

Slow pathway ablation in abdominal visceral heterotaxy with azygos continuation

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We report a very rare case of atrioventricular nodal reentrant tachycardia ablation in abdominal visceral heterotaxy combined with inferior vena cava interruption and azygos continuation. Abdominal computed tomography showed a right-sided stomach and spleen.

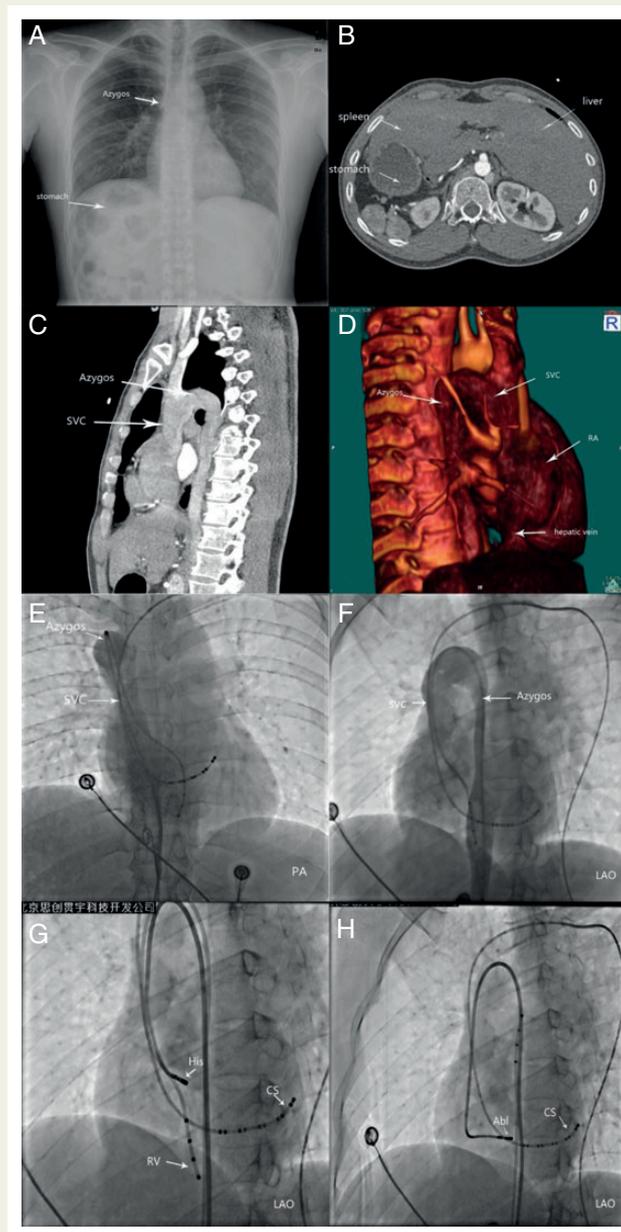


Figure I

Both three-dimensional reconstruction computed tomography and angiography indicated interrupted inferior vena cava with azygos continuation to the right superior vena cava.

A 37-year-old male patient was referred to our hospital for radiofrequency catheter ablation of recurrent supraventricular tachycardia. Routine chest radiography showed enlargement of the right cardiac margin and a right-sided stomach (Figure 1A). Abdominal computed tomography (CT) showed a right-sided stomach and right-sided spleen (Figure 1B). Echocardiography revealed normal heart and chest structure, and CT indicated normal cardiac and pulmonary situs. These findings indicated abdominal visceral heterotaxy with normal heart and lung function. A three-dimensional (3D) reconstruction image obtained using CT showed interrupted inferior vena cava (IVC) with azygos continuation to the right superior vena cava (SVC) and hepatic vein draining into the right atrium (Figure 1C and D). At the beginning of the electrophysiological testing, a decapolar catheter was advanced into the femoral vein and passed into the superior vena cava and the right ventricle via the azygos continuation. Another catheter was placed in the coronary sinus (CS) via the subclavicular vein. Programmed stimulation from the CS ostium induced slow–fast atrioventricular nodal reentrant tachycardia. Pigtail catheter angiography was performed to confirm the diagnosis of interrupted IVC with azygos continuation (Figure 1E and F). A radiofrequency ablation catheter was also advanced through the azygos continuation. First, the compact AV node region was determined by recording the His potential (Figure 1G). The His bundle was located at the apex of Koch’s triangle. Thereafter, radiofrequency energy was delivered to the posterior aspect of Koch’s triangle, where the slow pathway potentials were observed (Figure 1H). No dual AV node conduction properties were detected, and no tachycardia was induced after ablation. The estimated incidence of abdominal visceral heterotaxy, with normal heart and lung function, is 1 per 22 000 births in the general population and between 0.4% and 1.2% in patients with congenital heart disease.¹ The prevalence of interrupted IVC with azygos continuation is 0.1–0.3% in patients without congenital heart disease.² To the best of our knowledge, isolated abdominal visceral heterotaxy accompanied with interrupted IVC and azygos continuation has not been reported thus far.³ This report highlights the importance of identifying these anomalies before the procedure through detailed structure analysis using 3D reconstruction CT.

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