

IMAGES IN INTERVENTION

Ductus Arteriosus Spasm

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A 1-week-old baby presented for closure of a patent ductus arteriosus (PDA). She was born at 37 weeks with exomphalos, a birthweight of 3 kg, a normal karyotype, and a previously normal antenatal echocardiogram.

At birth, there was rupture of the exomphalos and she was intubated within 5 min, an orogastric tube passed, and her stomach deflated. Surgery was performed to extend the abdominal defect with a second operation performed at day 12 to provide secondary closure of the abdomen. Over this time, a loud 3/6 long systolic murmur over the precordium was detected and echocardiography at day 21 confirmed a large patent ductus arteriosus. The left heart was volume-loaded, and there was Doppler evidence of elevated pulmonary artery pressure. As there was ongoing difficulty in weaning her from ventilation, percutaneous patent ductus arteriosus closure was attempted.

Cardiac catheterization demonstrated that the pulmonary arterial pressure was over half-systemic (main pulmonary artery mean pressure: 31 mm Hg, mean ascending aorta pressure: 56 mm Hg). Angiography was performed that showed a small duct with tapering at the aortic end with mild shouldering (Fig. 1A). This was inconsistent with the echocardiogram and pressure findings. Angiography was thus repeated a few minutes later. This revealed the duct was considerably wider (Fig. 1B). A 5-mm diameter detachable coil pulled through easily and thus the procedure was abandoned and the duct closed surgically.

The ductus arteriosus is a labile vascular structure and can spasm, leading to rapid changes in size and difficulty in sizing of devices for closure. Spasm usually affects the aortic side of the ductus arteriosus and should be expected when the measured pressures suggest a large defect. Conversely, naturally occurring stenosis of the duct is almost always seen at the pulmonary artery end.

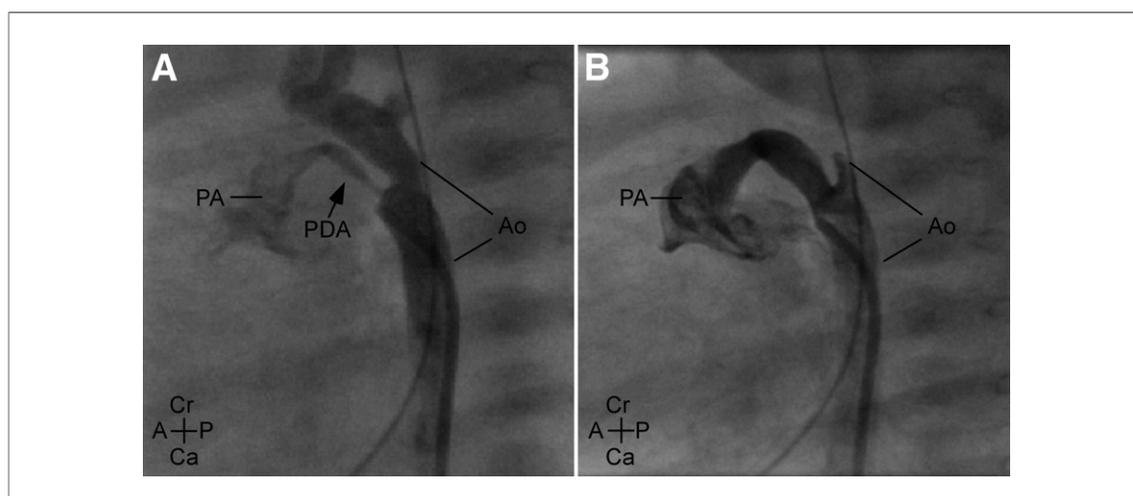


Figure 1. Ductus Arteriosus Spasm

(A) The patent ductus arteriosus (PDA) appears small, tapering at the aortic end, with shouldering of the proximal aorta (Ao). (B) Repeat angiography reveals the PDA is widely patent. A = anterior; Ca = caudal; Cr = cranial; P = posterior; PA = pulmonary artery.