

## IMAGE IN CARDIOLOGY

## Placement of permanent pacemaker in a patient with venous anomaly through the right subclavian vein



### Implantação de *pacemaker* definitivo pela veia subclávia num doente com anomalia venosa

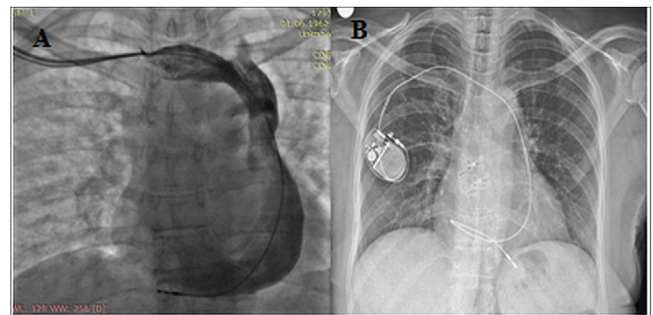
Ibrahim Etem Celik\*, Mustafa Duran, Mikail Yarlıoglu, Sani Namık Murat

Department of Cardiology, University of Health Sciences, Ankara Education and Research Hospital, Ankara, Turkey

Received 28 September 2021; accepted 7 September 2022

Available online 9 November 2022

A 58-year-old female patient was admitted to our hospital with dizziness and near syncope. The diagnosis of Mobitz type 2 atrioventricular block was made on electrocardiogram. A dual-chamber pacemaker was inserted through the right side as the patient actively used her left arm. The right ventricular (RV) lead was advanced in an attempt to access the right superior vena cava (SVC), but resistance was encountered. Venography revealed persistent left superior vena cava (PLSVC) draining through the dilated coronary sinus (CS) into the right atrium with absent right SVC (Figure 1A). Then, a classic lead delivery system was used to reach the right atrium through CS and then through the tricuspid valve into the right ventricle. The RV lead was advanced via PLSVC through the CS and was actively fixed to the right ventricle apex with loop configuration. Following RV lead placement, an atrial active fixation lead was introduced, however we were unable to implant a pacemaker lead in a proper location. The parameters of the implanted VVIR pacemaker were ventricular sensing of 6 mV, pacing



**Figure 1** A. Venogram from the right upper limb showing the absence of a right SVC with the persistent left superior vena cava draining into the dilated coronary sinus. B. Chest X-ray demonstrating the loop configuration of the ventricular lead of the VVIR pacemaker.

threshold of 0.4 V, and impedance of 630 ohms. Chest X-ray revealed satisfactory positioning of the ventricular lead (Figure 1B).

While implanting cardiac devices in patients with PLSVC and absent right SVC, it is difficult to pass through the

\* Corresponding author.

E-mail address: [etem84@gmail.com](mailto:etem84@gmail.com) (I.E. Celik).

tricuspid valve to place the ventricular lead. Although lead implantation is very challenging due to abnormal vena cava anatomy, different techniques can be used to facilitate the crossing tricuspid valve. Physicians should be aware of the use of active fixation leads, and conforming the loop configuration of the ventricular lead may overcome this technical challenge.

### **Conflict of interests**

No potential conflict of interest was reported by the author(s).