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Does arterial duct morphology predicts success and/or failure of stent treatment ?

Gewillig M., Cools B., Heying R., Roggen M., Eyskens B., Boshoff D.
Leuven University, Belgium

Introduction
Stenting the arterial duct appears an elegant palliation for patients with decreased pulmonary flow. However results vary from good lasting palliation to catastrophic procedure.
Methods
From 2001 till 2017, 117 patients with duct dependent pulmonary flow. 22pts were not referred for duct stenting (clinician preference 10, too tortuous 12). In straight ducts Prostin IV was tailored to have moderate constriction at time of stent deployment. The duct was crossed with a Progreat™ microcatheter, and exchanged for a stiff 0.014" IronMan™ coronary catheter. A coronary stent was positioned through a 4F sheath. Acetyl-salicylic acid 1-2 mg/kg/d. When prolonged ductal flow was required, elective restenting was performed, and later redilation up to 5.5 m as indicated.
Results were retrospectively assessed on anatomic features: A/ straight duct as in PA-IVS; B/ duct in severe PS single ventricle; C/ duct in PA-VSD, angle >120° very tortuous; D/duct from subclavian artery to single lung; E/ duct from subclavian artery to both lungs.
Results
Duct stenting was attempted in 95 patients. At initial procedure stenting failed in 14 pts (no wire crossing 11, no positioning stent 2, too large 1) and was delayed in 13 (duct too large 7 in type A, need for other access 3 in type C, other). Good stenting was obtained in 81pts. Type A-B-D were "easy", type C was demanding. Early re-intervention was required in 8 (incomplete covering 3, exclusion left PA 3, abundant flow requiring flow reductor 1, kink 1).
8 patients died at interval; 2 possibly stented duct related (acute collaps at home). The duct was abandoned in 15 after 17(1.5-91) months, actively closed in 3. In 32 patients elective restenting was performed at 7(1.5-21) months. In 13 pts re-redilation was performed at 16(7–90) months to allow repair at bigger size. Pts evolved to Glenn 19, PA-VSD repair 10, Nikaidoh 3, RV overhaul 2, unifocalisation 2.
Conclusions

Ductal stenting in selected patients can give good lasting palliation until successful repair. The vertical tortuous duct (D) and very long type (E) require experience and adapted techniques.