Trans-hepatic implant of a trimmed Melody® valved stent in tricuspid position in a 1 year old infant: first in man.

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Introduction
The trans-hepatic approach provides a safe alternative route for cardiac interventions in children with complex congenital heart disease. We describe a transhepatic implant of a custom trimmed valved stent (Melody) in a 1 year old infant. This is the first procedure of his kind in man.

Method and results
Infant with prenatal constriction of arterial duct leading to massive tricuspid regurgitation. Neonatal two surgical plasty attempts failed and therefore a De Vega plasty of the tricuspid valve failed as did an aug a bioprosthetic valve was implanted on day 30 (19 mm Epic™ aortic valve, St Jude Inc.). At the age of 1 year again a massive tricuspid regurgitation (3-4/4) was present. A surgical replacement was deemed to be too aggressive and too soon. Therefore a new bioprosthetic valve was implanted percutaneously. A transhepatic access was used deal with the size mismatch of the 20 Fr delivery and the vessels of an infant weighing 9.7 kg. The Melody valve was surgically trimmed by cutting som ziggs to 21 mm length. Echo guided puncture of hepatic vein with a Chiba Echotip® Biopsy Needle (Cook®), a 0.014” wire was placed into the right atrium. An 8 Fr introducer sheath was placed into the IVC. A 4 Fr right coronary catheter with a 0.035” J-tip Terumo® wire was advanced into the right pulmonary artery. Exchange for a 0.035” Amplatzer Super Stiff wire. Exchange for a 20 Fr sheath (Edwards Lifescience®) with a downsized introducer. The trimmed Melody® valved stent was delivered on a 16 mm Tyshak® balloon with the support of 8 Fr Mullins sheath. The 20 Fr sheath was pulled back into the hepatic vein until the hepatic parenchym was reached. Two vascular plugs: 8 and 10 mm Amplatzer Vascular Occluder were deployed in tandem position in the hepatic veins. The skin was closed with 1 Donati stitch.

Discussion
This is the first trans-hepatic implant of a tailored downsized Melody valve in an infant. The therapeutic spectrum for complex procedures has been enlarged.