

Malposition of Transvenous Pacemaker Lead in Left Ventricle-An Incidental Finding: Case Report

Sol Ventrikülde Kalıcı Kalp Pili Elektrodunun Malpozisyonu: Rastlantısal Bir Olgu

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ABSTRACT Malposition of permanent pacemaker lead is a rare complication that can lead cerebrovascular events or patients may be completely asymptomatic. A 73 year old man who had a history of permanent transvenous pacemaker implantation because of high degree atrioventricular block nearly ten years ago referred to our hospital for routine cardiac examination. His electrocardiogram showed complete right bundle branch block configuration instead of typical left bundle branch block pattern in the paced mode suggesting a pacemaker lead in left ventricle. Echocardiography confirmed that pacing lead had passed through the foramen ovale into the left ventricle. The patient was asymptomatic and hasn't received any anticoagulant therapy. There is limited experience regarding management of this complication, transcatheter or surgical lead extraction weren't considered in this patient because of his age and to avoid the risk of embolization anticoagulant therapy was initiated.

Key Words: Pacemaker, patient foramen ovale

ÖZET Kalıcı kalp pili malpozisyonu nadir görülen bir komplikasyon olup hastalar asemptomatik olabileceği gibi serebrovasküler olay gibi değişik durumlarda neden olabilir. On sene önce kalıcı kalp pili takılma öyküsü olan 73 yaşındaki erkek hastanın çekilen elektrokardiyogramında pace atımlarında tipik sol dal bloğu paterni yerine sağ dal bloğu paterni olması bize sol ventrikülde pacemaker telinin olabileceğini düşündürdü. Bunu desteklemek için yapılan ekokardiyografisinde pacemaker telinin foramen ovaleden sol ventriküle geçtiği izlendi. Hasta asemptomatikti ve antikoagulan tedavi almıyordu. Kalıcı kalp pili telinin sol ventrikülde bulunuşu nadir görülen bir komplikasyon olup bu durumda yapılacaklar hakkında çok az tecrübe olması nedeniyle hastanın yaşı da göz önüne alınarak kateter ya da cerrahi olarak telin çıkarılması düşünülmeydi. Ancak emboli riskinden kaçınmak için hastaya antikoagulan tedavi başlanarak takibe alındı.

Anahtar Kelimeler: Kalp pili; patent foramen ovale

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A malpositioned pacemaker lead in the left ventricle is a rare complication and requires a high level of suspicion for proper diagnoses. The ECG at paced mode showing an right bundle brunch block pattern provides the most useful and clear information to suspect this complication. Diagnosis can be confirmed with two dimensional echocardiography. While there is limited experienced regarding management of this complication, it needs to be removed surgically because it could lead to damage of mitral valve or a thromboembolic event. We report a case where



FIGURE 1: The electrocardiogram showing right bundle branch block pattern rather than typical left bundle branch block.



FIGURE 2: The echocardiography showing pacemaker lead (PL) passing through patent foramen ovale to the left atrium (LA) and left ventricle (LV); RV: Right ventricle.

pacemaker catheter placed inadvertently in the left ventricle via a patent foramen ovale.

CASE REPORT

A 73-year-old man who had a history of permanent transvenous pacemaker implantation because of high degree atrioventricular block nearly ten years ago referred to our hospital for routine cardiac ex-

amination. His electrocardiogram showed complete right bundle branch block configuration instead of typical left bundle branch block pattern in the paced mode suggesting a pacemaker lead in left ventricle (Figure 1). Subsequently we performed an echocardiography which is confirmed that pacing lead had passed through the foramen ovale into the left ventricle (Figure 2). The patient was asymptomatic and received no anticoagulant therapy. There is limited experience regarding management of this complication, transcatheter or surgical lead extraction was not considered in this patient because of his age and to avoid the risk of embolization anticoagulant therapy was initiated.

DISCUSSION

The malposition of a pacemaker lead is a rare complication in either temporary or permanent pacemaker implantation. Especially, a pacemaker lead inadvertently placed in the left ventricle is rare, with only a few cases reported.¹⁻³ The most common route for malpositioning to the left ventricle is through the interatrial septum, as in our case. A malpositioned pacemaker lead can lead several complications as systemic thromboembolic events, rupture, increased pacemaker threshold and fibrosis at the pace lead implantation region.^{4,5} The actual incidence of thromboembolic events associated with the left heart side has not been reported, but published cases in the literature suggest an incidence of 37%. Our patient was fortunate not to have experienced any clinical thromboembolic events in the ten years after the pacemaker implantation.

REFERENCES

1. Sharifi M, Sorkin R, Sharifi V, Lakier JB. Inadvertent malposition of a transvenous-inserted pacing lead in the left ventricular chamber. *Am J Cardiol* 1995; 76(1):92-5.
2. Sökmen Y, Arat N, Demir AD, Sabah İ. [Malposition of a permanent pacemaker lead via the atrial septal defect to the left ventricle; A case report and review of the literature]. *Türkiye Klinikleri J Cardiovasc Sci* 2007;19(1):90-4.
3. Ergun K, Tufekcioglu O, Karabal O, Ozdogan OU, Devci B, Golbasi Z. An unusual cause of stroke in a patient with permanent transvenous pacemaker. *Jpn Heart J* 2004;45(5):873-5.
4. Van Erckelens F, Sigmund M, Lambertz H, Kreis A, Reupcke C, Hanrath P. Asymptomatic left ventricular malposition of a transvenous pacemaker lead through a sinus venosus defect: follow-up over 17 years. *Pacing Clin Electrophysiol* 1991;14(6):989-93.
5. Van Gelder BM, Bracke FA, Oto A, Yildirim A, Haas PC, Seger JJ, et al. Diagnosis and management of inadvertently placed pacing and ICD leads in the left ventricle: a multicenter experience and review of the literature. *Pacing Clin Electrophysiol* 2000;23(5):877-83.