



CASE REPORT

Anatomic Variability in Coronary Cameral Fistulae: Two Case Reports

Article History:

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Abstract: Coronary cameral fistula is a rare congenital coronary anomaly, and its detection in the pediatric age group is even more uncommon. Although often asymptomatic, timely intervention is warranted once the diagnosis is established to prevent long-term complications.

We report two unusual pediatric cases diagnosed incidentally during evaluation for cardiac murmurs. The first case involved a 2-year-old asymptomatic child found to have a left anterior descending coronary artery-to-right ventricle fistula. The second case was a 1-year-old child presenting with exertional dyspnea and a murmur, in whom a fistulous connection between the left main coronary artery and the right atrium was identified. Both children underwent successful trans-atrial surgical closure of the fistulae under cardiopulmonary bypass, with excellent postoperative outcomes. These cases highlight the anatomic variability of coronary cameral fistulae in infants and underscore the importance of early diagnosis and definitive surgical management.

Keywords: Coronary cameral fistula; Congenital; Murmur; coronary artery; cardiac chamber

INTRODUCTION

Coronary cameral fistula accounts for around 0.002% of prevalence in general population, and a fraction of 0.05%- 0.25% of patients undergoing conventional coronary angiography reveal its presence^{1,2}. Coronary cameral fistula in children more commonly arises from right coronary artery as compared to left coronary artery³. The most common form of fistula is from right coronary artery

to right ventricle⁴.

We report rare occurrence of 2 cases of coronary cameral fistula in paediatric patients, one with a fistula from left coronary artery to right ventricle, and another with a fistula from left main coronary artery to right atrium. Both patients underwent surgical trans-atrial closure of fistulous connection.

CASE REPORT

Case Report 1: A 2-year-old girl was found to have a continuous heart murmur during evaluation for a respiratory tract infection. Echocardiography revealed a hugely dilated left main coronary artery and left anterior descending coronary artery draining into the right ventricle, confirmed by a catheter coronary angiography (Figure 1). Oximetry showed a significant step-up of 15% between superior vena cava and pulmonary artery readings. A computed tomography angiogram could not be done due to persistent tachycardia.

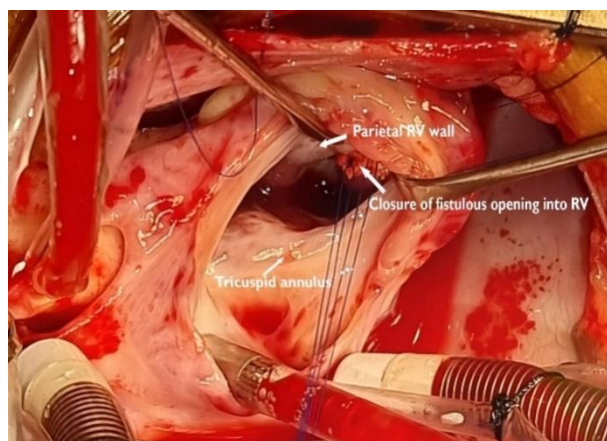


Figure 1: Conventional coronary angiography still of Case 1 showing injection of contrast into the left main coronary artery ostium. The contrast is seen opacifying the left anterior descending artery and its fistulous communication to right ventricle via a terminal sac.

She was undertaken for surgery through median sternotomy which showed a hugely dilated and tortuous left main coronary artery and left anterior descending artery. The terminal sac of the fistulous opening was seen draining into the right ventricle (Figure 2).



Figure 2: Intraoperative photograph of Case 1 showing the terminal sac of the fistula opening into

the right ventricle (RV).

Standard aorto-bicaval cardiopulmonary bypass was established and cardioplegic cardiac arrest was achieved. The right atrium was opened after snugging both cavae. The fistula was noted to open just beyond the anterior leaflet of the tricuspid valve in the right ventricle and was closed with two interrupted 5/0 polypropylene pledgetted sutures (Figure 3). The child had an uneventful recovery and was discharged from the hospital on 6th postoperative day.

