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CASE REPORT

Prosthetic aortic valve: A bone in the system

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Abstract We report a case of a 73-year-old female patient admitted to the surgical department for a splenic abscess. She had a history of a mechanical aortic valve implanted two years earlier. During the diagnostic work-up, the patient underwent a transesophageal echocardiogram that revealed the presence of multiple paravalvular abscesses, establishing the diagnosis of prosthetic valve endocarditis. A few days later, the echocardiogram was repeated due to a new-onset systolic-diastolic murmur. A large pseudoaneurysm and significant periprosthetic regurgitation were now noted and the patient was referred for cardiac surgery. The microbiologic exam revealed the presence of *Streptococcus milleri*, usually found in the gastrointestinal flora and a known pathogenic agent of endocarditis. Interestingly, the patient had had a foreign body (bone fragment) removed from her esophagus a few weeks earlier, which was the probable portal of entry for this infective endocarditis.
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PALAVRAS-CHAVE
Endocardite infecciosa;
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Abcessos;
Pseudoaneurisma

Prótese valvular aórtica: «um osso na engrenagem»

Resumo Os autores reportam o caso de uma doente de 73 anos de idade, do sexo feminino, admitida no Serviço de Cirurgia Geral por um abcesso esplénico. A doente tinha antecedentes de uma prótese mecânica em posição aórtica implantada dois anos antes. Durante o estudo diagnóstico foi realizado um ecocardiograma transesofágico que revelou a presença de múltiplos abcessos periprotésicos que permitiram estabelecer o diagnóstico de endocardite de prótese. Alguns dias depois a doente repetiu o exame por sopro sisto-diastólico de novo. Neste estudo destacava-se agora a presença de um volumoso pseudoaneurisma e uma regurgitação periprotésica significativa, pelo que a doente foi orientada para cirurgia cardíaca urgente. O estudo

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microbiológico revelou a presença de *Streptococcus milleri*, um constituinte normal da flora gastrointestinal e um agente patogénico já conhecido de endocardite infecciosa. Curiosamente, a doente tinha antecedentes de remoção de um corpo estranho alojado no esófago (um fragmento ósseo) algumas semanas antes, e que foi a provável porta de entrada para a endocardite infecciosa.
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Introduction

Infective endocarditis (IE) is a relatively common disease with an estimated in-hospital mortality of 15–20%.[1,2] Currently, the most common agent of IE is *Staphylococcus aureus*, accounting for approximately one-third of cases,[3] followed by *Streptococcus viridans*. This reflects a shift in the epidemiology of IE, mainly driven by medical progress and increased health care contact, and a consequent rise in the incidence of *Staphylococcus* bacteremia.[3] It also reflects changes in the characteristics of patients with IE, with an increasing incidence of patients presenting with immunodeficiency and/or cardiac prosthetic devices.[3] While multiple factors contribute to the pathophysiology of IE, the presence of bacteremia is an essential condition for the occurrence of an infection in cardiac structures.[4] Prophylactic antibiotic therapy is therefore recommended for high-risk patients before some medical procedures.[5] Although not all procedures are considered in these recommendations, as discussed later, it should be kept in mind that, independently of its source, the occurrence of bacteremia is itself a risk factor for the occurrence of IE. In view of this consideration we report a case of a patient with prosthetic valve endocarditis following the removal of a foreign body from the esophagus.

Case report

A 73-year-old female patient presented to the emergency department complaining of asthenia, weight loss (>10% of initial body weight) and fever (38–38.5 °C) during the last four weeks. She had a history of a single-disc mechanical aortic valve implanted two years earlier due to severe aortic stenosis. She was taking warfarin and was doing well in the follow-up. After an initial diagnostic work-up, in which no infectious focus was identified, the patient underwent transthoracic and transesophageal echocardiograms. Both exams showed a normally functioning mechanical prosthesis, normal left ventricular systolic function, and no vegetations or images compatible with abscesses or other paravalvular complications (Figure 1).

One month later, the patient presented again in the emergency department complaining of abdominal pain and persistent asthenia and fatigue. An abdominal computed tomography scan showed a large splenic mass and an exploratory laparotomy was performed. Intraoperatively,

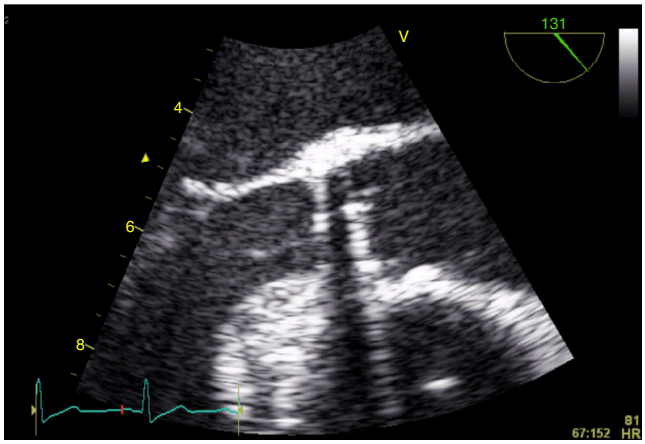

Figure 1 Transesophageal echocardiogram in mid-esophageal long-axis view of the aortic prosthesis. No signs of prosthetic valve endocarditis were visualized at this point.

an extensive abscess was noted which extended to the diaphragm and ipsilateral pleural cavity. The spleen was removed and the material collected for microbiological analysis. Given this setting, and to exclude potential embolic sources, echocardiographic assessment was repeated. The transesophageal echocardiogram showed multiple abscesses (Figure 2A, asterisk) surrounding the single-disc mechanical aortic prosthesis (Figure 2A, cross). There appeared to be no communication between the abscesses and the cardiac cavities, thus excluding the possibility of a pseudoaneurysm (Figure 2B, white arrow) and there were no signs of prosthetic dysfunction. The patient began appropriate antibiotic therapy and was referred for surgery.

While awaiting surgery a new-onset systolic-diastolic murmur was noted. The echocardiogram performed at that time revealed marked paravalvular involvement of the prosthetic valve with multiple larger abscesses (Figure 3A and 3B, asterisks) surrounding the anterior, posterior and right portions of the prosthesis (Figure 3A and 3B, cross) which communicated with the left ventricular outflow tract, forming a pseudoaneurysm that extended 3 cm above the aortic valve plane (Figure 3C, white arrows). Severe periprosthetic regurgitation was also noted (Figure 3D) and the patient underwent cardiac surgery. Meanwhile, microbiological study revealed the presence of *Streptococcus milleri* sensitive to the empirically started antimicrobial therapy. Interestingly, the patient had a history of ingestion of a

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