A 61-year-old woman, 6 months after orthotopic heart transplantation (OHT), presented with gradual-onset class III dyspnea and fatigue for 4 months. Her transplantation procedure was significant for right ventricular sternal adhesions after left ventricular assist device placement and significant size mismatch between the donor and recipient aortas, requiring fashioning of the donor aorta to correct the mismatch. A computed tomography angiogram (Fig. 1) showed an eccentric

**FIGURE 1 CT Angiogram Showing Pulmonary and Aortic Anastomosis Stenotic Lesions Post-Orthotopic Heart Transplantation**

Computed tomography angiogram (CT) showing great vessel anastomotic lesions after orthotopic heart transplantation. (A) Focal proximal aortic stenosis (yellow arrow) that was hemodynamically insignificant. (B) Proximal main pulmonary artery stenosis (red arrow) with post-stenotic dilation (green arrow). The stenosis was hemodynamically significant, with a gradient across the lesion of 22 mm Hg, and a right ventricular systolic pressure of 60 mm Hg + central venous pressure.
anastomotic line supravalvular stenosis 1.5-cm distal to the pulmonic valve, 1.4 / 2.0 cm at the narrowest portion with post-stenotic dilation of 4.0 cm. Right ventricular systolic pressure (RVSP) was 60 mm Hg + central venous pressure with supravalvular flow acceleration.

FIGURE 2 Intraprocedural Transesophageal Echocardiographic Images of Pulmonary Stenosis Intervention

(A) Pre-procedural modified mid upper esophageal transesophageal echocardiographic view of the great vessels demonstrating supravalvular pulmonic stenosis in the area of surgical anastomosis after orthotopic heart transplantation (red arrow), 15 mm distal to the pulmonary valve (blue arrow). Post-stenotic dilation of main pulmonary artery (green arrow) is also seen in this view. (B) Tyshak II balloon deployment (purple arrows). (C) Final stent position (black arrows) above pulmonary valve (blue arrow).

FIGURE 3 Translesional Stenosis Gradients by Doppler Assessment Before and After Procedure

Images demonstrate continuous-wave (CW) Doppler findings across the main pulmonary artery lesion before the intervention (A) and immediately after the balloon valvuloplasty and stent implantation (B). CW recordings document a decrease in pressure gradient across the lesion from 22 mm Hg to 3 mm Hg. There was evidence of mild pulmonary regurgitation before the procedure with no worsening after the procedure.
The close proximity of the stenosis to the pulmonary valve led to an unsuccessful initial angioplasty attempt as there was persistent distal migration of the balloon during inflation and an inability to maintain a stable balloon position. The procedure was reattempted with angioplasty and stenting using a Palmaz 39 × 10-mm balloon-expansible stent (Cordis, Miami, Florida) mounted on a balloon-in-balloon 20 × 40-mm balloon (NuMed, Hopkington, New York) using a rapid pacing stabilization technique with transesophageal echocardiographic guidance (Figs. 2, 3). Post-dilation was then performed with a Tyshak II 25 × 40-mm balloon (B. Braun, Bethlehem, Pennsylvania) (Fig. 4).

The procedure was successful with reduction of the peak gradient from 22 mm Hg to 3 mm Hg and resulting peak RVSP reduction from 70 mm Hg to 51 mm Hg with minimal pulmonary artery diameter increase from 1.4 cm to 2.2 cm. The patient’s fatigue and dyspnea resolved.

This is the first described case of suture line supravalvular pulmonic stenosis post- OHT and highlights the possibility of successful endovascular therapy using rapid pacing as a stabilization technique for device deployment. Intraprocedural transesophageal echocardiographic imaging was instrumental in positioning the stent secondary to the close proximity of the pulmonary valve.

**FIGURE 4** Right Heart Angiography Before and After Stent Deployment

(A) Initial right ventriculogram showing normal pulmonary valve annulus (blue arrow, A: 24.9 mm) and supravalvular pulmonic stenosis (red arrow, B: 10.9 mm). (B) Post-dilation of a Palmaz 39 × 10-mm stent with a Tyshak II 25 × 40-mm balloon during rapid ventricular pacing. (C) Post-stent right ventriculogram.

**KEY WORDS** angioplasty, endovascular stent, orthotopic transplantation, pulmonary artery stenosis

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