



Atrial Trombektomi ile Tedavi Edilen Pacemaker Lead Trombozu

Pacemaker Lead Thrombosis Treated With Atrial Thrombectomy Pacemaker Lead Thrombosis

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ÖZET

Sağ atrium trombozu ve pulmoner emboli pacemaker konulması sonrasında görülen nadir komplikasyonlardır. Sağ atrial trombüse bağlı akut pulmoner emboli hemodinamik bozukluk, konjestif kalp yetmezliği ve yüksek mortalite oranı ile ilişkilidir. Erken tanı ve girişim önemlidir. Biz burada endokardial DDD pacemaker lead trombüsü ve ileri triküspit kapak yetmezliği olan bir hastanın cerrahi tedavisini sunduk.

Anahtar Kelimeler: Pacemaker; trombüs; tedavi; cerrahi.

ABSTRACT

Right atrial thrombosis and pulmonary embolism are infrequent complications of pacemaker insertion. Acute pulmonary embolism due to right atrial thrombus is related with haemodynamic compromise, congestive heart failure and high mortality rate. Prompt diagnose and intervention is essential. We report surgical treatment of a patient with a large thrombus on an endocardial DDD pacing lead and severe tricuspid insufficiency.

Key Words: Pacemaker; thrombus; treatment; surgery.

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Başvuru Tarihi/Received: 29-05-2015
Kabul Tarihi/Accepted: 03-08-2015



Introduction

Pacemakers are used safely for treatment of dysrhythmias. Internal pacemaker lead thrombosis were encountered since endocardiac pacemakers were implanted. However, right atrial thrombosis and pulmonary embolism are infrequently seen as complications. Thrombosis are seen 20-40% of the patients and fortunately 1-3% of them are symptomatic with the aid of collateral circulation (1). Severe thrombotic and embolic complications can occur only 0.6-3.5% of the patients (2). Clinic manifestations are dyspnea, chest pain, embolic stroke, unstable cardiac dysrhythmias, congestive heart failure, facial and arm swelling or pain, discoloration, vena cava superior syndrome (visible collateral circulation) and also asymptomatic findings on routine echocardiogram (3). Floating thrombi attached to pacing lead is much more uncommon and on account of high risk of pulmonary embolism, it is a life-threatening condition. Acute pulmonary embolism due to right atrial thrombus is related with haemodynamic compromise, congestive heart failure and high mortality rate (2). The diagnosis of atrial thrombus with the transthoracic echocardiography or transesophageal echocardiography is the first option. Cardio-MR (magnetic resonance) and cardio-CT-scan can be used as well. We present surgical treatment of an interesting case that presented with right atrial pacemaker lead thrombus.

Presentation of Case

A 65-year-old female patient presented with progressive shortness of breath, swelling in her legs, was admitted to the emergency department. She had a prior history of hypothyroiditis and hypertension. The patient had a DDD pacemaker implantation history due to atrio-ventricular complet block, which had been placed 12 years ago. On physical examination, her blood pressure was 130/90 mmHg, had bilateral pretibial oedema. The cardiopulmonary auscultation revealed a systolic murmur with tricuspid regurgitation. The rest of the physical examination was not significant. The chest X-ray showed two leads of pacemaker in the right ventricle. The 12-

lead ECG showed atrial fibrillation with normal voltages. Echocardiography was performed and revealed EF 53-77% with transmitral PW Doppler, a thrombus attached to the pacing lead in the right atrium, grade 3 tricuspid regurgitation and normal left ventricular function. A CT-scan (computerized tomography) was performed which confirmed the presence of large thrombus burden around the catheter and 30X50 mm mass in the right atrium (Figure 1). Selective coronary angiography was performed and revealed normal coronary arteries without any significant stenosis. The patient was underwent elective surgery after routine preparations. Surgery was performed via a median sternotomy utilizing cardiopulmonary bypass. We excised the tricuspid valve and replaced with with 33 no bovine bioprostheses valve (St Jude, Bioprostheses, Minn. USA) and excised the internal leads of the previous pacemaker with thrombus (Figure 2) and placed with permanent external pacemaker leads. After the operation, the patient was transferred to the intensive care unit. Over the following days, the patient developed a respiratory infection with progressive clinical deterioration that led to sepsis, and despite intensive antibiotic therapy, she progressively deteriorated and finally died.

