spine complicating *S. milleri* endocarditis.

Case report

A 72 year old man was admitted with a 4-week history of malaise, anorexia, weight loss and night sweats. Ten days before admission he presented with acute onset of low back pain while gardening, followed three days later by a right hemiparesis largely resolving within 24 hours. He was known to have a systolic murmur, but had no other past medical history.

On examination he was pyrexial (temperature 39.9°C) but there were no splinter haemorrhages or other stigmata of endocarditis. He had both aortic and mitral systolic murmurs, but no diastolic murmur. There was no splenomegaly. He was tender over the lumbar spine at L3/4, and showed hyperreflexia and extensor plantar responses on the right.

Investigations revealed a haemoglobin of 10.4 g/dl, white cell count of 14.7 x 10^9/L, ESR of 9 mm in the first hour and alkaline phosphatase 1141 IU/l. Blood cultures grew *S. milleri* from all four bottles. Echocardiography showed vegetations on the non-coronary aortic cusp and anterior mitral leaflet. Initial X-rays showed only degenerative changes throughout the lumbar spine, with mild scoliosis.

Treatment with intravenous benzylpenicillin (1.2 g 4 hourly) and gentamicin 60 mg twice daily initially settled his temperature, but a few days later fluctuating pyrexia ensued despite adequate levels of antibiotics being confirmed by back titration. Lumbar spine X-rays were repeated 10 days after the first set for further troublesome back pain. These showed narrowing of the disc space at L3/4 with irregularity of the adjacent articular surfaces anteriorly (Figure 1), consistent with osteomyelitis. Clindamycin 300 mg intravenously 6 hourly was begun, for good antibiotic penetration of bone, with good effect. However, the onset of diarrhoea resulted in a change to erythromycin as a suitable alternative. He remained afebrile on this regime, and was changed to oral amoxycillin and erythromycin after 5 weeks of intravenous antibiotics. Treatment was continued for a further 3 weeks with antibiotic levels again checked by back titration to ensure adequate dosage. Mobilization with the help of a lumbar support was commenced. There were no haemodynamic complications, and by discharge the ESR was 40 mm in the first hour, alkaline phosphatase 302 IU/l. His haemoglobin had risen to 12.4 g/dl after transfusion, and stabilized at this level. Serial echocardiography showed progressively less vegetation.* Doppler examination confirmed mild aortic and mitral regurgitation. At the time of writing, there had been some reduction of the X-ray changes in the lumbar spine.

Discussion

Back pain is the presenting feature of bacterial endocarditis in 23% of cases, but osteomyelitis ensues in only 2–6% of cases.\(^2\) Musculoskeletal problems are the first complaint in 15% of cases. The underlying diagnosis may thus be delayed, and one case has been described where the patient was

*Authors' footnote: Vegetation now resolved. X-rays show degenerative change only in October 1989.
seen in four countries before the diagnosis was made. Musculoskeletal symptoms can be a prominent complaint in a patient who is generally unwell, but in a case of persistent localized pain, osteomyelitis must be considered before suppuration becomes too advanced. Epidural abscess with resulting symptoms of spinal cord compression has been described as a complication of endocarditis.

*Streptococcus milleri* accounts for 8% of cases of viridans endocarditis, but is associated with a high incidence of suppurrative complications, which include abscess formation in major organs, such as brain, spleen, liver; purulent involvement of body cavities, infection of the skin and subcutaneous tissues. In this series, 3 cases of *Streptococcus milleri* endocarditis were described, all developing complications more frequently associated with acute endocarditis, and with organisms noted for their invasiveness.

Organisms involved in cases of osteomyelitis have included *Streptococcus sanguis*,1,4,5 *Streptococcus bovis*,6,7 *Staphylococcus epidermidis* and *Staphylococcus aureus*.8,9 *Staphylococcus aureus* is the organism most frequently implicated in pyogenic osteomyelitis of the spine.

We have presented the first reported case of osteomyelitis complicating *Streptococcus milleri* endocarditis. The diagnosis of embolic osteomyelitis must be suspected where back pain does not improve following the initiation of appropriate antibiotic therapy. Prolonged treatment with appropriate antibiotics is required to sterilise a bony focus and potential site for chronic infection in a susceptible patient with valve disease.

**References**