CASE IMAGE

Electrical isolation of superior vena cava as well as pulmonary vein isolation with cryoballoon technique in a young patient with persistent atrial fibrillation

Süreğen atriyum fibrilasyonu olan genç hastada kriyobalon tekniği ile pulmoner ven izolasyonu yanında süperiyor vena kava'nın elektriksel izolasyonu

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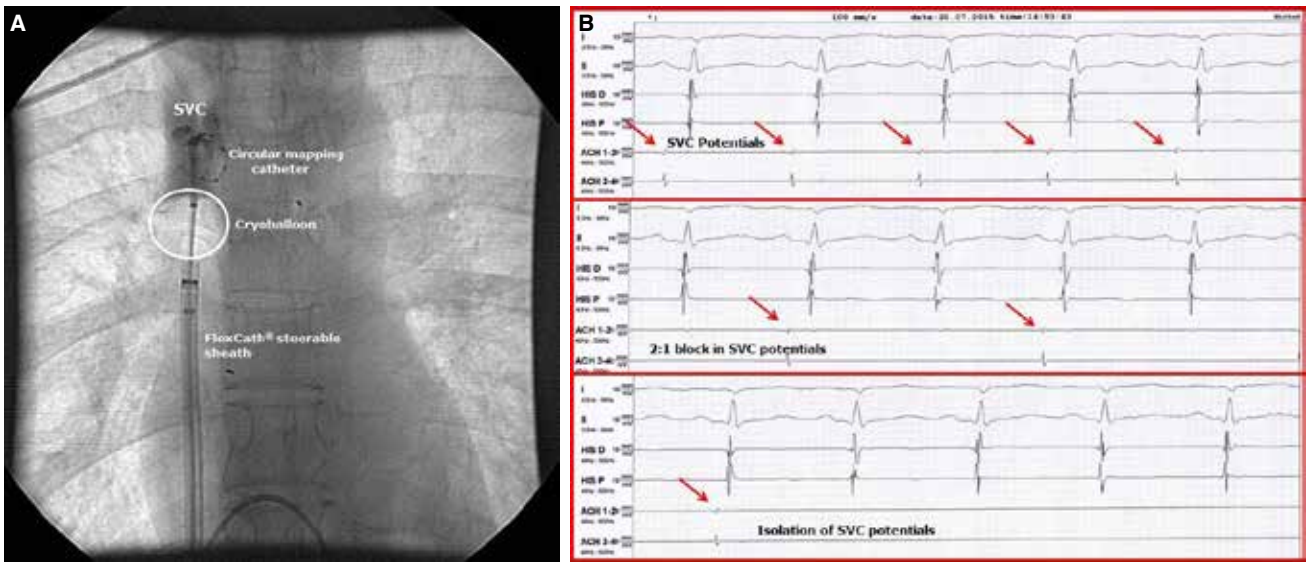
A 21-year-old female patient without any predisposing risk factors was admitted with palpitations ongoing for 3 weeks. Past medical history revealed radiofrequency ablation for atrioventricular nodal reentry tachycardia 12 months earlier. She had no history of any medication, smoking, or alcohol intake. Physical examination was unremarkable, except tachycardic, irregular pulse. Electrocardiogram showed atrial fibrillation (AF) (173 bpm); echocardiography demonstrated left ventricular ejection fraction of 66% and left atrial diameter of 28 mm. She was converted to sinus rhythm with electrical cardioversion. In accordance with patient preference, we decided to perform atrial fibrillation (AF) ablation as long-term rhythm control strategy. Initially, baseline electrophysiological study was performed to exclude other supraventricular arrhythmias. Then, we continued with pulmonary vein isolation (PVI), performed using 23-mm cryoballoon catheter. As a routine procedure in our lab, we search for electrically active non-PV triggers, such as the superior vena cava (SVC), after PVI in all patients with persistent AF. After successful PVI, the transseptal sheath has been pulled back into the right atrium (RA). The Achieve Mapping Catheter (Medtronic, Inc., Minneapolis, MN, USA) was directed into the SVC. Balloon is inflated in the RA and then directed toward SVC-RA junction (Figure A). Mapping catheter was pulled back toward cryoballoon catheter. Presence of SVC potentials was confirmed and eliminated at -50°C and 300 seconds (Figure B). During ablation, diaphragmatic movement was controlled with help of fluoroscopy. The patient was discharged uneventfully. Her 1, 3, 6, and 12-month follow-up visits showed no recurrence of any atrial arrhythmia. Therefore, it is feasible to use cryoballoon technology as an alternative option during catheter-based AF ablation when isolation of SVC has been targeted in addition to PVI.



Figures– (A) Occlusion of right atrium-superior vena cava junction with cryoballoon catheter. **(B)** Electrical isolation of superior vena cava potentials demonstrated on circular mapping catheter 1–2 and 3–4 recordings.