Intramyocardial Hematoma After Radiofrequency Catheter Ablation

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A 15-year-old girl with Ebstein anomaly and Wolff-Parkinson-White syndrome was admitted for an ablation. Two accessory pathways were mapped using the Abbott EnSite Precision™ system and ablated using the Abbott FlexAbility™ ablation catheter. Thirty-five radiofrequency (RF) applications were delivered, with power and temperature up to 30 W and 32°C, respectively, to the posterolateral and posteroseptal regions of the true tricuspid annulus eliminating both pathways. Each application was delivered for up to 60 s with no rapid impedance changes or steam pops. Activated clotting time was maintained between 250 and 300 s with heparin. After the procedure, she became hypotensive and hypoxemic, with an acute drop in hemoglobin. Chest computed tomography showed a right intramyocardial hematoma (IMH) obstructing intracardiac blood flow (Figure E,F), subsequently confirmed on echocardiogram (Figure A–C). The patient underwent emergency surgery (Figure G) including tricuspid valve repair with Carbomedics 26-mm flexible annuloplasty ring, septal leaflet augmentation, evacuation of the hematoma, plication of the right ventricle and the inferior tricuspid valve annulus, right-sided modified cryoablation maze procedure, cryoablation of cavotricuspid isthmus, and right reduction atriotomy. Repeat echocardiogram showed resolution (Figure D).

IMH is a rare complication after ablation and is usually associated with transseptal puncture with continued anticoagulation. Because the IMH was contained within the myocardium and did not communicate with the ventricular chamber or the pericardium in the present case, the likely mechanism was intramyocardial arteriolar bleeding in the myocardial free wall in the setting of an atrialized, thinned right ventricle that is common in Ebstein anomaly. This highlights the importance of recognizing a rare complication related to the underlying anatomy.

Disclosures

The authors have nothing to disclose.

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Figure. (A–D) Transthoracic echocardiogram, (E,F) chest computed tomography (CT), and (G) intraoperative image. (A) Pre-ablation echocardiogram: *right atrium; ¥atrialized right ventricle (RV); (open arrow) apically displaced tricuspid valve; ∆left atrium; ‡left ventricle; (solid arrow) mitral valve. (B) Arrow, development of intramyocardial hematoma (IMH) with heterogeneous appearance secondary to coagulum and blood accumulation. (C) Color Doppler: arrow, right ventricular inflow tract obstruction by IMH. (D) Postoperative echocardiogram. (E) Coronal and (F) transverse CT showing a high-density mass in the inferior wall at the base of the atrialized portion of the RV and extending into the right atrium, measuring 8×6 cm. (G) Surgeon’s view through a right atriotomy (patient’s head is to the left). Open arrow, contained hematoma in the inferior wall of the RV. Solid arrow, hemorrhagic area; the likely location of radiofrequency ablation lesions. The large tricuspid valve orifice is almost completely obstructed by the massive hematoma. The forceps marks the cephalad aspect of the atrial septum.