A Case of Atrial Fibrillation with Sick Sinus Syndrome and Persistent Left Superior Vena Cava Foci

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Background: Persistent left superior vena cava (PLSVC) is a rare vascular variant which has potential of firing sources of atrial fibrillation (AF). We describe a paroxysmal AF case with sick sinus syndrome (SSS) eliminated with successful PV and PLSVC isolation using an electroanatomical approach in a patient with PLSVC. Case: A 61-year-old woman, with previous episodes of poorly tolerated paroxysmal atrial fibrillation with long sinus pause, was admitted for radiofrequency (RF) ablation. PLSVC was confirmed with pre-procedural 3D-CT. Before ablation we observed the arrhythmogenic veins of AF. After isoproterenol provocation (10 μg), AF firing spontaneously observed from left inferior PV. Thus we performed the circumferential PVI. After PVI, we reanalyzed the non-PV foci with same dose isoproterenol provocation and spontaneous AF was induced repeatedly. The earliest site of the initial beat of AF was lateral LA and CS distal. The multipolor ring catheter positioned in PLSVC and the potential of PLSVC clearly recorded. After the construction of PLSVC with CARTO, we performed the PLSVC isolation. The circumferential RF delivery (25W, 30ml/min irrigation) for the distal PLSVC at the level of LSPV needed complete electrical isolation between LA and PLSVC. After PLSVC isolation, neither firing nor APC was found with isoproterenol provocation. AF or syncope episode did not recur 3 months later.

Keywords: PLSVC, atrial fibrillation, ablation