3D CONNECT

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3D printing for a new paradigm in medical & surgical planning

Dr.: Swati Garekar (Paediatric Cardiologist)

Case: 10-month old Infant weighing 4.6 kg with a double outlet right ventricle. The great arteries are d-imposed & the aortic valve is anterior to the pulmonary valve. There is a moderately severe pulmonary stenosis with a peak gradient of 54mmHg. Pulmonary valve is hypo plastic and the branch pulmonary artery is confluent and normal in size. There is a large inlet ventricular septal defect which is separated from semilunar valve by a small chunk of conal septum. The ventricular septal defect is routable to the aorta with a long baffle.

Surgery: The patient underwent a Nikaidoh complex surgery. Two great arteries arising from the heart were disconnected & repositioned. The hole in the heart was closed.

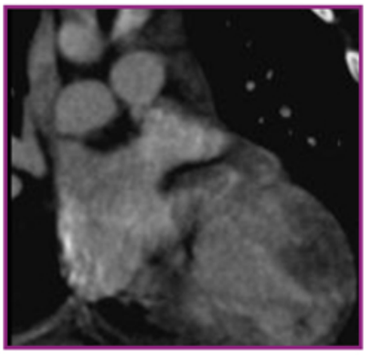

Image 1:
Pre Op CT Image

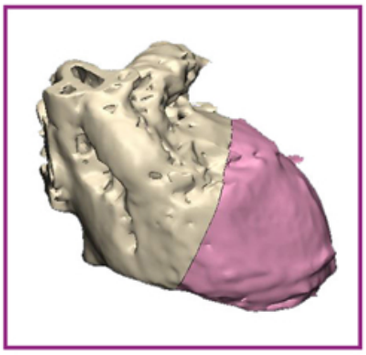

Image 2:
3D Reconstructed Model in 3D print (.stl) format

Image 3:
3D printed model
(Cross Sectional View)

Image 4:
3D printed model

BENEFIT OF ANATOMICAL MODEL

The 3D model gave the surgical team a good idea of what to expect when they open the heart as “nobody likes surprises”. Sometimes the echocardiography doesn’t do complete justice in such complex cases.

FROM THE DOCTOR

“In complex cases like Nikaidoh, a 3D model helps us to understand the routing. Especially when there is different intracardiac routing, we know exactly where the hole is & how great arteries are related to each other & to the hole.”

3D printed pre-surgical anatomical models, pre-surgical guides and customised surgical implants used in:

3D future technologies

3rd Floor, Ador House, 6, K. Dubash Marg, Fort, Mumbai - 400001 Tel: + 9122 61935500
info@3dfuturetechnologies.com, www.3dfuturetechnologies.com