Atresia of the coronary sinus ostium on cardiac computed tomography

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A 52-year-old man with atrial tachyarrhythmia scheduled for electrophysiology was referred for cardiac computed tomography. It showed an enlarged coronary sinus (CS) with atresia of the right atrial ostium, which communicated with a persistent left superior vena cava (PLSVC) (FIGURE 1A–1C). An anomalous vein arose from the CS (FIGURE 1A and 1C) with a branched tortuous tubular connection to the right atrium (RA) (FIGURE 1B and 1C), and finally ended at the left atrium. Atresia of the CS ostium with a PLSVC was diagnosed.

The CS is the largest cardiac venous structure, lying posteriorly in the atrioventricular groove and draining into the RA. The CS is a commonly used gateway to the left atrial and left ventricular epicardium in patients undergoing electrophysiology studies, catheter ablation of arrhythmias, and implantation of resynchronization therapy devices. Atresia of the CS ostium with a PLSVC is a rare abnormality, which is sometimes overlooked because it usually occurs without clinical symptoms or a significant cardiac dysfunction. The diagnosis of this abnormality is usually incidental at autopsy, surgery, or failure of cannula insertion into the CS from the RA. However, this abnormality has important clinical implications, especially in the field of cardiac catheterization.
CLINICAL VIGNETTE

Atresia of the CS ostium on cardiac CT

It has been reported that CS cannulation is unsuccessful in 5% to 10% of patients undergoing invasive cardiac procedures, and that CS anomaly may explain many of these problems. Special care should be taken during surgical repair of associated cardiac defects because PLSVC division or ligation could potentially disrupt the CS venous return, leading to myocardial edema, ischemia, and necrosis. Cardiac computed tomography can provide clinically valuable information on the cardiac venous anatomy before electrophysiologic and interventional procedures.

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

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