

Ahmad Farhan Abdul Hamid¹Kumara Ganesan¹, Shaiful Azmi Yahaya¹, Tey Yee SIn¹, Suhaini Kadiman¹¹ Department of Cardiology, National Heart Institute, Kuala Lumpur, Malaysia**Relevant clinical history and physical exam:**

A 76-year-old woman with symptomatic severe aortic stenosis was evaluated for transcatheter valve replacement. Her comorbidities included well-controlled diabetes mellitus, hypertension, hyperlipidaemia, and stage III chronic kidney disease. She had undergone prior percutaneous coronary intervention to the left anterior descending artery in 2007. Recent coronary angiography confirmed patent coronary stents and provided essential pre-procedural assessment for valve intervention.

Relevant test results prior to catheterization:

Echocardiography demonstrated left ventricular systolic function (LVEF 62%) with severe aortic stenosis (peak gradient 110 mmHg). Marked interventricular septal hypertrophy (septal thickness 1.94 cm) with dynamic left ventricular outflow tract obstruction and mid-cavity turbulence was noted.

Relevant catheterization findings:

Balloon-expandable TAVR was performed with early extubation with immediate post-procedural echo showed reduction in transvalvular gradient from 110 to 42 mmHg with no paravalvular leak. However, subsequent echo showed hyperdynamic LV contractility with severe midcavity obstruction, Doppler gradient rising to 177 mmHg. This culminates in the decision to undertake Transcatheter Ablation of Septal Hypertrophy (TASH).

Procedural Step:

During Transcatheter Ablation of Septal Hypertrophy (TASH), coronary angiography was undertaken to identify the target septal perforator branch. An over-the-wire balloon catheter was advanced into the selected septal branch, followed by balloon inflation to achieve temporary occlusion. Myocardial contrast echocardiography using Sonovue contrast was performed to confirm appropriate septal myocardial territory perfusion and avoid non-target ablation. After confirmation, absolute alcohol was carefully injected into the target septal branch to induce controlled septal infarction and reduce septal hypertrophy. Continuous haemodynamic and echocardiographic monitoring was maintained throughout the procedure.

Conclusions:

Severe aortic stenosis may mask the haemodynamic significance of left ventricular outflow tract obstruction (LVOTO) due to increased afterload. Following TAVR, afterload reduction and lower filling pressures may unmask dynamic obstruction, particularly in patients with a small hypertrophied left ventricle, resulting in hypercontractility and worsening LVOTO. This case highlights the importance of comprehensive preprocedural echocardiographic assessment of intracavitary gradients and LVOTO in severe aortic stenosis, with multidisciplinary Heart Team discussion essential for procedural planning. In selected patients, TASH performed before or concomitant with TAVR may be necessary. Myocardial contrast echocardiography using Sonovue contrast was performed to confirm appropriate septal myocardial territory perfusion and avoid non-target ablation.