

Cardiac resynchronization treatment in a patient with hypertrophic cardiomyopathy after heart transplantation

Hipertrofik kardiyomiyopatili bir hastada kardiyak transplantasyon sonrası resenkronizasyon tedavisi

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Summary– Hypertrophic cardiomyopathy (HCM) is characterized by heterogeneous clinical expression. Cardiac transplantation continues to be the gold standard for the treatment of end-stage cardiac diseases refractory to medical therapy. We presented a 27-year-old female patient with HCM who underwent successful cardiac resynchronization therapy after cardiac transplantation. Our patient had an indication for standard pacing. However, previous reports have shown that right ventricular apical pacing might lead to adverse clinical outcomes in patients with heart failure. We have discussed cardiac resynchronization therapy after heart transplantation in patients with standard pacing indications.

Hypertrophic cardiomyopathy (HCM) is a complex cardiac disease and most patients with HCM remain asymptomatic or minimally symptomatic throughout life. Unfortunately, sudden cardiac death (SCD) may be the first manifestation of the disease.^[1] End stage patients with systolic dysfunction may become candidates for heart transplantation.

In this case, we presented a 27-year-old female patient with HCM who underwent successful cardiac resynchronization therapy (CRT) after heart transplantation.

CASE REPORT

A 27-year-old female patient underwent cardiac transplantation because of end stage heart failure due to HCM. One year before cardiac transplantation, slow pathway ablation was performed due to atrioventricu-

Özet– Hipertrofik kardiyomiyopati (HKP) farklı klinik tablolarla ortaya çıkabilir. Tıpsal tedaviye dirençli son dönem kalp hastalıklarının tedavisinde kardiyak transplantasyon altın standart tedavi yöntemi olmaya devam etmektedir. Bu yazıda, kardiyak transplantasyon sonrası başarılı kardiyak resenkronizasyon tedavisi uygulanmış HKP'li 27 yaşında bir kadın hasta sunuldu. Hastada standart kalp pili endikasyonu vardı. Ancak önceki çalışmalarda kalp yetersizliğinde kalp pili ile sağ ventrikül apeksinden uyarı yapmanın olumsuz klinik sonuçlara yol açtığı bildirilmiştir. Bu nedenle kalp transplantasyonu sonrası standart kalp pili endikasyonu bulunan hastalarda kardiyak resenkronizasyon tedavisi de olgu sunumuyla birlikte tartışıldı.

lar nodal re-entry tachycardia. In addition, an implantable cardioverter-defibrillator (ICD) was implanted simultaneously for prevention of SCD due to life-threatening ventricular tachyarrhythmias. There were two incidences of SCD in her family history. She remained asymptomatic for three years after cardiac transplantation. Signs of chronic allograft vasculopathy were found by intravascular ultrasound (IVUS) in the fourth year and she was successfully treated with percutaneous transluminal coronary angioplasty. She had a cardiac arrest during her follow-up and successful resuscitation was performed. Symptoms of congestive heart failure developed in the fifth year, and the left ven-

Abbreviations:

CRT	Cardiac resynchronization therapy
HCM	Hypertrophic cardiomyopathy/SCD
ICD	Implantable cardioverter-defibrillator
LVEF	Left ventricular ejection fraction
NYHA	New York Heart Association
SCD	Sudden cardiac death
VT	Ventricular tachycardia

