

# Progressive Aneurysmal Dilation of CAF after Transcatheter Closure: Successfully Treated by Second Occlusion

Prachosrchai P. (1), Promphan W. (1), Loyongool T. (3), Songtaweasin C. (1), Kirawittaya T. (1), Tassanawiwat W. (2), Siripornpitak S. (3), Qureshi S.A. (4)  
 Queen Sirikit National Institute of Child Health, College of Medicine, Rangsit University, Bangkok, Thailand (1); Sappasitprasong Hospital, Ubonratchathani, Thailand (2);  
 Department of Diagnostic and Therapeutic Radiology, Faculty of Medicine, Ramathabodi Hospital, Mahidol University, Bangkok, Thailand (3); Evelina Children's Hospital, London, UK (4)

A 3-year-old boy presented continuous murmur and heart failure from a large coronary artery fistula (CAF) of the right coronary artery (RCA) to the right ventricle (RV). (Figure 1) The fistulous tract was significantly dilated at its distal segment before entering into the RV. The diameter of aneurysm was 25 mm and RV orifice was 4 mm. As for concerns of significant heart failure and risk of coronary insufficiency, the CAF was percutaneously closed by Amplatzer duct occluder (ADO) I 8/6 at its RV orifice. (Figure 2) No residual shunt after the procedure. However, he was lost to follow-up. Three years later, he was referred from local pediatric cardiologist because of a huge vascular structure compressed the RV free wall. (Figure 3) CT angiography showed a huge blind pouch fistulous track (31 x 42 mm) with RV compression. (Figure 4) Compared to previous measurement of the aneurysmal part prior to TCC, the size of the pouch was significantly increased. In addition, there was evidence of reconstitution posterior descending artery (PDA), distal RCA and part of middle-RCA by the distal left anterior descending artery (LAD). RCA angiogram showed device was nicely seated at the RV exit point without residual shunt. Small native RCA branch was demonstrated just proximal to fistulous waist. LCA angiogram showed normal branch with good perfusion supplied to the right coronary territory. Test occlusion, by a balloon wedge catheter, showed no ST-T change. The aneurysm was successfully closed by Amplatzer vascular plug (AVP) II 12 mm with tiny residual shunt. (Figure 5) Normal ECG was demonstrated after the procedure. Two weeks later, the echocardiogram revealed clot formation in the aneurysm. The plug was well seated without residual shunt. (Figure 6) There was good LV and RV contraction without abnormal regional wall movement and no evidence of myocardial infarction from ECG tracing.

Figure 1: Ascending aortogram in antero-posterior (AP) projection showing huge fusiform aneurysmal dilatation of mid RCA and fistula connected to the RV.

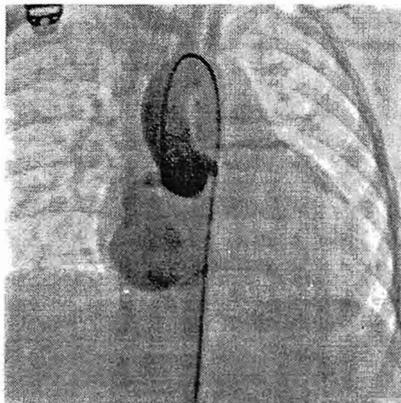


Figure 2: Aortogram in lateral projection showed a complete occlusion of CAF by Amplatzer Duct Occluder (ADO) I (arrow) at RV exit.



Figure 3: A) Apical four chamber view B) Parasternal short axis view at the level of mitral valve orifice demonstrating a huge right coronary artery aneurysm (CAA) compressed RV anterior wall C) Parasternal short axis view at the exit point of the fistula showing complete occlusion by ADO I (arrow) (CAA: Coronary aneurysm, LV: Left ventricle, RV: Right ventricle)



Figure 4: A) Coronal oblique reformation demonstrated a huge RCA aneurysm (arrow) B,C) Volume rendered of the RCA aneurysm and distal RCA. (RCA: Right coronary artery)

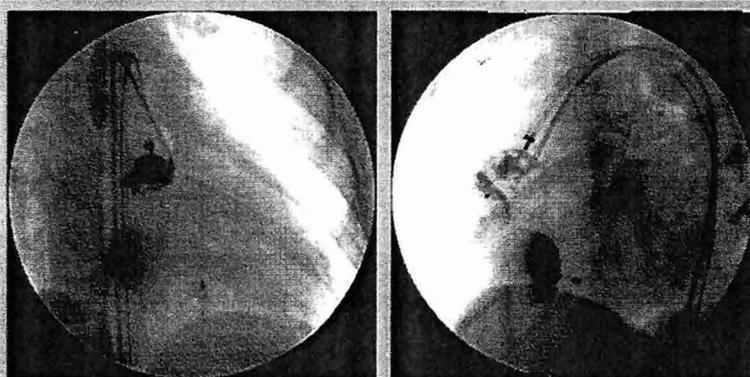


Figure 5: Selective RCA angiography in AP and lateral projection immediate after deployment of AVP II 12 mm. Residual foamy shunt still visible.



Figure 6: A) Organized clot formation was demonstrated inside the aneurysm in apical four-chamber view. B) AVP II (arrow) seated at proximal RCA in parasternal short axis view.