

Self-expanding stent Sinus superflex Visual to create an unrestrictive atrial communication in infants

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Background: In infants with complex CHD an unrestrictive atrial septal communication may be necessary. However balloon septostomy and dilation may be inefficient in creating an adequate atrial shunt; blade septostomy requires a big sheath and balloon expandable stents may slide and embolise. We evaluated the use of a 5F self-expanding “hooked” stent for this indication.

Patients and methods : Procedure done in 6 infants requiring a stable atrial shunt after failed Rashkind or thick atrial septum predicting poor result. Access through a 5 Fr sheath in the femoral vein. A 0.014” stiff coronary wire is preferably curled in left atrium; balloon interrogation of atrial septum with a soft balloon (10 mm Tyshak, Numed); optimizing the beamer angulation (LAO-cranial) perpendicular to the atrial septum; positioning of Optimed Sinus superflex Visual® 5F 10/20 mm; opening the distal part in the LA, hand injection through sidearm of the sheath to delineate relationship with the septum; pull back if required; opening the stent completely; post dilation if required. Low dose acetylcyclyic acid is given at 2 mg/d.

Results: 6 infants age median 3.7 months (range 1.0 – 7.8); CHD: complex TGA (1), tricuspid atresia (1), small left heart (4). In all patients the stent was successfully deployed; the anti-jump technique and visual markers allowed perfect placement; the open cell design provides the stent to hook at the septum, preventing sliding or embolisation. In all patients the stent provided an adequate unrestrictive atrial communication until the next surgical step [complex switch (1) or Glenn (5)]. The timing of the next operation was elective and not imposed by inadequate atrial shunt. All stents could easily be removed by the surgeon. No evidence of any shift or thrombo-embolic event during a follow-up of 4.7 months (range 1.4-7.0). The stent was firmly attached to the atrial wall.

Conclusions : Sinus superflex Visual® stent delivered safely through a 5F sheath allows to obtain an adequate atrial connection for several months in infants with complex congenital heart disease.