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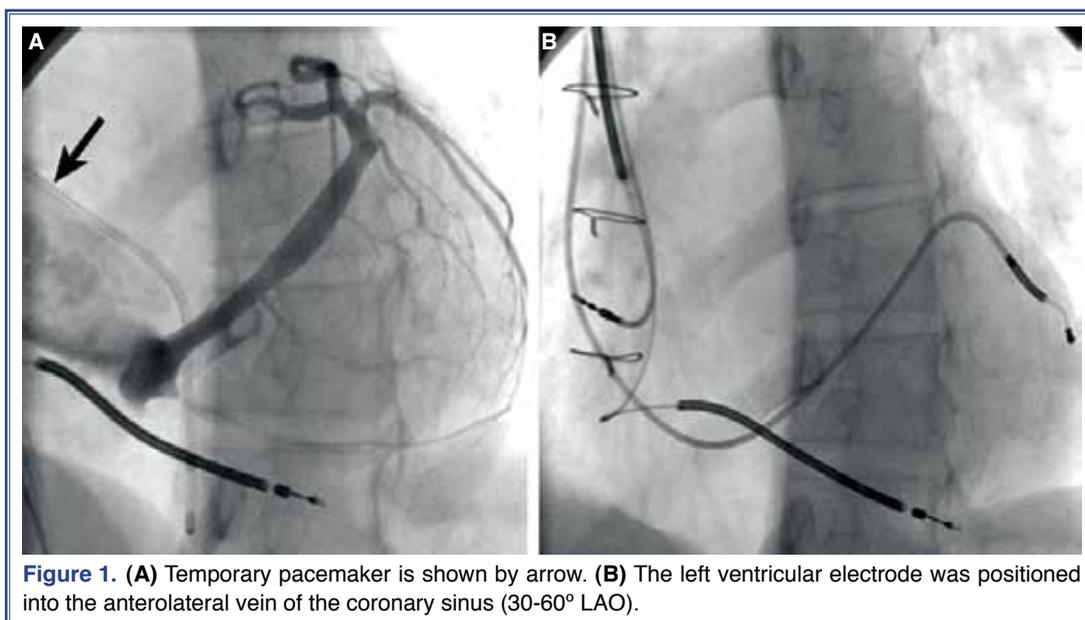
tricular ejection fraction (LVEF) decreased to 35% despite optimal medical therapy for heart failure. Her functional status was New York Heart Association (NYHA) III. Bradycardia (Mobitz type 2 block) and right bundle branch block developed and the clinical condition worsened due to conduction disorder during follow-up. The patient was continuously monitored in the intensive care unit. She received a temporary pacemaker due to bradycardia and hypotension. During follow-up, hemodynamic deterioration occurred due to sustained ventricular tachycardia (VT). VT was treated with successful cardioversion. Pacemaker and ICD implantation was considered for symptomatic bradycardia and VT. Tissue Doppler imaging (TDI) did not show a significant intra-ventricular or inter-ventricular dyssynchrony. However, it has been shown that patients with preexisting left ventricular dysfunction and an indication for standard pacing have improved LVEF and exercise capacity after bi-ventricular pacing, as compared to right ventricular apical pacing.^[2] CRT and ICD implantation was performed. The left ventricular electrode was positioned in the anterolateral vein of the coronary sinus. The high pacing threshold caused the inability to reach the lateral side branch. Passive fixation electrodes were implanted into the right atrium and the right ventricular septum. The patient was discharged without event. CRT improved NYHA class, quality of life and there was no re-hospitalization for heart failure after one year.

DISCUSSION

CRT is recommended in patients with heart failure (NYHA class II to IV), severe systolic dysfunction (LVEF ≤ 35 percent) and intra-ventricular conduction delay (QRS ≥ 120 ms).^[3] Results of subsequent reports have revealed that right ventricular apical pacing might lead to adverse clinical outcomes in patients with standard pacing indications.^[2,4] Also, it has been reported that among patients with advanced heart failure and continuous right ventricular pacing, upgrading to a biventricular system resulted in significant reverse left ventricular remodeling.^[5]

Conventional right ventricular apical pacing may also result in adverse left ventricular remodeling and in a reduction in the LVEF in cardiac transplant patients with symptomatic bradycardia. CRT could prevent these effects in some patients. To our knowledge, our case is the first report that indicates CRT might be beneficial in bradycardic cardiac transplant patients without ventricular dyssynchrony. Apor et al.^[6] have suggested that CRT can be successfully used in post-transplant allograft failure, associated with left ventricular dysfunction and intraventricular dyssynchrony.

There is inadequate clinical experience with CRT in heart transplant patients. However, CRT may be preferable to right ventricular apical pacing in heart transplant patients who fulfill the eligibility criteria for pacemaker implantation.



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Key words: Atrial fibrillation/therapy; cardiac pacing, artificial; heart failure/therapy; ventricular dysfunction, left; tachycardia, ventricular/etiology.

Anahtar sözcükler: Atriyum fibrilasyonu/terapi; kalp pili, yapay; kalp yetersizliği/terapi; ventrikül disfonksiyonu, sol; taşikardi, ventrikül /etiolojisi.