

**Morphology of patent ductus arteriosus;  
a predictor of the outcome of stenting in duct-dependent pulmonary circulation  
an experience in children hospital, cairo University, Egypt**

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Background: Ductal stenting is an alternative to conventional shunt surgery in duct-dependent pulmonary circulation as it avoids thoracotomy. It is preferable now in Egypt as there is waiting list for this critical surgery and sometimes the pulmonary arteries are too small for Blalock-Taussig shunt. The key points for successful PDA stenting depend on the morphology of the duct. Objectives: To evaluate the impact of ductal morphology and heart anatomy on PDA stenting in neonates & young infants with duct-dependent pulmonary circulation in Children Hospital, Cairo University. To correlate the morphology of PDA with the outcome of the stenting procedure. Patients & Methods: During the period from April 2008 until November 2010, 46 patients with duct-dependent pulmonary circulation were referred for PDA stenting. In most of the patients, the diagnosis had been established by echocardiography. The role of angiography is to have a detailed evaluation of the ductus arteriosus morphology and size. All patients with duct-dependent pulmonary circulation, patients unable to undergo a shunt operation. Results: Successful PDA stent was achieved in 29 cases (63%) and failed in 16 cases (41.3%) out of 46 patients. Statistical significant rise in the oxygen saturation was observed in the successful group ( $67 \pm 6\%$  versus  $87 \pm 7\%$ ,  $P < 0.001$ ). Mean age of the patients at PDA stenting was  $20 \pm 12$  days (range 1 - 210days) and mean weight was  $3.4 \pm 0.3$  kg (range 2.8 - 6.5 kg). Ten patients had biventricular physiology and 36 patients had univentricular physiology. In horizontal ducts (19 patients) the success was 100%, in vertical ducts (10 patients) success was 40%, while in tortuous ducts (17 patients) success was 35%. PDA stenting was feasible in 50 % of the cases with pulmonary branch stenosis. Pulmonary atresia with intact interventricular septum followed by tricuspid atresia with pulmonary atresia was the best cardiac anomaly for successful ductal stenting. Conclusion: Select properly the cases for ductal stenting and although tortuous ductus and branch pulmonary stenosis are difficult ones, they still might be achievable. Early duct stenting significantly shortens hospitalization and reduces treatment costs of prostaglandin infusion.