HISTORY: , The patient is a 5-1/2-year-old, who recently presented with a cardiac murmur diagnosed due to a patent ductus arteriosus. An echocardiogram from 09/13/2007 demonstrated a 3.8-mm patent ductus arteriosus with restrictive left-to-right shunt. There is mild left atrial chamber enlargement with an LA/AO ratio of 1.821. An electrocardiogram demonstrated normal sinus rhythm with possible left atrial enlargement and left ventricular hypertrophy. The patient underwent cardiac catheterization for device closure of a ductus arteriosus.,PROCEDURE: ,After sedation and local Xylocaine anesthesia, the patient was prepped and draped. Cardiac catheterization was performed as outlined in the attached continuation sheets. Vascular entry was by percutaneous technique, and the patient was heparinized. Monitoring during the procedure included continuous surface ECG, continuous pulse oximetry, and cycled cuff blood pressures, in addition to intravascular pressures.,Using a 5-French sheath, a 5-French wedge catheter was inserted into the right femoral vein and advanced through the right heart structures up to the branch pulmonary arteries. The atrial septum was not probe patent.,Using a 4-French sheath, a 4-French marker pigtail catheter was inserted into the right femoral artery advanced retrograde to the descending aorta, ascending aorta, and left ventricle. A descending aortogram demonstrated a small, type A patent ductus arteriosus with a small left-to-right angiographic shunt. Minimal diameter was approximately 1.6 mm with ampulla diameter of 5.8 mm and length of 6.2 mm.

The wedge catheter could be directed from the main pulmonary artery across the ductus arteriosus to the descending aorta. This catheter exchanged over wire for a 5-French nit-occlude delivery catheter through which a nit-occlude 6/5 flex coil that was advanced and allowed to reconfigure the descending aorta. Entire system was then brought into the ductal ampulla or one loop of coil was delivered in the main pulmonary artery. Once the stable device configuration was confirmed by fluoroscopy, device was released from the delivery catheter. Hemodynamic measurements and angiogram in the descending aorta were then repeated approximately 10 minutes following device implantation.,Flows were calculated by the Fick technique using a measured assumed oxygen consumption and contents derived from Radiometer Hemoximeter saturations and hemoglobin capacity.,Cineangiograms were obtained with injection in the descending aorta.,After angiography, two normal-appearing renal collecting systems were visualized. The catheters and sheaths were removed and topical pressure applied for hemostasis. The patient was returned to the recovery room in satisfactory condition. There were no complications.,DISCUSSION: , Oxygen consumption was assumed to be normal. Mixed venous saturation was normal with a slight increased saturation of the branch pulmonary arteries due to left-to-right shunt through the ductus arteriosus. The left-sided heart was fully saturated. The phasic right-sided and left-sided pressures were normal. The calculated systemic flow was normal and pulmonary flow was

slightly increased with a QP:QS ratio of 1:1. Vascular resistances were normal. A cineangiogram with contrast injection in the descending aorta showed a small conical shaped ductus arteriosus with a small left-to-right angiographic shunt. The branch pulmonary arteries appeared normal. There is otherwise a normal left aortic arch.,Following coil embolization of the ductus arteriosus, there is no change in mixed venous saturation. No evidence of residual left-to-right shunt. There is no change in right-sided pressures. There is a slight increase in the left-sided phasic pressures. Calculated systemic flow was unchanged from the resting state and pulmonary flow was similar with a QP:QS ratio of 1:1. Final angiogram with injection in the descending aorta showed a majority of coil mass to be within the ductal ampulla with minimal protrusion in the descending aorta as well as the coil in the main pulmonary artery. There is a trace residual shunt through the center of coil mass.,INITIAL DIAGNOSES:, Patent ductus arteriosus.,SURGERIES (INTERVENTIONS): ,Coil embolization of patent ductus arteriosus.,MANAGEMENT: ,The case to be discussed at Combined Cardiology/Cardiothoracic Surgery case conference. The patient will require a cardiologic followup in 6 months and 1 year's time including clinical evaluation and echocardiogram. Further patient care be directed by Dr. X.,