Transcatheter PDA closure is the treatment of choice for most infants and children with PDAs.

Overall complication rates of transcatheter closure are estimated to be less than 10%, with higher rates when using a coil versus a device.

Complications include: device/coil embolization, hemolysis, pulmonary artery or aortic flow compromise, heart block, endocarditis, vascular access injury, anemia, pulmonary hypertension or death.

We describe a case of significant hemolysis after incomplete closure of a large PDA using a septal closure device.

### Case Report

#### Patient Characteristics
- 7 year old male, Pakistani immigrant with FTT, fatigue, and SOB
- 4/6 continuous murmur at the ULSB
- CXR with mild pulmonary edema
- Echocardiogram showed a large PDA, moderate concentric LVH, severely dilated LA and LV, EF>75%, and mild pulmonary hypertension. Turbulent flow present in descending aorta.

#### Day of Procedure
- Extubation at completion of procedure and transfer to PICU
- Coke-colored urine 2 hours following procedure.
- UA + for blood/rbc
- Urine alkalinized for renal protection
- HCT drop from 31-27, received rbc’s 20 ml/kg
- W/U for autoimmune hemolysis negative
- Serial echocardiograms showed progressive decrease in residual shunting
- Discharge home on POD #9, HCT stable
- Echocardiogram 2 months following procedure showed further decrease in residual shunting and decrease in LV size.

### Hemolytic After Device Closure of a Patent Ductus Arteriosus

**Lauren Moore, MD; Joyce Phillips, MD; Jon Love, MD**

University of New Mexico Department of Anesthesia and Critical Care, Division of Pediatric Anesthesia

*University of New Mexico Department of Pediatrics, Division of Cardiology*

**Introduction**

- Transcatheter PDA closure is the treatment of choice for most infants and children with PDAs.
- Overall complication rates of transcatheter closure are estimated to be less than 10%, with higher rates when using a coil versus a device.
- Complications include: device/coil embolization, hemolysis, pulmonary artery or aortic flow compromise, heart block, endocarditis, vascular access injury, anemia, pulmonary hypertension or death.
- We describe a case of significant hemolysis after incomplete closure of a large PDA using a septal closure device.

**Intraoperative Course and Catheterization**
- Oral premedication
- Inhalation induction followed by IV placement and intubation
- Maintenance of anesthesia uneventful
- Hemodynamically stable with widened pulse pressure.
- Cath results: PA pressure = 35 Qp/Qs = 4:1
- Ductal ampulla = 20 mm, duct diameter= 5.6 mm, ductal length = 1.5 cm.

**Ductal Closure**
- 8/6 ADO placed and did not seat
- 6 mm ASO placed in duct in good position but with incomplete occlusion

**Post-operative course**
- Extubation at completion of procedure and transfer to PICU
- Coke-colored urine 2 hours following procedure.
- UA + for blood/rbc
- Urine alkalinized for renal protection
- HCT drop from 31-27, received rbc’s 20 ml/kg
- W/U for autoimmune hemolysis negative
- Serial echocardiograms showed progressive decrease in residual shunting
- Discharge home on POD #9, HCT stable
- Echocardiogram 2 months following procedure showed further decrease in residual shunting and decrease in LV size.

### Discussion

- Patient with large, symptomatic PDA developed hemolysis after incomplete device closure of PDA.
- Residual flow through the PDA caused shearing of rbc’s and intravascular hemolysis.
- Complications of hemolysis include jaundice, anemia, coagulopathy and possible renal failure.
- Risk factors for hemolysis include: Use of coil rather than device, Younger age, Low BMI, Large PDA
- When caring for high risk patients undergoing device closure of a PDA one should be alert to the possibility of hemolysis after the procedure.

### References