Melody valve implantation through a recanalized occluded femoral vein

Sir,

We describe a case of successful recanalization and stenting of a long-segment occlusion involving the femoral and iliac veins followed by subsequent Melody valve (Medtronic Inc., Minneapolis, MN, USA) implantation in the pulmonary position. A 20-year-old male with pulmonary atresia and intact ventricular septum, status-post 1.5-ventricle repair, underwent cardiac catheterization for right ventricle-pulmonary artery (RV-PA) conduit stenosis and regurgitation. He was found to have bilateral femoral vein (FV) occlusion involving a long segment from the right FV to the inferior vena cava [Figure 1]. Serial angioplasty was performed along the occluded right iliofemoral venous system with 5 mm and 7 mm Sterling balloons (Boston Scientific Corp., Marlborough, MA, USA). Subsequently, five premounted Palmaz Genesis stents (Cordis Corp., Warren, NJ, USA) were implanted along the affected vessel totaling a length of 11 cm. All stents were further dilated with a 10 mm OPTA Pro balloon (Cordis Corp., Warren, NJ, USA). The final luminal diameter improved to 7.6 mm [Figure 2]. The patient was discharged home on aspirin with the plan to undergo repeat catheterization in 2 months for Melody valve implantation, thereby allowing adequate time for stent endothelialization to minimize the risk of stent malposition.

At the subsequent catheterization, the stents were further dilated using a 12 mm Atlas balloon (Bard Medical, Covington, GA). Serial dilation of the access site using progressively larger dilators (14–22 Fr) was performed with careful observation as they were advanced through the stented vessel. The 22-Fr Melody Ensemble delivery system was advanced through the stents under fluoroscopy without complications [Figure 3], and the valve was successfully implanted into the RV-PA conduit [Figure 4]. The patient was discharged on postoperative day #1 and remained on aspirin.

Traditionally, vascular access for interventional procedures including Melody valve implantation is obtained through the FVs. Successful implantation using alternative venous sites or a periventricular approach has been described. Femoral access is preferable because this approach provides a relatively straight course for advancement of the stiff delivery system. In our patient, Melody valve implantation from the internal jugular vein would only be possible through a “retrograde” course from the superior vena cava to the RV-PA conduit. Technically, this wire course could be achieved, but leaving the wire tip to sit freely in the RV apex would likely induce ventricular ectopy or risk perforation. In addition, the acute angles of the “Z-shaped” course might render unstable wire positioning during passage of the delivery system.

Previous descriptions of venous rehabilitation have demonstrated the safety and efficacy of systemic venous stent implantation. The use of a recanalized vein following balloon angioplasty for Melody valve implantation has been described previously. Stenting of the occluded vessels in our patient and performing
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Figure 1: Initial right femoral vein angiogram demonstrating long-segment occlusion (arrow) from the right femoral vein to the inferior vena cava with collateral decompression.

Figure 2: Angiogram following stenting of the right femoral and iliac veins demonstrating improved patency of the vessels with a minimum diameter of 7.6 mm and absence of collateral flow.

Figure 3: Fluoroscopy of the 22-Fr Melody valve Ensemble delivery system being advanced through the stented right femoral and iliac veins.

Figure 4: Angiograms demonstrating (a) narrowing in the pulmonary homograft measuring 16.8 mm, (b) which improved to 18.2 mm post-Melody valve placement.

the Melody valve implantation at a subsequent catheterization allowed us to use the preferred route for Melody valve implantation, while also preserving vessel access for use in the future. This case highlights the notion that even occluded FVs can be recanalized, dilated, and stented to a diameter large enough to accommodate a 22-Fr delivery system.

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Conflicts of interest
There are no conflicts of interest.

Neil D Patel, Jennifer A Su, Cheryl M Takao, Frank F Ing
Division of Pediatric Cardiology, Children's Hospital Los Angeles, and the Department of Pediatrics, Keck School of Medicine, University of Southern California, Los Angeles, California, USA
E-mail: frankfing@gmail.com

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Sir,

A 10-month-old girl was diagnosed at birth with multiple ventricular septal defects (VSD), coarctation of aorta, and accessory mitral valve tissue. We performed coarctation repair with resection and end-to-end anastomosis along with pulmonary artery banding through left thoracotomy in the neonatal period. Seven months later, she was reoperated to close the perimembranous VSD, and the pulmonary artery was debanded. The postoperative course was complicated due to residual VSDs, which were closed with two AMPLATZER™ muscular VSD occluders (St. Jude Medical®).

The traveller amplatzer: Surgical removal after device migration to the ventricle

The child was discharged home; but 1 month later, she was admitted to the emergency room of our hospital with tachypnea. Transthoracic echocardiography showed two intracardiac closure septal devices. The smaller one was normally positioned in the inferior apical septum. The other was lodged in the anterior heart wall, suggesting device migration leaving a large residual VSD. Thoracic computed tomography confirmed device migration with perforation of the anterior wall of the right ventricle [Figure 1].

We decided to perform urgent surgery to remove the migrated device, close the residual VSD, and resect the accessory mitral valve tissue. The right cervical vessels were dissected and prepared to cannulate in case of an emergent situation. A median resternotomy was performed and the cardiopulmonary