

Initial local center experience with **cinematic rendering** for **complex congenital heart diseases** through computed tomography and magnetic resonance imaging - a pictorial review.Dr Leanne H.Q. Chin¹, Kenneth KY Cheung²¹DEPARTMENT OF RADIOLOGY, QUEEN MARY HOSPITAL, HONG KONG²DEPARTMENT OF RADIOLOGY, HONG KONG CHILDREN'S HOSPITAL, HONG KONG

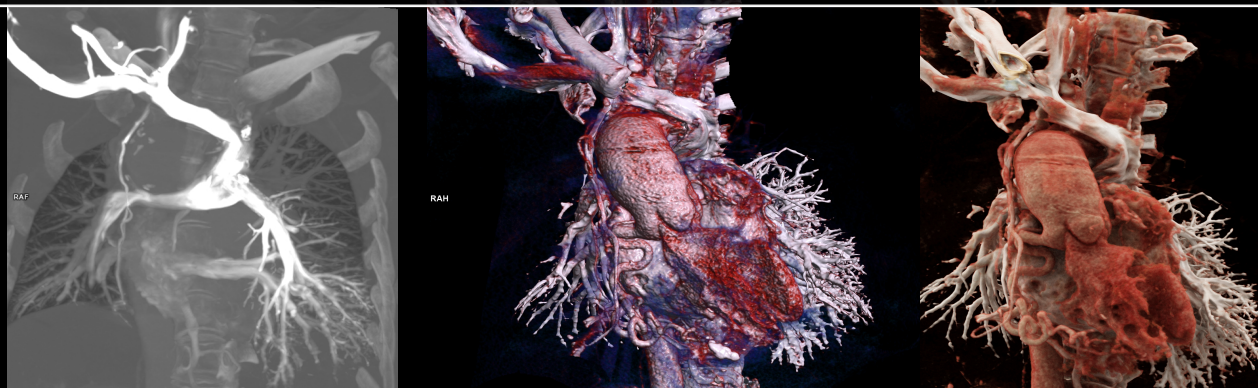
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OBJECTIVES: To illustrate a pictorial review in the various roles and clinical applications of the novel cinematic rendering technique (CRT) in visualisation of complex anatomical details, especially in the setting of complex congenital heart diseases (CHD).

METHODS: Pictorial comparison of cinematic rendering (CRT) images with the traditional 3D volume rendering technique (VRT) and multiplanar reformatted (MPR) images are gathered in various congenital heart disease (CHD) cases. These cases are post-processed from volumetric data that are either acquired from computed tomography (CT) or magnetic resonance imaging (MRI). Different spectrum of congenital heart diseases are illustrated with post-processing techniques.



MIP, VRT and CRT images of the contrast-enhanced dual gated 3D inversion recovery FLASH images of an 18 year old girl with tricuspid atresia post-year old child with hypoplastic left heart syndrome post extra-cardiac Fontan operation. Extensive collaterals from the bilateral internal mammary, lateral thoracic and phrenic arteries.



MIP, VRT and CRT Contrast enhanced CT images of a 34 year old woman with pulmonary atresia post left bidirectional pulmonary connection. CR accurately depicts the unobstructed BOPC with extensive intrapulmonary pulmonary arteriovenous fistulations. An incidental finding of tortuous right coronary artery was also evident.



MIP, VRT and CRT images of the contrast enhanced time resolved MRA (TWIST) of a 16 year old child with hypoplastic right ventricle post right ventricular outflow tract pericardial patchy repair and left pulmonary vein (LPV) obstruction. CR can accurately depict the morphology of the RVOT reconstruction as well as depiction of reduced pulmonary arterial flow to the left lung secondary to LPV obstruction.

CONCLUSION: Cinematic rendering can potentially serve as an invaluable tool alongside traditional post-processing MPR and VR techniques to assist in visualisation of complex CHDs especially for pre-surgical planning, detection of disease and postoperative complications as well as training and education.