PERFORATION BY CATHETER INTERVENTION FOR THE CALCIFIED OBSTRUCTION OR ARTIFICIAL CONDUIT-PLANNING BY MULTI-PLANAR RECONSTRUCTION IMAGE ON CARDIAC CT

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BACKGROUND
Perforation is an essential technique to reopen the chronic occluded vessels. However, penetration of calcified obstruction or artificial conduit is still challenging.

OBJECTIVE
To establish safety procedures to perforate calcified obstructions or ePTFE conduits.

METHODS AND RESULTS
Before the catheter procedure, multi-planar reconstruction (MPR) image was performed for the planning of catheter intervention.

Case 1: 18 y/o male, SRV, post extracardiac (ePTFE)- TCPC, protein loosing enteropathy (PLE). Creation of Fontan fenestration was planned for reduction of CV pressure. While fixing Brockenbrough (BB) needle by snare catheter (snare assistant technique), stiff side of 0.014 inch guide wire advanced through tip of BB needle. Subsequently, perforation was dilated by 10mm balloon and then Palmaz stent was implanted. PLE improved.

Case 2: 41 y/o male. TGA, post Mustard procedure, SVC syndrome (calcified complete obstruction from SVC to RA). Steerable sheath was placed to fit occlusion as vertical. Then sharpened 0.014 inch guide wire advanced toward SVC. The perforation was dilated in stages by balloon catheter up to 18mm diameter.

Case 3: 41 y/o male, Right isomerism, SRV, po TCPC (lateral tunnel using ePTFE), Atrial tachycardia. To access common atria, perforation of the Fontan rout was planned. While fixing BB needle by snare assistant technique, BB needle gently advanced to common atria. The perforation was dilated by 5 mm balloon.

Catheter ablation was successful without complication. In all cases, MPR image could provide us with useful information to make a precise plan.

CONCLUSION
Snare assistant technique and steerable sheath is useful for back-up support. Stiff side of thin wire or sharpened wire could penetrate even the tough calcified lesions. MPR image on cardiac CT is a useful tool to make a feasible plan.