Reversible cardiogenic shock in hypertrophic cardiomyopathy after alcohol septal ablation

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A 78-year-old woman with a history of hypertension was admitted to the intensive care unit for cardiogenic shock. Results of physical examination showed low systolic blood pressure (85 mmHg), tachycardia, severe dyspnoea and a loud systolic murmur. Echocardiography revealed an increased left ventricular ejection fraction (75%) with asymmetrical myocardial hypertrophy (septum 30 mm, posterior wall 9 mm), severe left ventricular obstruction gradient (110 mmHg) and mitral regurgitation (MR) caused by a prominent systolic anterior motion and posterior leaflet restriction, resulting in a large coaptation defect (Fig. 1, Movies 1 and 2). Despite mechanical ventilation, isotonic saline perfusion and beta-blocker therapy (atenolol 5 mg), the patient remained unstable and inotropic support was introduced (dobutamine and norepinephrine). Because of haemodynamic instability and persistent left ventricular obstruction and MR, the patient was eventually referred for a septal alcoholization monitored by a contrast-ultrasound agent (Fig. 2). This was followed by a rapid improvement in blood pressure and decreases in MR and left ventricular obstruction (Fig. 3 and Movie 3). Inotropic support and mechanical ventilation were withdrawn over the following days.

Hypertrophic cardiomyopathy is a rare cause of cardiogenic shock and acute heart failure. Diuretics and inotropic support have limited efficiency because increased contractility and reduced preload contribute to worsening left ventricular obstruction and MR. The
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**Figure 1.** Baseline transthoracic echocardiography before alcohol septal ablation showing (A) severe mitral regurgitation and (B) left ventricular obstruction. C–D. Transesophageal echocardiography showing a large systolic coaptation defect caused by a systolic anterior motion and a posterior mitral leaflet restriction.

**Figure 2.** A. Selective catheterization of the second septal artery guided by ultrasound contrast agent (B) during the alcohol septal ablation procedure.

**Figure 3.** Transthoracic echocardiography after alcohol septal ablation showing the reduction of left ventricular gradient and mitral regurgitation.
efficacy of treatment with verapamil or beta-blockers has been reported in few cases. This is one of the first cases reporting the successful use of septal alcohol ablation when a negative inotropic agent was ineffective.

Conflict of interest statement

None.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2009.11.012.