Atrial fibrillation ablation in a patient with absent right superior and persistent left superior vena cava

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Computerized tomography before the ablation of atrial fibrillation (AF) in a 34-year-old man demonstrated the absence of the right superior vena cava (RSVC) and a persistent left superior vena cava (PLSVC). After double transseptal puncture guided by intracardiac echocardiography, circumferential isolation of pulmonary veins pairs was carried out with CARTO 3 system. Subsequently, electroanatomic mapping of the right atrium, the coronary sinus (CS), and the PLSVC was performed (Panel A) and AF triggered by the PLSVC was recorded (Panel B, arrow). A segmental radiofrequency (RF) ablation above the PLSVC/CS junction restored sinus rhythm with PLSVC entrance block (Panel C). Thereafter, we confirmed bidirectional block by pacing within PLSVC.

The absence of the RSVC with PLSVC which is a very rare anomaly and is associated with a high incidence of AF. Computerized tomography or a cardiac magnetic resonance are necessary to planify AF catheter ablation. It was not possible to perform the transseptal puncture guided by fluoroscopy, therefore the puncture was guided by intracardiac echocardiography. We were cautious when delivering RF over the PLSVC, because the experience in this respect is limited. Although stenosis of the PLSVC has never been reported, this would be a serious complication in the case presented here, since the PLSVC is the only outlet for superior systemic drainage.

The full-length version of this report can be viewed at: http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/atrial-fibrillation-ablation.