

Septal Collateralization to Right Coronary Artery in Alcohol Septal Ablation



Solution to a Dangerous Pitfall

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Percutaneous alcohol septal ablation (PTSMA) has been established as therapy in symptomatic patients with hypertrophic obstructive cardiomyopathy (1). Collateralization between the target septal branch and the left anterior descending coronary artery as well as another septal branch with potential risk for myocardial infarction has been described (2,3). We report on a patient with collateral vessels between the target septal branch and the right coronary artery and successful interventional treatment of this previously undescribed finding.

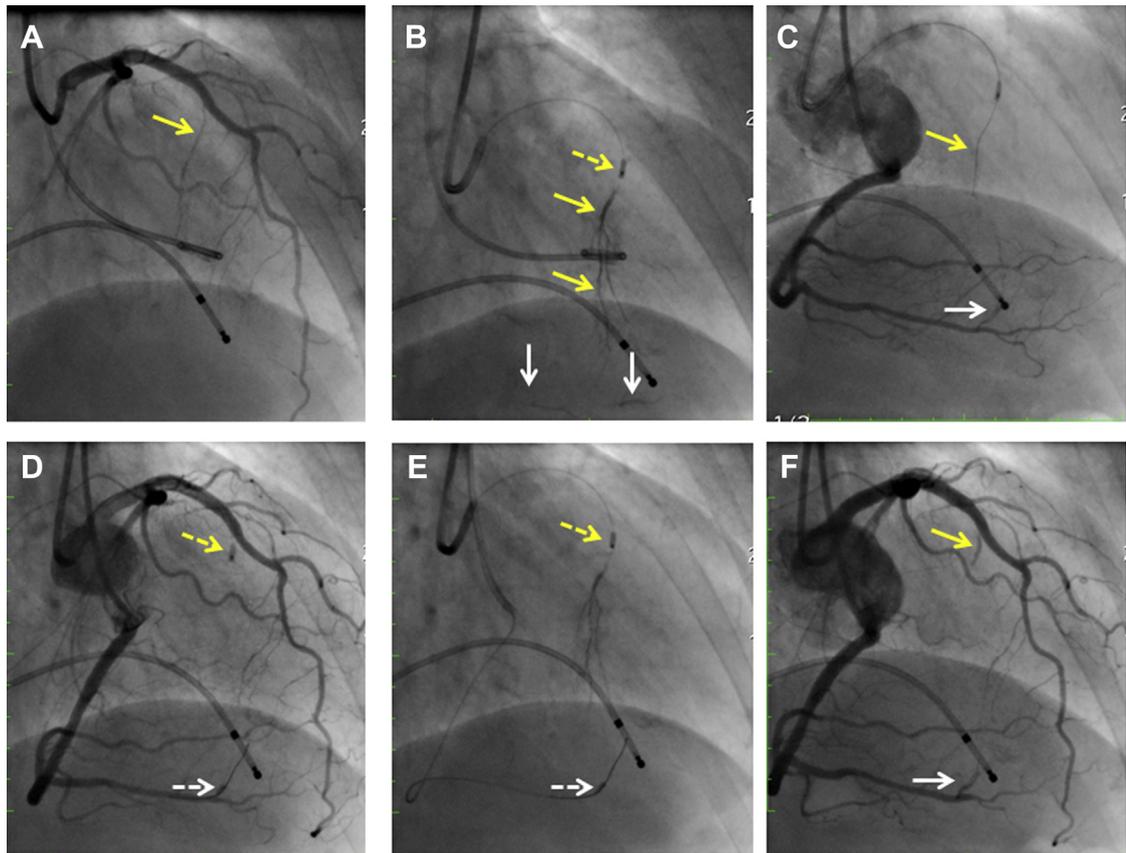
A 66-year-old woman was first seen in November 2016 with highly symptomatic hypertrophic obstructive cardiomyopathy. Echocardiography showed long subaortic and midcavitary obstruction with high gradients at rest (55 mm Hg) and with Valsalva maneuver (100 mm Hg). Because of reduced but still significant midcavitary gradient after first PTSMA with circumscribed subaortic scar, repeat PTSMA was performed 6 months later. After placement of a 1.5/6-mm over-the-wire balloon (Sprinter, Medtronic, Minneapolis, Minnesota) in the septal branch (Figure 1), contrast echocardiography with injection of 1.5 ml agitated cooled Gelafundin 4% showed optimal opacification of the septum and additional unwanted opacification

