Concise Communications

Isolated pulmonary valve endocarditis caused by *Streptococcus bovis*: case report and review

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**INTRODUCTION**

The aortic valve constitutes the most common location of infective endocarditis due to *Streptococcus bovis* [1]. Pulmonary valve endocarditis is a rare event observed in 1.5–2% of all cases of endocarditis, although these figures correspond to series in which the less sensitive transthoracic echocardiography was used, and it is usually associated with simultaneous involvement of other valves [2]. Isolated pulmonary valve endocarditis caused by *S. bovis* is a very uncommon disease. To our knowledge, only three cases, one of them in the English-language literature, have been reported to date [3–5]. Herein we describe the case of an elderly man with pulmonary valve endocarditis due to *S. bovis*, and review the previously reported cases.

**CASE REPORT**

An 81-year-old man was admitted because of a 2-month history of malaise, fatigue and low back and pelvic pain. Two weeks before the onset of symptoms, the patient had undergone a dental procedure. The patient denied any history of cardiac disease. He did not report fever, although he was taking non-steroidal anti-inflammatory drugs, and he had not measured his own temperature. Physical examination revealed a temperature of 38.6°C and splenomegaly. A diastolic murmur was heard on the left parasternal border. No peripheral signs of bacterial endocarditis were found. White blood cell count was 3.4×10^9/L (74% neutrophils, 7% band forms, 19% monocytes), hemoglobin 10 g/dL, and platelet count 115×10^9/L. Rheumatoid factor was 87.3 U/mL. Routine blood chemistry was normal. Abdominal ultrasonography showed splenomegaly as the only abnormal finding. A transesophageal echocardiogram revealed a vegetation of 1.5 cm on the pulmonary valve, as well as mild aortic regurgitation. Three blood cultures obtained on admission were positive for *S. bovis*. Barium enema and sigmoidoscopy revealed only diverticulosis. Treatment with ampicillin and gentamicin, to which the isolate was susceptible, was started, but treatment was switched 5 days later to ceftriaxone, 2 g daily intravenously, because of renal toxicity. The patient improved slowly without complications. However, on the 32nd hospital day, severe agranulocytosis was detected. The bone marrow biopsy revealed a marked decrease in myeloid cells as well as an increase in megakaryocytes and erythroid precursors. No signs of myelodysplasia or infiltration were found. Agranulocytosis was thought to be related to drugs (in addition to ceftriaxone, the patient was receiving sulpiride and lormetazepam) and reversed after 3 days with granulocyte colony-stimulating factor and stopping of all drugs. The patient was discharged after 27 days of antibiotic therapy. A blood culture obtained on the last hospital day was sterile. One year later the patient was asymptomatic.

**DISCUSSION**

*S. bovis* is a group D streptococcus responsible for systemic infections with a marked cardiac tropism. In fact, bacteremia due to this agent is associated with endocarditis in 25–50% of cases [6]. However, isolated pulmonary valve involvement due to *S. bovis* has been reported in only three other cases [3–5]. Table 1 shows some clinical features of the reported cases, including ours. It is remarkable that the mean age of the patients...
Table 1 Clinical features of the patients with isolated pulmonary valve endocarditis due to S. bovis

<table>
<thead>
<tr>
<th>Reference</th>
<th>Age/Sex</th>
<th>Duration of symptoms (months)</th>
<th>Source</th>
<th>Treatment and duration (weeks)</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>62/M</td>
<td>3</td>
<td>Unknown</td>
<td>Ampicillin + gentamicin (6)</td>
<td>Cured</td>
</tr>
<tr>
<td>4</td>
<td>73/F</td>
<td>3</td>
<td>Colon carcinoma</td>
<td>Amoxycillin + gentamicin (NA) Surgery</td>
<td>Cured</td>
</tr>
<tr>
<td>5</td>
<td>81/F</td>
<td>4</td>
<td>Colonic polyp</td>
<td>Penicillin + gentamicin (4) Cephalothin (2)</td>
<td>Cured</td>
</tr>
<tr>
<td>Present report</td>
<td>81/M</td>
<td>2</td>
<td>Diverticulosis Dental procedure</td>
<td>Ceftriaxone (4)</td>
<td>Cured</td>
</tr>
</tbody>
</table>

NA, not available.

in this series was 74.3 years, appreciably greater than the mean age of patients with endocarditis in a large series (55.4 years) [7], and even that of patients with S. bovis endocarditis (60 years) [1]. All cases followed a subacute course, and only one developed pulmonary embolism [3]. The usual source of the S. bovis bacteremias is the gastrointestinal tract [6], and infective endocarditis due to this pathogen is commonly associated with colonic pathology [1]. In two of the four cases in this series, a colonic portal of entry was identified. Our patient had diverticulosis, a common finding in elderly people, without signs of diverticulitis. Therefore, it is not possible to definitively establish that the source of bacteremia was the colonic abnormality, particularly with the antecedent of a dental procedure shortly before the onset of symptoms.

The pulmonary valve is the least commonly involved of all cardiac valves in endocarditis, although some authors believe that pulmonary valve endocarditis constitutes an underdiagnosed condition because some cases may not be identified by transthoracic echocardiography [8]. However, the three previously reported cases were diagnosed by this procedure. Although the pulmonary valve is usually involved because of structural or congenital heart disease [2], prior valve damage was not known in any patient, including ours.

Uncomplicated endocarditis caused by S. bovis is usually treated with 4–6 weeks of antibiotic therapy [9]. Three of the four cases of pulmonary valve endocarditis were treated with antibiotics alone. Surgery was necessary in one case to achieve cure, because of an unfavorable course [4].

Pulmonary valve endocarditis due to S. bovis is an uncommon condition that seems to involve older patients. Transesophageal echocardiography constitutes the best non-invasive diagnostic procedure for this condition, and colonic pathology should be excluded in such patients.

References