

CASE REPORT

Bacterial endocarditis on transcatheter Amplatzer device

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ABSTRACT

Infective endocarditis is a rare but serious complication following transcatheter closure of atrial septal defect. A 76-year-old woman with a large secundum atrial septal defect, that had been repaired percutaneously, 5 years previously, with an Amplatzer atrial septal defect occluder, referred to our center with fever and *Staphylococcus aureus* bacteremia. Transesophageal echocardiography revealed a 1.6×1.2 cm mobile mass, like a endocarditis vegetation on the left atrial side of the Amplatzer device. The endocarditis was started to treat. The Amplatzer device was removed with peripheral fragile endocarditis tissue and the defect is closed with a pericardial patch. In this paper, we present a description of late infective endocarditis in an adult with an Amplatzer device.

Key words: atrial septal defect, Amplatzer septal occluder, endocarditis.

INTRODUCTION

Percutaneous device closure is an effective, safe, and commonly employed alternative to surgical closure in patients with permeable oval foramen or ostium secundum that have appropriate anatomic characteristics.¹ Previously, the single treatment method for secundum type atrial septal defect was surgery. As an alternative to surgery, several attempts have been made to close secundum atrial septal defects by a transcatheter technique.² Endocarditis on Amplatzer device is an uncommon occurrence. We describe a case of late infective endocarditis in an adult with an Amplatzer septal occluder who was successfully treated by surgical procedure of removal of device and reconstruction of atrial septum.

CASE REPORT

A 76-year-old woman was admitted in a peripheral hospital with persistent fever and infectious sign (white blood cells 16,1x10⁹/l, C-Reactive Protein 28,5 mg/l, fibrinogen 758 mg/dl, erythrocyte sedimentation rate 101 mm/hr).

Secundum atrial defect was repaired with an Amplatzer septal occluder, five years previously. In her blood cultures grew *Staphylococcus aureus*. Transesophageal echocardiography revealed sign of endocarditis on interatrial septum, where was previously placed the Amplatzer device.

In the peripheral hospital, the endocarditis was started to treat, with a single antibiotic, such as oxacillin sodium 2 gr every 4 hours. The patient was transferred to our Department after 23 days, in stable hemodynamic conditions. Oxacillin was administered as an-

tibiotic therapy. She had history of previous cardiovascular disease: previous inferior cardiac infarction treated with primary percutaneous coronary intervention and stenting of right coronary artery. In her history chronic obstructive pulmonary disease, episodes of paroxysmal atrial fibrillation, previous left nephrectomy. Our transesophageal echocardiography revealed a 1.6×1.2 cm mobile mass, like a endocarditis vegetation on the left atrial side of the Amplatzer device (Fig. 1).

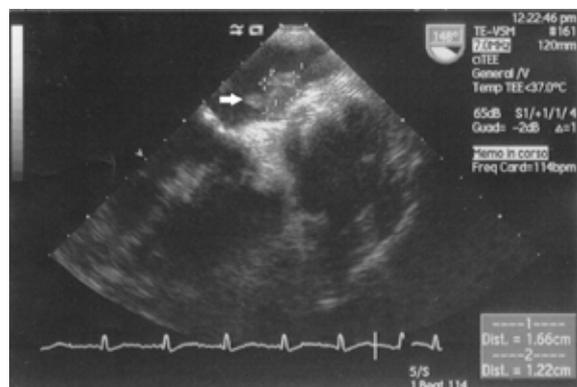


Figure 1. Transesophageal echocardiography showing vegetations in relation to the Amplatzer device

It was started a combinations of two antibiotics to potentiate the antimicrobial effect, such as oxacillin sodium 2 gr every 4 hours and gentamicin 60 mg every 8 hours, for two week. Her blood cultures became negative. Coronary artery bypass grafting was indicated because of a critical stenosis of the intermediate ramus and an in-stent stenosis of the right coronary artery. Surgical removal of the device was indicated for the patient. Median sternotomy was used. Standard heparinization was followed by standard cannulation. Saphenous vein graft was anastomosed to the distal part of the intermediate ramus and the right coronary artery using extracorporeal circulation. The Amplatzer

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device was removed with peripheral fragile tissue and the defect is then closed with a patch in bovine pericardium. Histologic analysis of the vegetation identified staphylococcus aureus. The antibiotic therapy strategy, according to antibiogram results, was the following: oxacillin sodium 2 gr every 4 hours, gentamicin 80 mg every 8 hours and rifampicin 600 mg every 12 hours (for two days), after daptomycin 600 mg every 24 hours and rifampicin 600 mg every 12 hours (for 9 days) and finally daptomycin 600 mg every 24 hours and imipenem 500 mg every 6 hours (for 11 days). The patient was transferred from the intensive care unit to the ward on day 7, and discharged from the hospital on day 22. She was discharged on imipenem therapy (500 mg every 6 hours), for other two week. After surgical and medical therapy, the patient remains clinically well and free from recurrent endocarditis.

DISCUSSION

Endocarditis on transcatheter Amplatzer is a rare illness that deserves attention. Surgical treatment of active infective endocarditis still has high mortality and morbidity. The most difficult decision in the treatment of infective endocarditis is the time of operation. Early surgical intervention engenders a concern about the holding power of sutures placed in inflamed and friable tissue and an increased rate of residual infection in the area. Open heart surgery is the standard procedure for closure of ostium secundum atrial septal defects, during persistent inflammatory process subsequent to acute endocarditis. Percutaneous transcatheter procedures emerged as therapeutic alternatives for closure of both atrial septal defects and patent foramen ovale. Unfortunately, however, such percutaneous procedures may require surgical intervention for early or late complications. Percutaneous atrial septal defect device closure is being used increasingly in recent years with encouraging results. It was an excellent alternative to surgical intervention. Complications, which were uncommon, included: device dislodgement, transient conduction defects, device embolisation, and, rarely, endocarditis.³ Staphylococcus aureus was considered the most common cause of endocarditis. Device-associated endocarditis

is a rare but important complication of percutaneous closure of atrial septal defect.⁴

CONCLUSION

Endocarditis on Amplatzer device has gained more attention in the recent literature. The increasing use of intracardiac devices may require a reevaluation of the possible need for administration of prophylactic antibiotics before, during, or after the procedure and the type of antibiotics to be given.⁵ Conservative treatment is usually sufficient but surgical intervention of some form may be necessary.⁶ The treatment in this case was surgical correction with removal of Amplatzer device as source of endocarditis together with reconstruction of septal defect. This case report highlights the importance of backup surgical cover in late endocarditis after percutaneous closure of atrial defect.

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