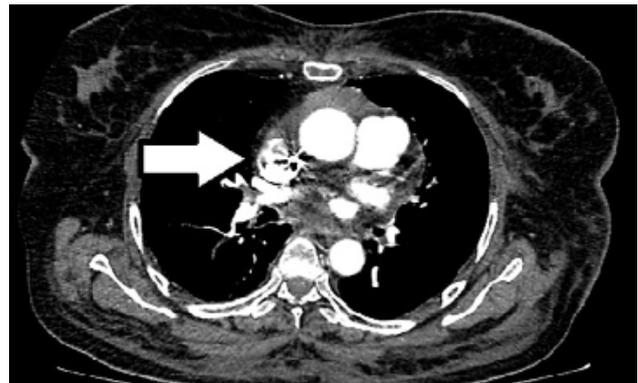


Figure 1: BT scan of large thrombus around the catheter and mass in the right atrium.

Discussion

Atrial thrombus is associated with structural cardiac disease such as hypertrophic cardiomyopathy, atrial fibrillation and metastatic carcinoma, valve stenosis . These may leads to stroke or

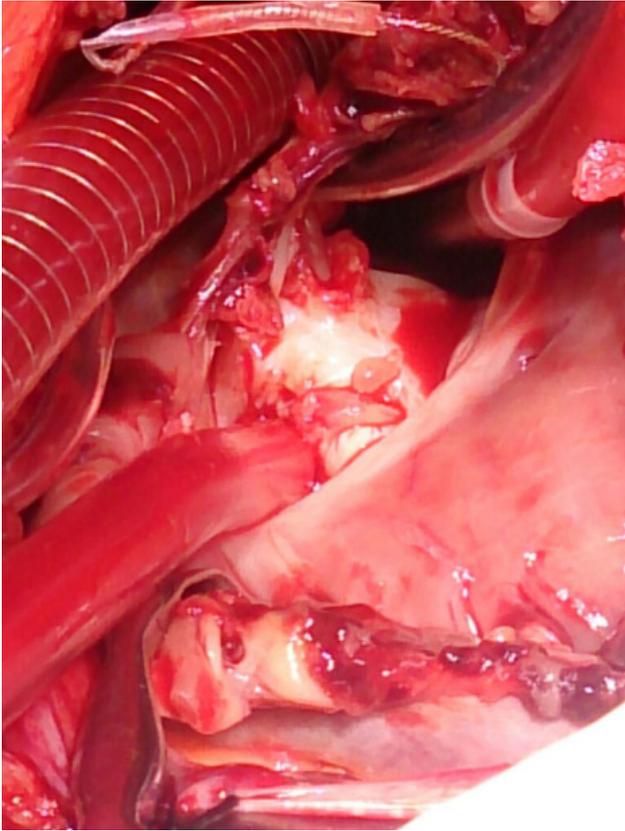


Figure 2: Inter atrial view of pacemaker lead with thrombus.

pulmonary embolism. Incidence of atrial fibrillation with stroke is between 5% and 12% per year (4). Anticoagulation with warfarin reduces stroke incidence. Bleeding risk of anticoagulation with warfarin is between 0.5% and 2.8% (5). However, asymptomatic pulmonary embolism can be seen with higher incidence (48%), these patients with ischemic or valvular heart disease, advanced age, and congestive heart failure are much more prone. Administration of Unfractionated heparin (UH) or Low molecular weight heparin (LMWH) reduce the risk of pulmonary embolism. Applying permanent epicardial rather than endocardial pacemaker could also reduce the risk of infection and thrombus in patients with endocarditis (6). Despite using the new imaging techniques such as cardio-MR (magnetic reso-

nance) and cardio-CT-scan, there is a controversy about MR due to contraindication in patients with magnetic devices especially the pacemakers (7). Percutaneous venography is still the gold standard test to diagnose venous thrombosis, even though it is not routinely used due to some risks. Prompt diagnosis and intervention is essential. Treatment options comprise medical therapy with antiplatelet, anticoagulation or/and thrombolysis, surgical or percutaneous thrombectomy and lead extraction or combined medical and surgical therapy. The size and site of the thrombosis and symptoms should determine the treatment option.

Conclusion

We decided it would be appropriate to operate at the same session due to the patient's general condition, the nominal size of the thrombus burden and severe tricuspid valve insufficiency. Former permanent internal pacemaker with the adjacent thrombus and tricuspid valve was removed and replaced with bioprosthetic tricuspid valve. We placed a permanent external pacemaker lead as the final stage of the operation. Despite thrombolytic therapy to dissolve thrombi is successfully applied, in case of splitting a large thrombus burden, massive pulmonary embolism can occur. Therefore, we believe that surgical treatment is still superior.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the authorship and/or authorship of this article.

Funding

The authors received no financial support for the research and/or authorship of this article.

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