Alcohol Septal Ablation for Hypertrophic Obstructive Cardiomyopathy: Take Care With the Collaterals

To the Editor:

Percutaneous septal ablation (PSA) is an effective technique for treating selected patients with hypertrophic obstructive cardiomyopathy (HOCM). The selective injection of alcohol in a septal branch produces localized necrosis in the basal ventricular septum, reducing the subaortic gradient, which improves symptoms in most cases. One of the most unfortunate complications with this technique is alcohol leaking into another area, which could cause a myocardial infarction with very serious consequences. This complication can arise due to incomplete occlusion of the septal branch with a balloon that is too small, or by the balloon rupture, sending alcohol toward the anterior descending artery (LAD). In addition, the septal branch can irrigate myocardial areas other than the basal ventricular septum, and because of this it is important to use contrast echocardiography to observe the location of the area to be necrosed. Another potential and lesser-known effect of alcohol passing to other areas is collateral recruitment from septal branches, as this case illustrates.

Patient aged 69 years, diagnosed with HOCM and being treated with beta-blockers, who was admitted in due to clinical worsening with dyspnoea and angina with small efforts. The echocardiogram showed a baseline subaortic gradient of 110 mm Hg and severe mitral insufficiency due to systolic anterior displacement. The coronary angiogram ruled out significant coronary lesions (Figure 1A) and showed a well-developed first septal branch, for which reason we scheduled a PSA. After implantation of a temporary pacemaker, the first septal branch was catheterized and occluded with a coaxial balloon measuring 2×15 mm. The echocardiography showed a baseline gradient of 100 mm Hg, and contrast was injected through the lumen of the coaxial balloon to show the location of the target zone in the basal ventricular septum. Radiology contrast was also injected (Figure 2A), and we observed no reflux toward the LAD. Next, 2 mL of pure alcohol was slowly injected through the inflated balloon, and the gradient was reduced to 20 mmHg, with development of right bundle branch block on the ECG. A contrast injection given 10 min later through the inflated balloon showed that contrast was passing from the first septal branch through collaterals (which had not been visible with the previous injection) and to the second septal branch, which was filled retrogradely toward its origin (Figure 2B), although no contrast could be seen reaching the LAD. The procedure was completed following confirmation of complete occlusion of the first septal branch and normal flow in the LAD (Figure 1B). In-hospital evolution was uncomplicated and the patient was asymptomatic 6 months later, with the echocardiogram showing a maximum inducible gradient of 20 mm Hg.

Our case illustrates collateral recruitment in the septal branches during PSA, which could lead alcohol toward the LAD area. Their opening was probably induced by the ischemia caused during occlusion with the balloon and as a direct effect of the alcohol. This phenomenon has been described as

Figure 1. A: initial coronaryography showing a well-developed first septal branch. B: result following percutaneous septal ablation, with total occlusion of the septal branch (arrow) and a normal flow in the descending anterior artery.
Letters to the Editor

Stereotaxis: A New Approach for Treating Highly Tortuous and Angulated Coronary Lesions After Conventional Techniques Have Failed

To the Editor:

Although it is an exception, extreme tortuosity of proximal coronary vessels may make it impossible to access the lesion to be treated during percutaneous coronary intervention (PCI). Recently, PCI treatment has seen the addition of a magnetic field-based navigation system (MNS) called Stereotaxis® (St. Louis, Missouri, United States) that allows us to control the guidewire's direction and its navigation through the coronary vessels; it also incorporates software called Navigant™ that permits us to create 3D reconstructions of the vessels to be treated. It can also integrate images taken with coronary angiotomography in order to use that information to control the guidewire's course through the coronary vessels. This system has been used with good results in arrhythmia ablations and in the field of neurosurgery. This technique is currently being evaluated in the field of interventional cardiology.

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REFERENCES