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IMAGES IN INTERVENTION

Transcatheter Repair of Pulmonary Venous Baffle Stenosis

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A 47-year-old man with a history of d-transposition of the great arteries palliated with an atrial switch (Mustard) operation presented to our institution with progressive exertional dyspnea. Transthoracic echocardiography demonstrated pulmonary venous baffle stenosis, with a mean gradient of 17 mm Hg (**Figures 1A and 1B**), and cardiac catheterization was planned to attempt angioplasty of the baffle stenosis. Intraprocedural transesophageal echocardiography also corroborated the transthoracic findings (**Figure 1C**). Transseptal puncture across the systemic baffle was performed under fluoroscopic and transesophageal echocardiographic guidance in an anterior direction to enter the pulmonary atrium (**Figure 1D**). The pulmonary venous baffle was accessed using a Goodale Lubin catheter (Medtronic, Minneapolis, Minnesota) and a 0.035-inch angled glide wire (Terumo, Somerset, New Jersey) (**Figures 1E and 1F**). The stenosis was balloon-dilated with a 15 × 30 mm Tyshak 2 (NuMED, Hopkinton, New York) balloon (**Figures 1G to 1J**). Transesophageal echocardiographic, hemodynamic, and angiographic interrogation of the systemic venous baffle did not demonstrate obstruction during balloon inflation. On the basis of balloon length and transesophageal echocardiographic measurements, a 2910 Genesis XD (Cordis, Miami Lakes, Florida) stent mounted on an 18-mm BIB balloon (NuMED) was implanted to address the pulmonary venous baffle obstruction (**Figures 1K to 1M**), reducing the gradient to 2 mm Hg (**Figures 1N and 1O**) and eliminating the patient's symptoms.

Pulmonary venous baffle stenosis is a very rare complication of the Mustard operation and is usually managed with surgical intervention (1). Percutaneous catheterization with balloon dilation and stenting of the obstructed baffle has been reported but is very challenging given the variability in individual atrial anatomy. To our knowledge, this is the first report incorporating 3-dimensional transesophageal echocardiography to guide pulmonary baffle stenting and is an excellent example of how this modality can assist with complex congenital interventions, similar to the entire spectrum of adult structural heart procedures.

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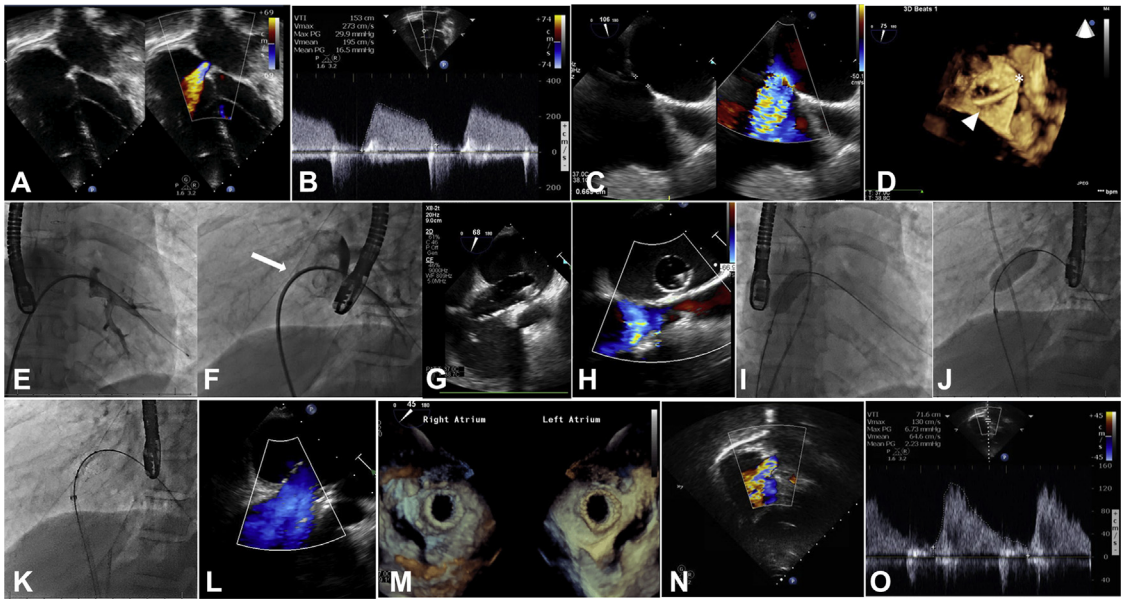
FIGURE 1 Transcatheter Repair of Pulmonary Baffle Stenosis



(A to C) Transthoracic echocardiographic and transesophageal echocardiographic (TEE) images showing narrowed pulmonary baffle, with a gradient of 17 mm Hg. **(D)** Three-dimensional TEE image showing anteriorly directed transseptal puncture **(asterisk)** and catheter directed into the stenosed pulmonary baffle **(arrowhead)**. **(E and F)** Pulmonary vein angiography in the anteroposterior and lateral views with inadequate opacification of systemic ventricle; stenosed baffle can be discerned on lateral projection **(arrow)**. **(G to J)** TEE and fluoroscopic visualization of balloon across pulmonary baffle. **(K to M)** Fluoroscopic and 2-dimensional and 3-dimensional TEE visualization of deployed stent. **(N and O)** Transthoracic echocardiogram with resolved stenosis and gradient.

REFERENCE

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