Stent-implantation into the intraatrial septum after hybrid procedure in hypoplastic left heart syndrome with self-expanding PDA-stents

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Introduction: After bilateral pulmonary artery banding (PAB) and stent-implantation in the patent ductus arteriosus (PDA) as an alternative to the classical Norwood I surgery in neonates with hypoplastic left heart syndrome (HLHS), a restriction of the intraatrial septum occurs in approx. 50% of the cases. This can be treated interventionally, the septostomy is usually performed during the comprehensive stage II.

Method: Since April 2013 we have implanted the self-expandable Sinus-superflex-DS stent, Optimed, Esslingen, in 12 patients (age median 45 days, range 5-114 days) with HLHS if the invasive gradient was higher than 5 mmHg in mean. In two cases the Sinus-superflex-DS stent 7x12 mm, in seven the 8x15 mm and in three patients the 8x12 mm stent was inserted through a 4 Fr sheath placed in the femoral vein.

Results: Alls PDA-Stents were successfully implanted in the IAS, no stent dislocation was observed. The mean gradient dropped from 15 mmHg median (range 6-20) to 2 mmHg median (range 1-4).

Discussion: The self-expanding sinus-Superflex-DS stent in open-cell design is very flexible and adjusts to the duct morphology. The pull-back mechanism allows a very precise positioning without jumping effects. All these characteristics are favourable for implanting this stent into the duct, but also into the IAS.