Case Report

Congenital Giant Right Coronary Artery

Abstract

Giant coronary artery aneurysms are exceptionally uncommon with an incidence of 0.02%. The natural history and prognosis of giant coronary artery aneurysm are still not well known.

Keywords: *Aneurysm, congenital, giant coronary artery*

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Giant coronary artery aneurysms are exceptionally uncommon with an incidence of 0.02%.[1-3] Commonly observed cause of coronary artery aneurysm are atherosclerotic coronary artery disease, followed by Takayasu's arteritis, Kawasaki's disease, iatrogenic complications such as stent implantation, and infectious endocarditis.[4,5] Coronary artery aneurysm forms fistulous connection generally with right heart chamber structures. Most cases of coronary artery aneurysm (congenital or acquired) are reported in adult patients usually during coronary angiography. It is very rare to find such giant coronary artery in pediatric patient during cardiac surgery.

A 1-year-old female patient, diagnosed as tetralogy of Fallot, was referred to our center for modified Blalock–Taussig shunt. Catheterisation study report from other center did not reveal any significant abnormality. Intraoperative transesophageal echocardiographic aortic valve short axis view showed hugely dilated right coronary artery (RCA) [Figure 1] with color flow [Figure 2] Transesophageal echocardiographic long axis view revealed subaortic ventricular septal defect with large RCA [Figure 3]. After midline sternotomy, operative findings confirmed unusually large RCA with fistulous connection to main pulmonary artery [Figure 4].

Giant coronary artery aneurysm is defined when its diameter exceeds 2 cm. In the present case, diameter of RCA was 5.2 cm. The natural history and prognosis of giant coronary artery aneurysm are still not well known.

Although most of the patients with coronary artery aneurysm are asymptomatic but they may present with complications such as thrombosis, rupture, tamponade, or myocardial ischemia.[6] Due to rarity of the lesion, no evidence-based guidelines are recommended yet. Even though asymptomatic patients with small aneurysms can be managed conservatively, anecdotal case reports of adult patients suggest surgical or interventional therapy for giant and symptomatic aneurysms. Aneurysmal resection along with fistula closure and coronary artery bypass grafting is the preferred surgery.[7]

In cyanotic heart disease, extramural coronary arteries may initially dilate due to increased endothelial nitric oxide and prostaglandins in response to raised shear stress of the viscous erythrocytotic perfusate.[8] Aneurysmal dilatation can also possibly be explained by mural attenuation owing to coexisting medial abnormalities of elastic fibers, smooth muscle, ground substance, and collagen prevalent in a variety of congenital heart diseases.[9] Previously one case with aneurysmally dilated coronary artery with fistula in an adult patient of tetralogy of Fallot was reported. The patient underwent total correction but without any intervention on coronary artery and fistula.[10] However, the present case involves a much younger child with larger coronary artery aneurysm. Considering the infantile age of the present case, only modified Blalock–Taussig shunt was

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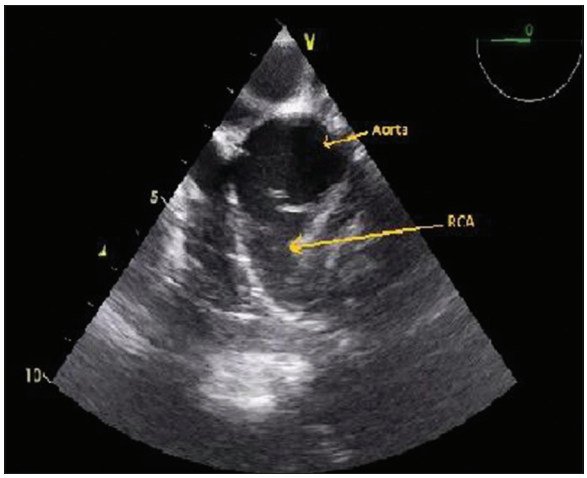

Figure 1: Transesophageal echocardiographic aortic valve short axis view showed huge dilated right coronary artery

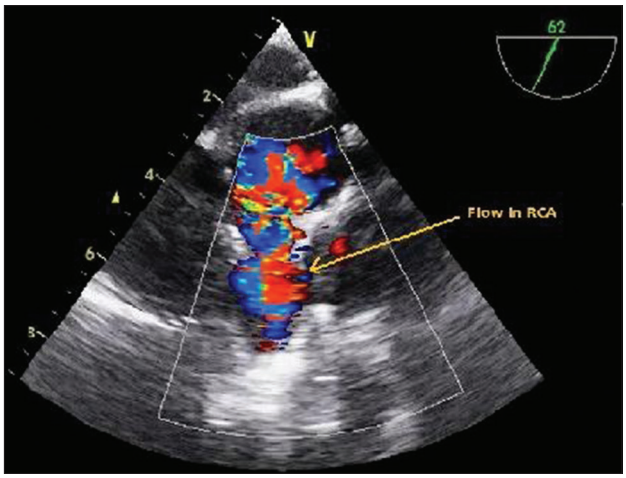

Figure 2: Transesophageal echocardiographic aortic valve short axis view showed huge dilated right coronary artery with color flow

