

## **CONCOMITANT OPEN INTRACARDIAC REMOVAL OF GIANT VEGETATION LOCATED ON ENDOCAVITARY PACEMAKER LEAD AND BEATING HEART CORONARY BYPASS SURGERY**

### **ENDOKAVİTER PACEMAKER LEAD'İ ÜZERİNDE YERLEŞİMLİ DEV VEJETASYONUN AÇIK İNTRAKARDİYAK TEKNİKLE ÇIKARILMASININ ATAN KALPTE KORONER BYPASS CERRAHİSİ İLE EŞ ZAMANLI UYGULANIMI**

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#### **ABSTRACT**

The prevalence of infection of permanent pacing material ranges from 0.13 to 19.9% of patients according to published series. In this study, we report a case retrospectively that is lead endocarditis complicated with giant vegetation in a patient with pacemaker and successful surgical removal of this infected device with concomitant beating heart coronary bypass procedure.

**Key Words:** Beating heart coronary bypass, lead endocarditis, pacemaker

#### **ÖZET**

Yayınlanmış serilerde kalıcı pacemaker aygıtlarının enfeksiyon geliştirme öngörüsü % 0.13-19.9 aralığında bildirilmektedir. Bu çalışmada dev vejetasyonla komplike olmuş lead endokarditli olguda enfekte aygıtın başarılı cerrahi çıkarımı yanı sıra eş zamanlı gerçekleştirilen atan kalpte koroner bypass girişimini aktarmayı amaçladık.

**Anahtar Sözcükler:** Atan kalpte koroner bypass, lead endokarditi, pacemaker

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## INTRODUCTION

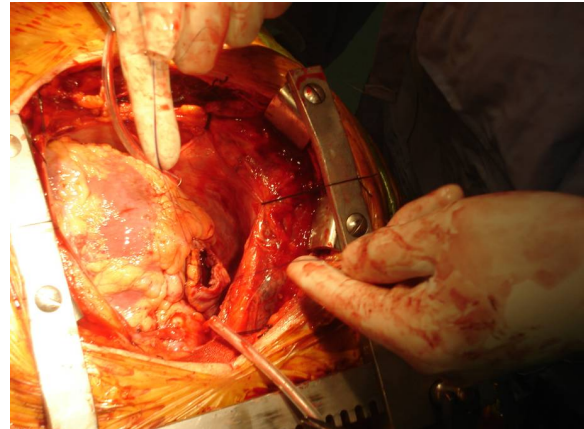
The incidence of infective endocarditis due to pacemaker lead infection ranges between 0.13% and 19.9% (1). The incidence of serious and potentially fatal complications such as endocarditis and septicemia is around 0.5% (2).

## CASE

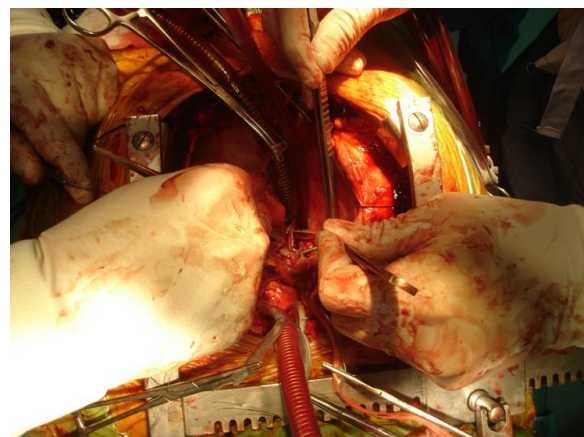
Our case was a 62-year-old male. His past medical history was significant for DDD pacemaker (PM) implantation 6 years ago and elective replacement of its battery 6 months ago. He was suffering from purulent discharge and erosion around the pocket of battery for 10 days. He was admitted by Cardiology Department and undergone removal of the battery and lead of the PM. Ventricular lead was left in place since it could not be pulled out in spite of traction. Thus, in order to reduce the number of leads and the probability of infection, VVD PM implantation through left venous structures was planned. But, due to tortuosity of the left subclavian vein transjugular approach was tried but this again failed due to same morphological feature. He was then referred to our clinic for surgical repair. During his hospitalization by Cardiology Department, he developed fever and chills. Transthoracic echocardiography



**Figure 1.** Transthoracic echocardiographic view of the vegetative mass on the lead at the time of admission.



**Figure 2.** Perioperative view of the excessive adhesions within right atrium.



**Figure 3.** Perioperative view of the infected PM lead end showing two different vegetations.

showed a mobile hyperechoic mass on the right atrial and ventricular leads, consistent with vegetation. Transesophageal echocardiography confirmed that there was a mobile mass of 16x14 mm within the right atrium, entering into and exiting from the ventricle, consistent with vegetation (Figure1). A triple antibiotic regimen consisting of ceftriaxone+vancomycin+rifampicin was initiated after consultation with Department of Infectious Diseases since the most probable etiological agent in PM endocarditis was coagulase (-) staphylococcus species. Emergency surgical

approach was planned. Coronary angiography revealed a critical stenosis in midportion of LAD. During the operation, a saphenous venous graft was initially inserted between aorta and LAD on beating heart. Then, extirpation of the lead was tried with inflow occlusion.



**Figure 4.** Extracted PM lead end and giant vegetation.



**Figure 5.** New permanent epicardial PM implantation during last period of operation.

But, it failed due to excessive adhesion to the right atrial wall and subtotal occlusion of the superior vena cava (Figure 2). Upon this, aorta and inferior vena cava were cannulated establishing partial cardiopulmonary bypass. Right atriotomy was safely extended and adhesive tissues were dissected. The PM lead was explored and extracted with two large vegetative masses on (Figures 3&4). In the last stage, a pocket for the generator was prepared beneath the left

rectus sheath and a new permanent epicardial pacemaker was implanted (Figure 5). Microbiologic investigation revealed no growth in culture of vegetations as it was for the postoperative blood cultures. By reconsulting the case with Department of Infectious Diseases, antibiotherapy was continued for 6 more weeks postoperatively and he was discharged afterwards with complete recovery. Outpatient follow-up was carried out by Cardiology department without any problem.

## DISCUSSION

Despite appropriate antibiotics and proven sensitivities of the culprit organism, removal of the entire pacing system is necessary for the best prognostic outcome. Mortality with pacemaker lead endocarditis without lead extraction remains high at 33% (3,4). Removal of the entire infected device prevents recurrent infections and mortality, and subsequently confirmed in a prolonged follow-up. We suggest that transesophageal echocardiography is the investigation of choice for imaging a vegetation on an endocavitary pacing lead and surgical removal of the infected device has been perceived as the only way to guarantee a successful outcome and to reduce the high risk of mortality (5). Open intracardiac removal of retained pacing electrodes with or without use of CPB is a safe procedure without major complications (1).

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