The Melody Transcatheter Pulmonary Valve and Ensemble Delivery System® (MTPVEDS) is designed as a non-surgical alternative to open heart corrective surgery in pediatrics or adults who have dysfunctional right ventricular outflow tract (RVOT) conduits. We describe a case of an 11-year-old patient with a history of transposition of the great arteries, ventricular septal defect (VSD), and pulmonary stenosis who presented for percutaneous MTPVEDS placement. The patient had undergone PDA ligation and placement of a Blalock Taussig shunt at birth. At one year of age, the patient underwent a Rastelli procedure with a repair and takedown of this shunt, closure of the VSD, and placement of a porcine pulmonary valve conduit. At age 3, the patient underwent open-heart surgical conduit replacement, and at age 6, the patient underwent further percutaneous stenting of this conduit. Now five years later, the patient presents with complaints of increasing fatigue secondary to RVOT conduit dysfunction. After a multidisciplinary review of the case, it was determined that the patient would be a candidate for MTPVEDS placement.

The anesthetic plan was to perform general endotracheal anesthesia. Understanding of possible complications during placement of the percutaneous valve is important. These complications include coronary artery dissection, conduit rupture, contained conduit rupture/tear, wide-complex tachycardia and other malignant arrhythmias, hypercarbia and elevation of LV filling pressure, femoral vein thrombosis, and guidewire-induced perforation of the distal pulmonary artery branch. General endotracheal anesthesia, large bore IV access, availability of blood and blood products, and close monitoring of systemic blood pressure are all important components of the anesthetic plan. The MTPVEDS has been shown to significantly reduce right ventricular outflow obstruction, provide a competent pulmonary valve, improve functional status and peak exercise parameters, and in some patients, improve biventricular function, all while avoiding another invasive surgery. Our patient underwent placement of the Melody valve without complications, and he was discharged on post-operative day #1. He has been followed closely by pediatric cardiology since then and has had an uneventful post-operative course.