

**Intraoperative Angiography to Evaluate Surgery on the Pulmonary Arteries in Infants**

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**Objectives:** Intraoperative transesophageal echocardiography has become routine for the assessment of intracardiac surgery, but has limitations in the assessment of procedures involving branch pulmonary arteries (PAs). We review our experience with intraoperative angiography for the assessment of branch PAs in infants in terms of accuracy, technique, utility, and complications.

**Methods:** An IRB approved retrospective review of infants who underwent intraoperative angiography immediately following an operation on the PAs at our institution between March 2010 and January 2013 was performed.

**Results:** Intraoperative angiograms were performed in 11 infants. Eight patients had bidirectional cavopulmonary anastomoses with (6) or without (1) pulmonary arterioplasty or with a Damus-Kaye-Stansel anastomosis (1). Two patients had bilateral PA patch augmentation alone, 1 had bilateral PA banding, and 1 had BT shunt revision. There were typically two images obtained in different planes (with a C-arm fluoroscope) using less than 1 mL/kg of contrast per injection. An interventional cardiologist and radiology technician participated in every study. There were no complications directly related to the angiograms, though 1 patient developed post-operative acute renal failure thought to be secondary to low cardiac output state. Two patients had immediate operative revision based on the angiograms (18%); 2 patients had normal angiograms despite lower-than-expected oxygen saturations, thus preventing empirical surgical revision (18%); and 2 patients had distal PA lesions that later became clinically relevant requiring transcatheter interventions (18%).

**Conclusions:** Intraoperative angiography to assess the PAs is easy and safe to perform in infants. The information is highly useful in demonstrating lesions that need immediate attention or that need to be closely followed, as well as reassurance when oxygen saturations are diminished for reasons unrelated to the repair.