

# Stent Intervention in a 5-Month-Old Child Supported by *syngo* DynaCT

Courtesy of Gregor Krings, MD

Department of Pediatric Cardiology, Children's Heart Center, University Medical Center Utrecht, The Netherlands

## Patient History

5-month-old boy, 7 kg weight, with Williams-Beuren syndrome.

## Diagnosis

Severe RV pressure load (systemic level) due to main, right and left pulmonary artery stenosis. Mild supravalvular aortic stenosis (gradient 10 mmHg), no aortic arch obstruction.

## Treatment

Implantation of three Cook Formula 535 stents: one in RPA (8x20 mm) and two stents in LPA (8x16 mm). *syngo* DynaCT rotational angiography and 3D reconstruction before and after stent intervention.

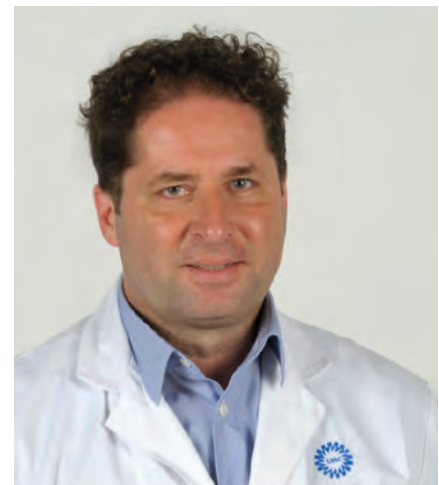
## Comments

Performing an initial double location *syngo* DynaCT angiography run enabled us to get all anatomical information – right and left heart – in one run instead of three to four separate biplane angiographies (RV, PA bifurcation, LV and ascending aorta, see Fig. 1). Virtual achievable angulations would not have been possible with conventional biplane systems. By duplicating the initial rotational angiography on the workstation, two identical *syngo* DynaCT datasets were fused with each other. This was performed to visualize the right and left heart anatomy separately with two different colors and to have the ability to blend between the two datasets (Fig. 2). Additionally, the 3D datasets were used as a Roadmap during the intervention (Fig. 3). After stent implantation another rotational angiography (single location injection into RV) and *syngo* DynaCT reconstruction were performed to prove the absence of dissection. The 3D comparison between the pre- and post-status is visualized by merging the pre- and post-*syngo* DynaCT dataset with each other (Fig. 4). Choice of stents: Cook Formula 535 stent 8x16 and 8x20, implanted through 5 F long sheath, can be dilated (off-label use) up to 16 mm diameter.

## Protocol

Pacing electrode Bard 4 F via 5 F venous long sheath in right ventricle (RV), rapid pacing of RV with 220 beats/min and 50% drop of ABP, manual injection of 30 cc contrast (diluted to 60%) through the RV long sheath and simultaneous pump injection of 30 cc contrast (60%) with 5 cc/sec via Pigtail catheter into ascending aorta, 1 sec X-ray delay, zoom 42 cm, rotation with 1.5 degree/frame. Effective radiation dose of each *syngo* DynaCT run: 0.3-0.5 mSv (Montecarlo model calculation). Dose area product (pre- and post-*syngo* DynaCT run versus total amount): 34 / 28 (1457)  $\mu\text{Gy}/\text{m}^2$ .

Gregor Krings, MD



## Contact

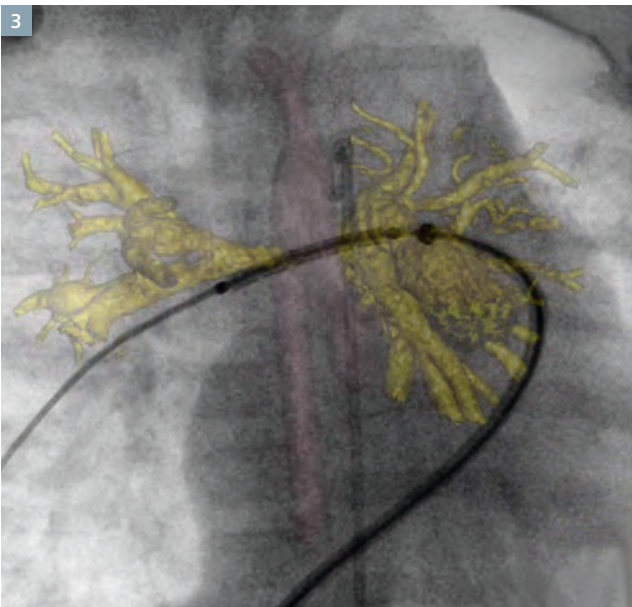
david.groke@siemens.com



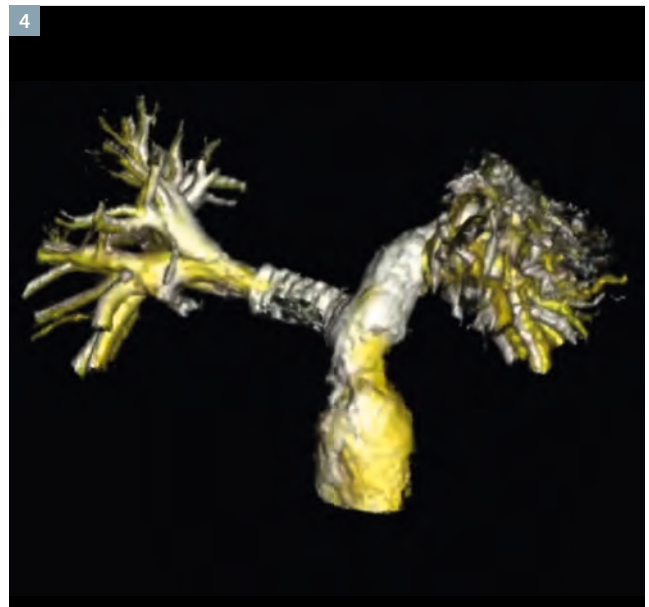
1 AP projection from rotational angiography.



2 Doubled syngo DynaCT dataset after post-processing, merged with each other to separate aortic morphology (silver) from pulmonary arteries (gold) prior to stent intervention.



3 Use of syngo DynaCT 3D roadmap (syngo iPilot) during RPA stent placement.



4 Overlay pre-post syngo DynaCT.