

Spontaneous pacemaker distal lead tip migration resulting in lack of ventricular stimulation

Przemieszczenie się elektrody rozrusznika serca powodujące brak skutecznej stymulacji komorowej

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Abstract

We present a case of spontaneous distal lead tip migration resulting in lack of ventricular stimulation diagnosed over a year after implantation. Ventricular lead tip was dislodged through tricuspid valve and fixed itself to right atrium wall.

Key words: heart stimulation, pacemaker follow-up, stimulation disturbances

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Case report

88-year-old male with a history of ischemic cerebral infarction, arterial hypertension and type 2 diabetes mellitus was admitted to hospital after transient ischemic attack for further neurological diagnostics. ECG at admission showed ineffective ventricular stimulation (Fig. 1).

A DDDR pacemaker with active fixation leads was implanted 14 months previously for sick sinus syndrome. The procedure was complicated by pneumothorax. After the implantation patient did not present for a follow-up visit. Telemetric pacemaker control confirmed lack of ventricular stimulation. It also showed that both ventricular and atrial channel stimulation resulted in atrial stimulation with excellent electrical parameters but with different P wave morphology (Fig. 2). Excessive lead bending at tricuspid valve level was present in transthoracic echocardiography

(Fig. 3). Chest X-ray confirmed that both lead tips were positioned in right atrium (Fig. 4). Patient was scheduled for transvenous ventricular lead extraction.

Discussion

Pacemaker lead tip migration is a rare complication of implantation procedure [1]. Most commonly, it concerns atrial leads. The risk factors of dislodgement are: implantation in low volume centre, inexperienced operator (less than 25 implantations per year), chronic heart failure as an indication to implantation, using passive or atrial leads [2]. It is a complication most commonly classified as early, diagnosed in perioperative period [3]. In our case, diagnosis was made over a year after implantation. However, most probably the displacement took place early after implantation, before the lead tip got endothelialized in the

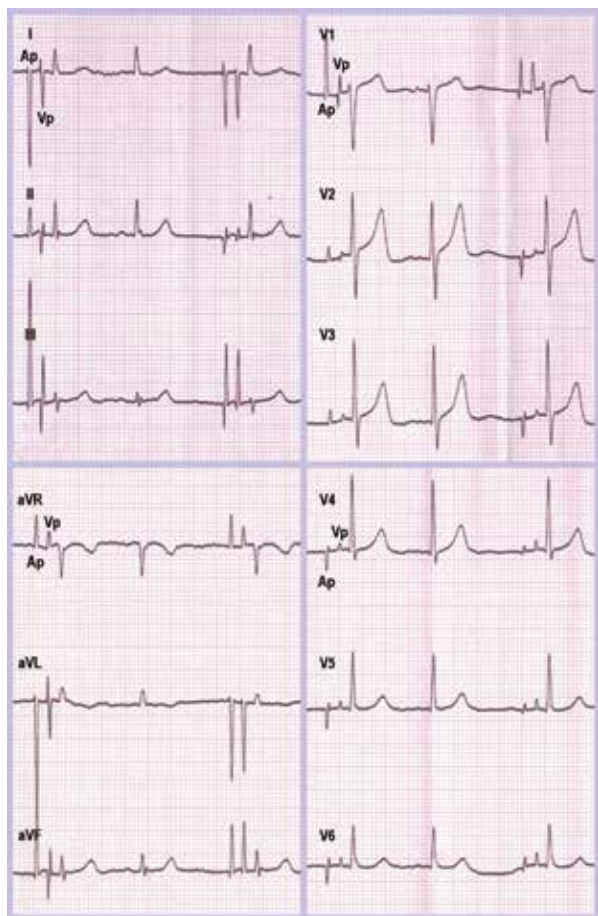


Figure 1. ECG at admission – ineffective ventricular stimulation

surrounding tissues. Another interesting aspect of the case is that the lead tip migrated through tricuspid valve and spontaneously fixed itself to right atrial wall with excellent stimulation parameters. The only known risk factor of displacement in this case, was performing implantation in a low volume centre. The lead that got displaced was not



