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IMAGE

“Underestimation” of a left ventricular threshold

Sous-estimation d'un seuil de stimulation ventriculaire gauche

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Received 23 June 2010; received in revised form 6 January 2011; accepted 10 January 2011
 Available online 1 September 2011

KEYWORDS

Anodal stimulation;
 Heart failure;
 Cardiac
 resynchronization
 therapy

MOTS CLÉS

Stimulation
 anodique ;
 Insuffisance
 cardiaque ;
 Resynchronisation
 cardiaque

A 75-year-old man with ischaemic left ventricular (LV) dysfunction, left bundle branch block and New York Heart Association class III underwent an uneventful implantation of a cardiac resynchronization therapy (CRT) device. The optimum bipolar LV pacing threshold was obtained in the right ventricular (RV) ring as anode to the LV tip as cathode configuration (1.8 V/0.5 ms during implantation, 1.9 V/0.5 ms before discharge). Two months later, the patient was hospitalized for decompensated heart failure and was considered to be a non-responder to CRT. On device interrogation by a senior cardiologist, the LV threshold was found to be 3 V at 1 ms pulse duration in the bipolar configuration cited above and therefore the LV pacing output was raised without induction of pectoral stimulation. On arrival at the tertiary-care facility, the 12-lead electrocardiogram (ECG) demonstrated a QRS configuration during isolated LV pacing (Fig. 1A) that almost completely resembled that during bipolar RV pacing (Fig. 1B). The chest X-ray demonstrated complete dislodgement of the LV lead with its tip lying in the generator pocket. Thus, the previous supposition of an increase in the LV pacing threshold was incorrect as there was no possibility of near-field LV capture with the tip of the lead lying in the generator pocket. What was therefore evident on the 12-lead ECG during LV pacing was an exclusive anodal RV capture. Absence of biventricular pacing also explained the non-response to CRT.

RV anodal capture has been reported in patients with CRT when LV pacing uses a pseudobipolar (RV ring to LV tip) configuration with a possible favourable impact on ventricular dyssynchrony. However, in patients with CRT delivered in this hybrid configuration and

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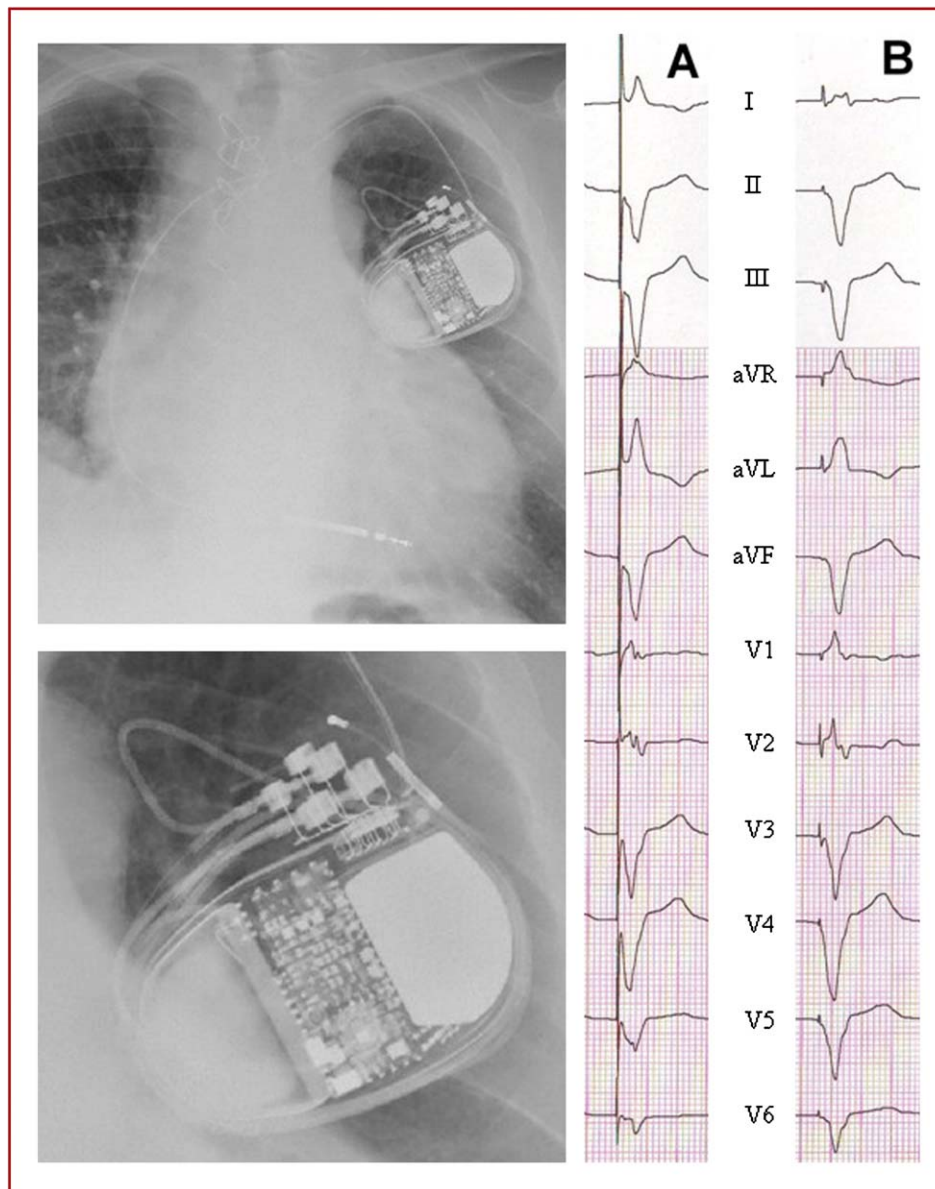


Figure 1. The chest X-ray shows the complete dislodgement of the left ventricular lead. The electrocardiogram demonstrates the exclusive anodal right ventricular capture (A) during left ventricular pacing; (B) corresponds to the electrocardiographic aspect during bipolar right ventricular pacing.

especially in the presence of a supposed increase in LV threshold, a 12-lead ECG and a chest X-ray should be performed to unmask an LV lead dislodgment and a possible detrimental exclusive anodal RV capture.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.