

Adult Cardiology - Case Report

I.E. : Illegal Entry (A Case of Pacemaker Endocarditis)

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Background --- Pacemaker endocarditis is a rare complication seen in patients with implanted pacemaker.

Case --- We present a 70 year old female presenting with unremitting fever and chills for three months. She previously had pacemaker implantation for severe bradycardia. Transesophageal echocardiography showed large bilobed fluttering echogenic density attached to the pacemaker wire at the right atrial side prolapsing to the right ventricular inflow during diastole suggestive of vegetation. She underwent removal of right atrial and right ventricular lead; explantation of previously placed pulse generator; permanent pacemaker insertion (epicardial bed) and antibiotic therapy.

Conclusion --- Pacemaker endocarditis should be suspected in patients who previously had pacemaker implantation and presenting with signs of endocarditis. Transesophageal echocardiography is the preferred imaging. Antibiotic therapy and surgical management are mainstays of treatment. *Phil Heart Center J 2012; 16:55-57.*

Key Words: Pacemaker ■ Endocarditis

Endocarditis related to pacemaker lead infection is a rare, but serious condition in permanent pacing. Majority of these infections involve Staphylococci.^{1,2} Appropriate antibiotic therapy pursued for 6 weeks and complete removal of all hardware, including the leads, is mandatory to ensure eradication of infection and to avoid lead endocarditis.

CASE REPORT

A 70-year-old hypertensive, non-diabetic was admitted at our hospital due to unremitting fever and chills for 3 months. She had undergone DDD pacemaker implantation in 2004 because of severe bradycardia. A year after, a seroma was noted on the pacemaker site. She then underwent evacuation of seroma and re-implantation of pulse generator. Three months after, patient noted swelling at the pacemaker site. She was then re-admitted for debridement of pulse generator site. Two months before admission, she underwent open cholecystectomy due to cholelithiasis. She denies intravenous drug use.

On admission, the vital signs were: blood

pressure 110/80, cardiac rate 60/min and body temperature of 36.5C. She has a holosystolic murmur at the lower left parasternal area and apex. Complete blood count showed anemia and leukocytosis (11,100/uL). Chest radiography revealed left ventricular cardiomegaly and no active lesions in the lung parenchyma. Blood cultures were negative. Transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE) identified the pacemaker lead in the right atrium and right ventricle. There was a note of a large bilobed fluttering echogenic density attached to the pacemaker wire at the right atrial side prolapsing to the right ventricular inflow during diastole suggestive of vegetation.

Patient received antibiotic therapy. A repeat TEE after 2 weeks showed regression in size of the echogenic density. Despite this, patient's condition was not stabilized. Therefore, she underwent removal of right atrial and right ventricular lead; explantation of previously placed pulse generator; permanent pacemaker insertion (epicardial bed). Antibiotic therapy was completed for 6 weeks and patient was doing well post-operatively without any sign of infection.

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Figure 1: Transesophageal echocardiogram of a 70 y.o. female presenting with unremitting fevers and chills. There is a large vegetation attached at the right atrial pacemaker lead. (PHC, 2009)

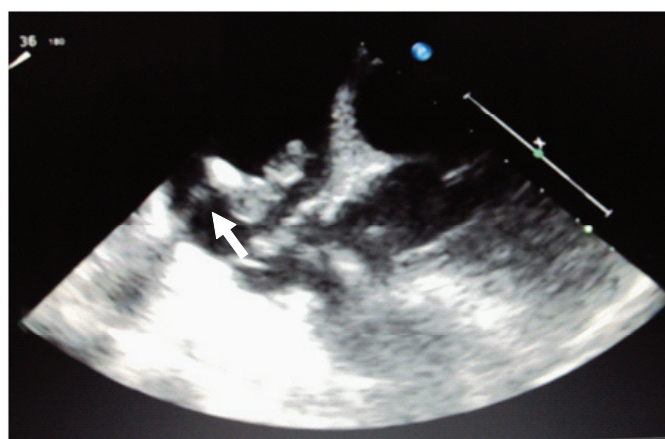


Figure 2: Transesophageal echocardiogram (short axis view) of a 70 y.o. female presenting with unremitting fevers and chills. The arrow shows the pacemaker lead with attached hyperechoic materials.

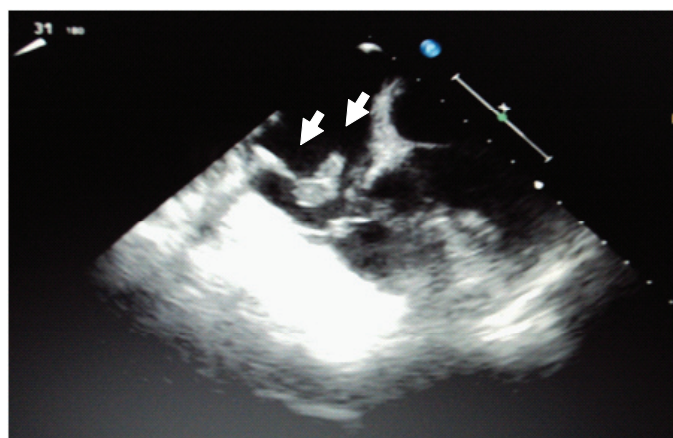


Figure 3: Transesophageal echocardiogram (short axis view) of a 70 y.o. female presenting with unremitting fevers and chills. The arrows point to hyperechoic mass prolapsing into the right ventricular inflow during diastole.

DISCUSSION

Infection of the pacemaker pouch and lead may occur in 1% to 7% of patients with a permanent pacemaker.³ *Staphylococcus epidermidis* is the microorganism most responsible for a late pacemaker infection.⁴ The case presented did not show any growth of microorganism, probably because she has received already prior antibiotic therapy. Previous manipulations of her pacemaker predisposed her to develop pacemaker lead infection.

It is difficult to diagnose pacemaker related infection using conventional imaging methods such as transthoracic echocardiogram. TEE can facilitate the diagnosis of pacemaker lead endocarditis; however it is sometimes not diagnostic. The advantage of TEE over TTE is that it provides improved resolution and allows visualization of smaller vegetations. Moreover, in patients with suboptimal views from TTE, the TEE offers considerable advantage.⁵ In our case, the vegetation attached to the lead wire was clearly visualized by TEE.

The accepted modality for treatment for these cases is surgical in nature, often with the removal of the pacemaker lead; however, there were reports in literature of successful treatment with the use of antibiotics alone.⁶ It is recommended that patients should be treated with prolonged antibiotic regimens before and after electrode removal.³

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