Figure 3. Transthoracic echocardiography – excessive lead bending at tricuspid valve level

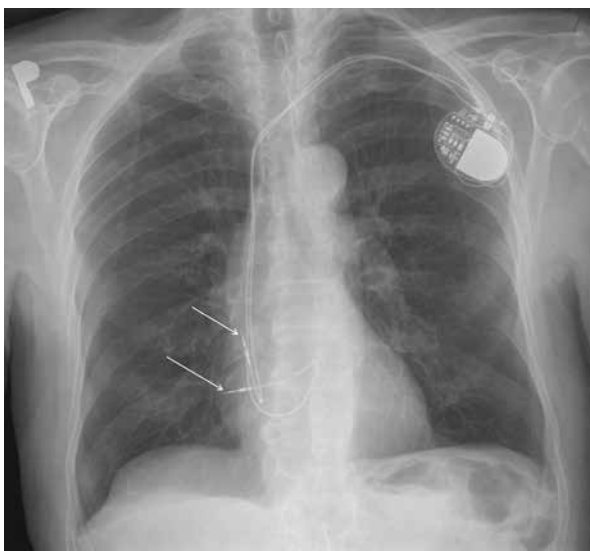


Figure 4. Chest X-ray – both lead tips visible in right atrium

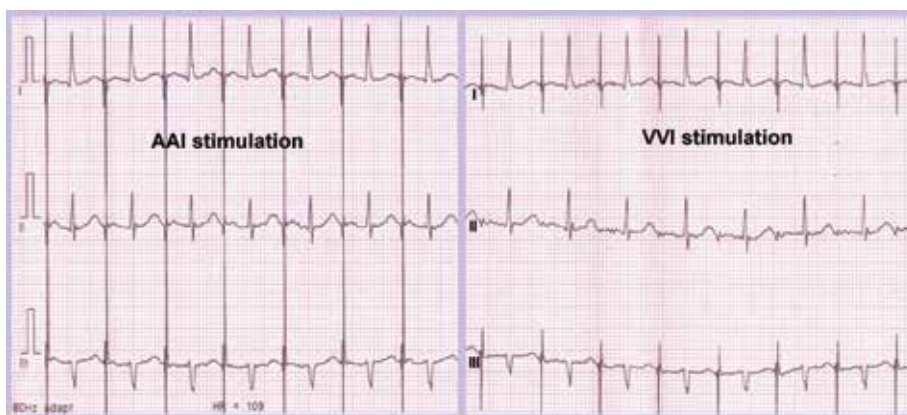


Figure 2. Atrial stimulation in both ventricular and atrial channels with different P wave morphology

only a ventricular lead, but also it had an active fixation system. Lack of pacemaker follow-up after discharge and most of all lack of chest X-ray at discharge from hospital resulted in delay in diagnosis. An examination, which in this case was the first one to raise questions on leads position, was echocardiography. It is an examination that is unjustly often omitted in pacemaker patients, although it might give insight not only into lead position, but also right and left ventricle performance and tricuspid valve function. Luckily for the patient, he mainly demanded atrial

stimulation, but ineffective ventricular stimulation might be a potentially fatal complication. In the described case, the complication could have been diagnosed using such basic and widely available examinations as standard ECG and standard chest X-ray, none of which were performed in a pacemaker patient for over a year.

Conflict(s) of interest

None declared.

Streszczenie

Zaprezentowano przypadek dyslokacji końcówki elektrody komorowej zdiagnozowanej ponad rok po implantacji rozrusznika serca. Elektroda komorowa przemieściła się przez zastawkę trójdzielną i zaklinowała się samoistnie na wolnej ścianie prawego przedsionka.

Słowa kluczowe: stymulacja serca, zaburzenia stymulacji, kontrola rozrusznika

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