An 86-year-old woman had been referred to our institution for alcohol septal ablation (ASA) because of drug-refractory hypertrophic obstructive cardiomyopathy. The resting pressure gradient of the left ventricular outflow tract was 135 mmHg on echocardiography. After an over-the-wire balloon (Apex OTW®; 1.5/8 mm; Boston Scientific) was inflated in the first septal branch, a selective septal angiography revealed a small collateral vessel draining into the right ventricle (RV) (Panel A, white arrow, Supplementary material online, Video S1). A selective septal myocardial contrast echocardiography (MCE) (Panel B, Supplementary material online, Video S2) demonstrated that the echo-contrast medium accumulated modestly on the target septal myocardium (Panel B, white arrow) but also significantly in the free wall of the RV (Panel B, black arrow). Therefore, we inflated a second balloon in the collateral vessel (Ikazuchi-Rev®; 1.2/6 mm; Kaneka Medics) to isolate the septal myocardial compartment (Panel C, white arrow, Supplementary material online, Video S3). Selective septal angiography ruled out any leakage into the other vessel, while MCE confirmed satisfactory contrast on the target septum but not the myocardium of the RV (Panel D, Supplementary material online, Video S4). Once this was confirmed, 1.8 mL of ethanol was slowly injected via the central lumen of the first balloon, and subsequently, the resting gradient decreased from 76 to 10 mmHg (Panels E and F, Supplementary material online, Video S5). The peak creatine phosphokinase value was 939 IU/L. Cardiac magnetic resonance imaging confirmed satisfactory septal ablation without any misplacement (Panel G). She was discharged 17 days after the procedure without any complications. One-year follow-up data have shown excellent clinical improvement without adverse cardiac event. We successfully performed an ASA procedure for the patient predicted ethanol misplacement, using the double-balloon method to achieve satisfactory ablation.