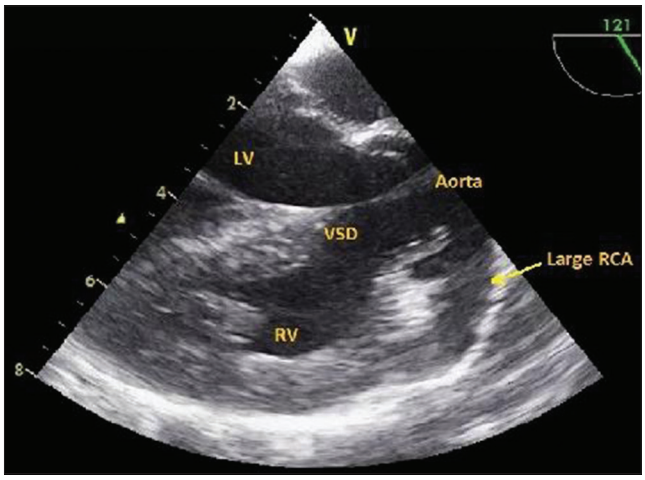

Figure 3: Transesophageal echocardiographic long axis view revealed subaortic ventricular septal defect with large RCA

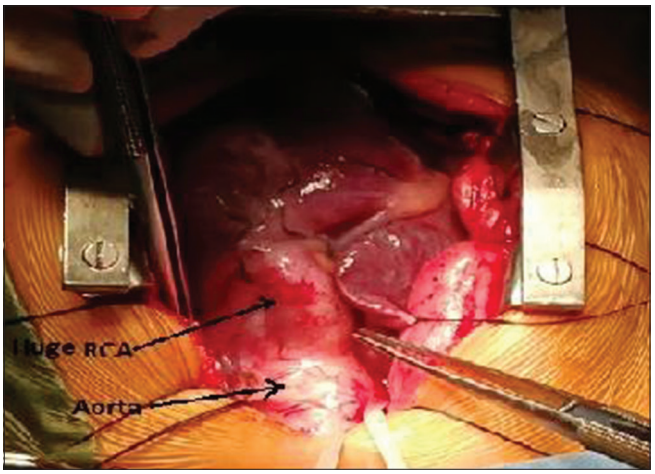

Figure 4: Surgical picture showing large RCA

performed and postoperatively antiplatelet therapy was started.

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Conflicts of interest

There are no conflicts of interest.

References

1. Barr J, Acharya MN, Kourliouros A, Raja SG. Technical considerations of giant right coronary artery aneurysm exclusion, Case Rep Surg 2016;2016:3795640.
2. Nichols L, Lagana S, Parwani A, Coronary artery aneurysm: A review and hypothesis regarding etiology, Arch Pathol Lab Med 2008;132:823-8.
3. Fernandes ED, Kadivar H, Hallman GL, Reul GJ, Ott DA, Cooley DA. Congenital malformations of the coronary arteries: The Texas Heart Institute experience. Ann Thorac Surg 1992;54:732-40.
4. Kanamitsu H, Yoshitaka H, Kuinose M, Tsushima Y. Giant right coronary artery aneurysm complicated by acute myocardial infarction, Gen Thorac Cardiovasc Surg 2010;58:186-9.
5. Tsuda E, Kamiya T, Ono Y, Kimura K, Echigo S. Dilated coronary arterial lesions in the late Gurgaon which stateperiod after Kawasaki disease. Heart 2005;91:177-82.
6. Jha NK, Ouda HZ, Khan JA, Eising GP, Augustin N. Giant right coronary artery aneurysm- case report and literature review. J Cardiothorac Surg 2009;4:18.
7. Dolapoglu A, Ott DA. Giant right coronary artery aneurysm associated with a fistula draining into the superior vena cava. Tex Heart Inst J 2016;43:360-2.
8. Perloff JK. Cyanotic congenital heart disease the coronary arterial circulation. Curr Cardiol Rev 2012;8:1-5.
9. Niwa K, Perloff JK, Bhuta SM, Laks H, Drinkwater DC, Child JS, *et al*. Structural abnormalities of great arterial walls in congenital heart disease: Light and electron microscopic analyses. Circulation 2001;103:393-400.
10. Fedakar A, Şaşmazel A, Bugra O, Boyacıoğlu K, Baysal A, İnci A, *et al*. Coronary artery aneurysm and coronary fistula in tetrology of fallot: A case presentation of a young adult undergoing total correction. Kosuyolu Heart J 2010;13:23-5.