

EP CASE REPORT

Successful slow pathway ablation in a patient with an interrupted inferior vena cava and persistent left superior vena cava

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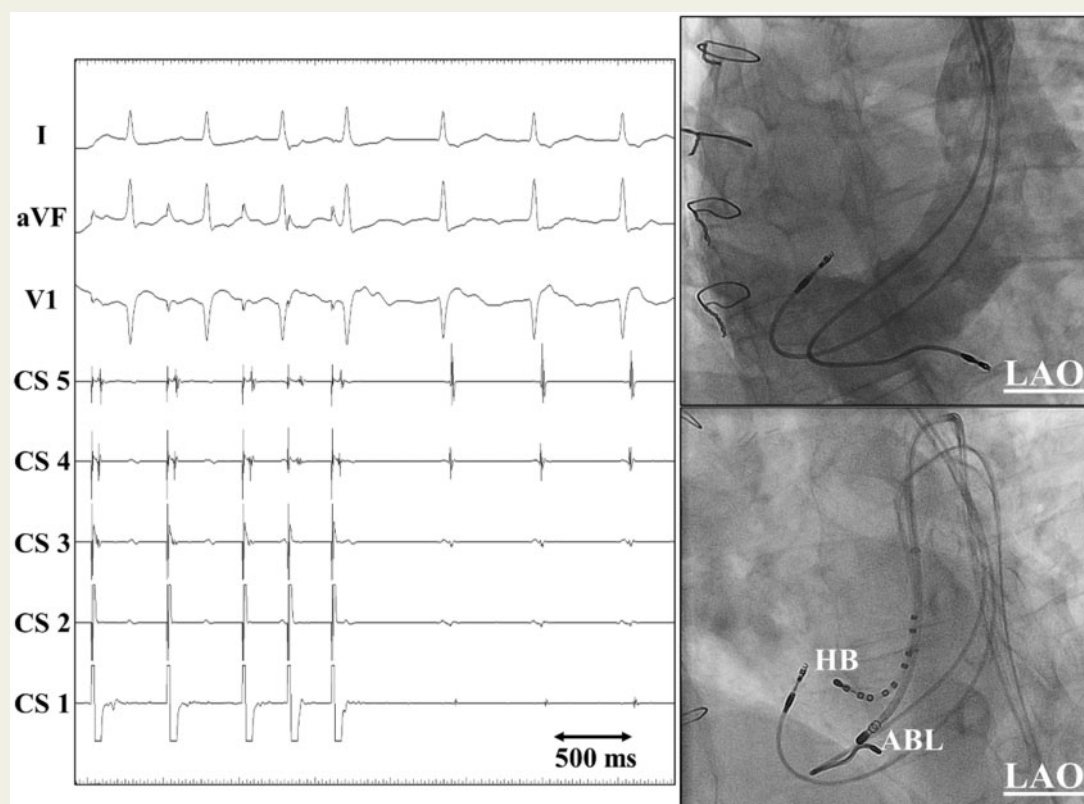


Figure 1 (Left panel) Cardiac tracings exhibiting the induction of atrioventricular nodal re-entrant tachycardia. (Right upper panel) Fluoroscopic image exhibiting a coronary sinus venogram obtained by a contrast injection through the persistent left superior vena cava. (Right lower panel) Fluoroscopic image exhibiting the coronary sinus catheter positioned to record a His bundle electrogram from the distal electrode pair and ablation catheter that were positioned through the persistent left superior vena cava. ABL, ablation catheter; CS 1 to 5, the first (most distal) to fifth (most proximal) electrode pairs of the coronary sinus catheter; HB, His bundle; LAO, left anterior oblique view.

A 50-year-old man with a supraventricular tachycardia (SVT) underwent electrophysiologic testing. He had a history of a heterotaxy syndrome with a persistent left superior vena cava (PLSVC) that was draining via the coronary sinus (CS) into the morphologic right atrium, infrahepatic interruption in the inferior vena cava (IVC) with an azygous/hemiazygous continuation that was draining into the PLSVC, and surgical repair of a ventricular septal defect. He also had a history of a dual-chamber pacemaker placement due to sinus node dysfunction. During the electrophysiological study, a decapolar catheter was positioned within the CS via a femoral approach through the azygos vein and PLSVC (Figure 1). Programmed atrial stimulation induced a short R-P' type SVT following a sudden prolongation of the atrioventricular interval (Figure 1). With a diagnosis of atrioventricular nodal re-entrant tachycardia, the slow pathway was mapped with a contact force sensing ablation catheter via a femoral approach through the azygos vein, PLSVC, and CS. During the mapping, the recording site of the His-bundle (HB) electrogram was marked on the three-dimensional map, and the CS catheter was repositioned to record an HB electrogram. The slow pathway was successfully ablated at the middle between the recording site of the HB electrogram and CS bottom with intact atrioventricular conduction. During a follow-up period of more than 6 months, the patient has been free from any SVT recurrences without any antiarrhythmic drugs. No complications have occurred.

A PLSVC is not an uncommon congenital heart disease. In most cases with a PLSVC, the IVC is patent, and a standard catheter approach through the IVC can ablate the slow pathway.¹ However, in this case, the IVC was interrupted, and the standard catheter approach through the IVC was not available. To the best of our knowledge, this is the first case report illustrating a successful slow pathway ablation via a femoral approach through the azygos vein, PLSVC, and CS in a patient with an interrupted IVC.

Conflict of interest: none declared.

Reference

1. Uhm JS, Choi JJ, Baek YS, Yu HT, Yang PS, Kim YG *et al.* Electrophysiological features and radiofrequency catheter ablation of supraventricular tachycardia in patients with persistent left superior vena cava. *Heart Rhythm* 2018. pii: S1547-5271(18)30613-1.