A 1-day-old infant with a prenatal diagnosis of transposition of the great arteries was admitted to our unit. He was born at term, weighing 3.2 kg. He arrived in a stable condition, with saturations of 88%, on a prostaglandin infusion at a rate of 5 ng/kg per min in accordance with the prenatal plan. Echocardiogram demonstrated transposition of the great arteries with intact ventricular septum and usual coronary arrangement. There was adequate mixing via a moderate-sized atrial communication measuring 6 mm. In addition, there was a large persistent arterial duct with left-to-right shunting.

Over the next 24 hours, the infant developed tachypnea, poor systemic perfusion, and progressive metabolic acidosis. He was electively intubated and ventilated and commenced on ionotropes and antibiotics. Abdominal distension was noted without x-ray changes, and he was, therefore, started on prophylactic treatment for necrotizing enterocolitis. Repeat echocardiogram demonstrated the presence of major aortopulmonary collateral arteries in addition to a large persistent arterial duct and moderate atrial communication (Figure 1).

A cardiac catheter was performed to further elucidate the nature of the collateral vessels and perform an atrial septostomy. At the time of catheter, 2 major aortopulmonary collaterals were identified. These were successfully occluded with 2 and 1 detachable Cook patent ductus arteriosus coils (3 mm×3 loop), respectively (Figure 2).

Figure 1. Serial echocardiogram demonstrated large arterial duct (A), aortic origin of collateral vessel (B), and its tortuous course toward tight lung (C). Systolic-diastolic flow was documented on pulsed Doppler tracing (D).
His condition improved, and an arterial switch procedure was performed on day 7 of life. He was extubated after 5 days and had no significant complications in the postoperative course.

Major aortopulmonary collateral arteries or enlarged bronchial arteries are well described in transposition of the great arteries and can present problems on cardiopulmonary bypass with flow from the collaterals returning to the left atrium, resulting in blood in the surgical field and the potential for poor organ perfusion. The additional flow can also present problems in the postoperative period, with high pulmonary blood flow and cardiac volume overload requiring closure of collaterals.

These images illustrate the detection of these vessels by echocardiography before corrective surgery, allowing interventional catheter embolization of these vessels in advance of arterial switch procedure. Thus, the risk of complications during cardiopulmonary bypass and the risk of high postoperative pulmonary blood flow were avoided. Although postoperative embolization of major aortopulmonary collateral arteries has been described, this is the first report of embolization before a corrective surgical intervention in a patient with transposition of the great arteries.

**Disclosures**

None.

**References**


**Figure 2.** Serial angiogram indicated 2 major collateral vessels on aortogram (A) and on selective injections into right (B) and left (C) collateral vessels. After successful embolization, there was no antegrade flow seen on aortogram (D), and only 1 very small collateral remained patent (E).
Coil Occlusion of Aortopulmonary Collateral Arteries Before Arterial Switch Procedure in an Infant With Transposition of the Great Arteries
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