of the apicolateral wall (Figure 2). We injected 1 ml radiographic contrast dye through the central lumen of the over-the-wire balloon and detected collateral flow from the target septal branch to the distal right descendens posterior of the right coronary artery. The connection between the right coronary artery and target septal branch was identified by simultaneous angiography of the left and right coronary arteries. The collateralized side branch of the right descendens posterior was wired with a BMW wire, and a 1.5/6-mm monorail percutaneous coronary intervention balloon Solarice (Medtronic, Meerbusch, Germany) was placed and inflated to 6 atm. Two milliliters of alcohol was slowly injected after repeated myocardial contrast echo and contrast dye injection through the over-the-wire PTSMA balloon had shown no misplacement and collateralization between the target septal branch and any other vessel. Gradients were eliminated. Maximal creatine kinase increase was 650 U/l. No complication was observed during hospital stay and 9-month follow-up.

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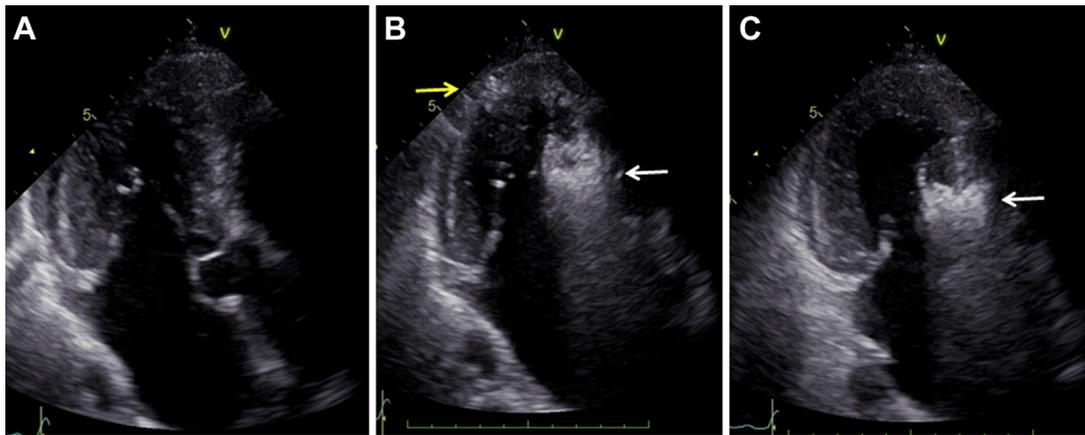
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FIGURE 1 Angiographic Sequence of Percutaneous Alcohol Septal Ablation in Right Anterior Oblique Projection

Left coronary artery in right anterior oblique (RAO) projection with identification of the target septal branch (**yellow arrow**) (A). Injection of contrast dye through over-the-wire (OTW) balloon (**dotted yellow arrow**) with collateral vessels from the target septal branch (**yellow arrows**) to the right descending posterior (RIVP) of the right coronary artery (RCA) (**white arrows**) (B). Injection of the RCA showed the collateral branch (**yellow arrow**) to the side branch of the RIVP (**white arrow**) (C). Simultaneous angiography of the left coronary artery (LCA) and RCA with OTW balloon in the target septal branch (**dotted yellow arrow**) and a monorail balloon in the collateralized side branch of the RIVP (**dotted white arrow**) (D). Repeated injection of contrast dye through the OTW balloon (**dotted yellow arrow**) without opacification of the RIVP after inflation of the monorail balloon (**dotted white arrow**) (E). Final angiogram of the LCA with occlusion of the septal branch (**yellow arrow**) and the RCA with side branch of the RIVP side branch (**white arrow**) (F).

FIGURE 2 Echocardiographic Sequence of Percutaneous Alcohol Septal Ablation in Apical 3-Chamber View



Apical 3-chamber view at baseline (A) and during myocardial contrast echocardiography (B) with opacification of the target septal area (white arrow) and apicolateral wall (yellow arrow). (C) After alcohol injection, only target septal area is opacified (white arrow).

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