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Case Report Open Access

Prosthetic mitral valve dehiscence caused by infective endocarditis

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ABSTRACT

Despite therapeutic advances over the past few decades, prosthetic valve endocarditis remains a life-threatening condition and is associated with increased significant morbidity and mortality. Prosthetic valve dehiscence caused by endocarditis is one of the most serious complications of infective endocarditis. In this article, we present a case of acute subtotal dehiscence of prosthetic mitral valve caused by *staphylococcal* endocarditis. A 74-year-old female patient presented with fever and breathlessness. She underwent mechanical mitral valve replacement six years previously for mitral stenosis. Echocardiography confirmed subtotal dehiscence of prosthetic mitral valve. *Staphylococcus capitis* was detected in blood cultures. The patient was reoperated successfully.

Keywords: Dehiscence; infective endocarditis; prosthetic mitral valve.

Prosthetic valve endocarditis (PVE) is a life-threatening condition and has been reported to occur in 1 to 6% of patients.[1] Prosthetic valve dehiscence (PVD) caused by endocarditis is one of the most serious complications of infective endocarditis (IE). If early diagnosis and treatment are not performed, it may lead to acute decompensation, pulmonary edema, cardiogenic shock, and death, eventually. Herein, we present a case of acute subtotal dehiscence of prosthetic mitral valve after six years caused by staphylococcal endocarditis.

CASE REPORT

A 74-year-old female patient was admitted to our clinic with complaints of fever and shortness of breath. She underwent mitral valve replacement six years ago for mitral stenosis. The patient had atrial fibrillation. On physical examination, she had bilateral inspiratory rales, jugular venous distension, S3 gallop, and peripheral edema. Laboratory analysis revealed an increased white blood count (14,000 mm/L), erythrocyte sedimentation rate (71 mm/hr) and C-reactive protein (41 mg/L). The international normalized ratio (INR) was 3.42. The patient was then hospitalized and three-set blood cultures were drawn. the vegetation of the mitral prosthetic valve dehiscence, echocardiography was performed and identified patients with severe mitral regurgitation (Figure 1). Ampiric antibiotic therapy was initiated. *Staphylococcus capitis (S. capitis)* was detected in blood cultures and antibiotherapy was revised by the culture antibiogram. The patient underwent one week of antibiotherapy and infection parameters decreased. The patient was reoperated. During surgery, subtotal prosthetic mitral valve dehiscence was observed (Figure 2). Infected valve and annular vegetations were excised. Bioprosthetic mitral valve replacement was performed successfully.

DISCUSSION

Despite advances in medical treatment and surgical techniques, PVE carries a high mortality risk ranging from 20 to 80% of affected patients.[1] Early PVE occurs within the first year of surgery with a risk ratio of 1 to 3% and is frequently caused by *Staphylococcus epidermidis*. *Staphylococcal* endocarditis has a higher rate of morbidity and mortality than that caused by other microorganisms and surgery is usually required. Pathogens causing late PVE are similar to that of native valve endocarditis.[2] In our case, PVE developed six years after surgery and pathogenic microorganism was reported as *S. capitis*.

Staphylococcus capitis is a subtype of coagulase-negative staphylococci (CoNS) and it is

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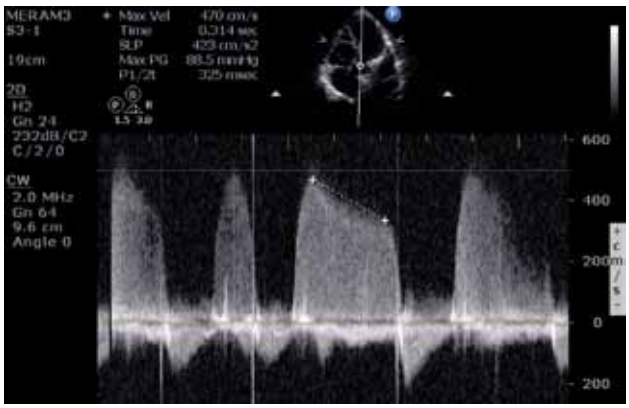

Figure 1. Preoperative echocardiography, showing prosthetic mitral valve dehiscence.

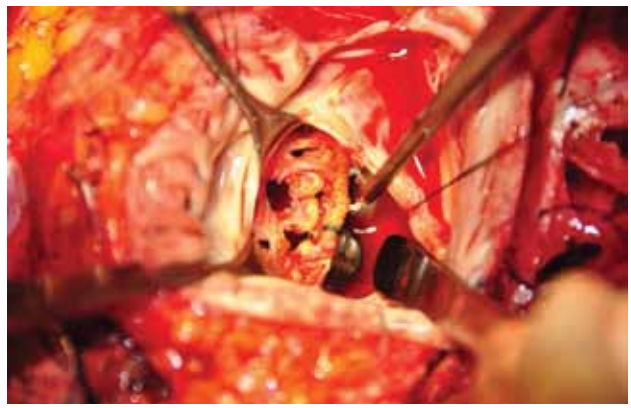

Figure 2. Intraoperative view showing subtotal prosthetic mitral valve dehiscence.

part of the normal flora of the skin of the scalp, face, ears and neck.[3] Rarely, it may present as a significant pathogen causing IE, PVE, and late-onset sepsis. In 2011, Takano et al.,[4] reported four cases of PVE caused by *S. capitis* which were identified at their hospital over the past two years. The pathogenesis of CoNS is mainly due to their ability to form biofilms on indwelling medical devices which confers tolerance to disinfectants during surgery.[5]

Furthermore, prosthetic valve dehiscence is a catastrophic complication of IE. Patients with PVD may have a stable hemodynamic profile or cardiogenic shock. Echocardiography is sufficient for diagnosis. As transthoracic echocardiography has low sensitivity, transesophageal echocardiography recommended for these patients. Recently, three-dimensional echocardiography is the favorite diagnostic method.[6] Treatment of PVD is usually surgical. Inadequate surgical debridement of infected material may result in recurrent PVE. Timing of surgery is of utmost importance for these patients. The success of surgery would increase by stabilizing the hemodynamic and laboratory parameters. In these patients, another important point is the selection of the type of prosthesis. However, Newton and Hunter reported that the choice of the prosthesis, either a bioprosthesis or mechanical valve, had no effect on the rates of recurrence in patients with PVE undergoing surgery.[7]

In conclusion, PVE is a rare cause of PVD in late stage. Early diagnosis and treatment is life-saving for this condition.

Declaration of conflicting interests

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