

Persistent left superior vena cava and pacemaker implantation

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Core tip: The letter focuses in detail on the noninvasive diagnosis of persistent superior left vena cava, which is mandatory before pacemaker implantation.

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Abstract

Our study group read with interest the paper from Vijayvergiya *et al* describing the implantation of an implantable cardioverter-defibrillator lead in the presence of the persistence of the left superior vena cava. The issue of the identification a persistent left superior vena cava is of paramount importance in interventional cardiology, being the most common venous anomaly of the thoracic distribution, and because it may create some problem to any physician while performing a pacemaker lead implantation. In our letter we underscore the specific issues related to pacemaker implantation while encountering a persistent left superior vena cava (and maybe the absence of the right vena cava) and the workup that should be performed to obtain the preoperative diagnosis of the venous anomaly. More specifically, we consider avoiding any kind of defibrillator lead implantation through the coronary sinus for safety issues, and underscore the straightforward transthoracic ultrasound approach to identify the left superior vena cava.

TO THE EDITOR

We have read with interest the contribution from Vijayvergiya *et al*^[1], who describe a tricky case of implantable cardioverter-defibrillator (ICD) implantation facing the persistence of the left superior vena cava (PLSVC).

A few years ago we experienced a similar situation with a VVI pacemaker implantation^[2]: nonetheless, we would like to underscore some peculiar and personal features we think should always be born in mind before a pacemaker is implanted. Firstly, a complete ultrasound examination should be obtained before implantation in order to rule out anatomical difficulties, *e.g.*, PLSVC. In our case we did not perform an echocardiogram because of the precipitating clinical situation, but in routine settings the EP physician should always be aware of detailed cardiac anatomy. Secondly, we discourage lead implantation-especially of an ICD lead, when the existence of a right vena cava has been proven even though the procedure has started with a left-side approach. Caution is needed when trying to place any kind of lead through the coronary sinus in order to avoid ominous tears or dissections^[3].

Moreover, as we describe in a previous paper regarding the diagnostic features of this venous anomaly, the evaluation of venae cavae anatomy with transthoracic echocardiography is not difficult^[4], and in the presence of a poor acoustic window a transesophageal approach may be helpful. The pre-operative diagnosis of PLSVC may be suspected whenever a dilated coronary sinus is identified at transthoracic echocardiography and it can be confirmed by sequential injection of agitated saline in both left and right arm veins, avoiding further invasive examinations and favoring a correct planning of the implantation technique.

PLSVC still remains a ghost-like entity, usually passing unobserved or diagnosed by chance. On the contrary, its recognition before invasive procedures is paramount to avoid medical errors, loss of time and suboptimal results.

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