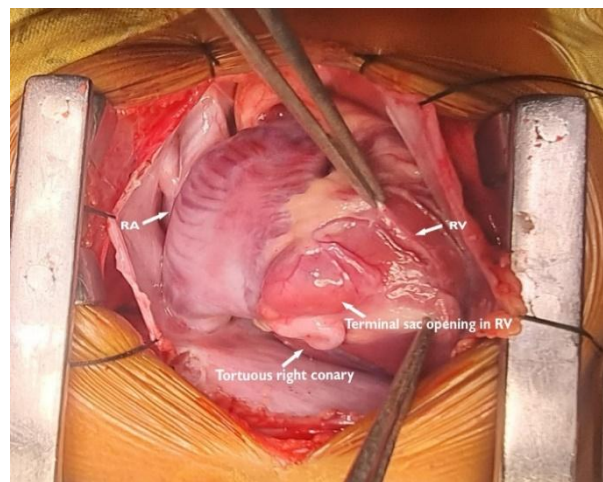


Figure 3: Intraoperative photograph of Case 1 showing interiors of right atrium and right ventricle (RV) with fistulous opening being closed with pledgetted sutures.

Case Report 2: Our second case was a 1-year-old male, weighing 8 kg, was referred with complaints of dyspnoea on exertion and an audible murmur on the precordium. Echocardiography study revealed dilated left main coronary artery (LMCA) and its branches. Angiography study revealed fistulous communication between the LMCA and the right atrium.

Patient underwent surgical repair through median sternotomy. The LMCA, the left anterior descending artery, and the left circumflex artery were dilated (Figure 4).

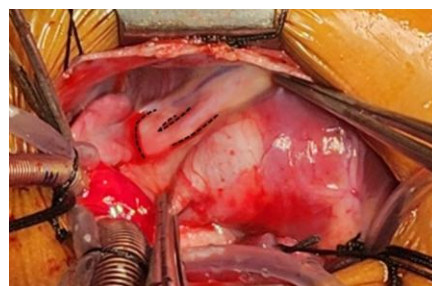


Figure 4: Intraoperative photograph of Case 2 showing dilated left main coronary artery, left

anterior descending artery and left circumflex artery.

After standard cardiopulmonary bypass and cardioplegic cardiac arrest, right atriotomy revealed the fistulous opening in the right atrium (RA) (Figure 5A).

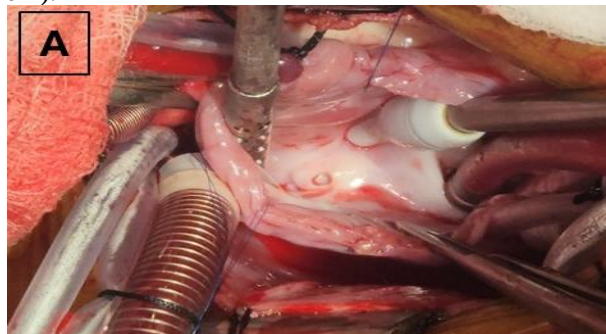


Figure 5A: Intraoperative photograph of Case 2 with right atriotomy showing the fistulous opening.

It was confirmed with cardioplegia delivery into the root which escaped through the opening in the RA. This was repaired with a pledgetted 6-0 prolene suture (Figure 5B). This patient too had an uneventful postoperative recovery.

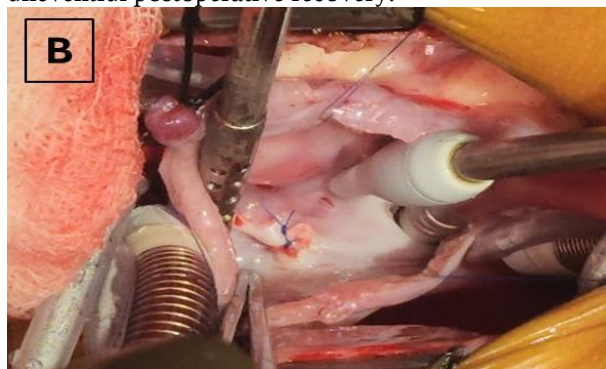


Figure 5B: Shows the repair of the opening using pledgetted 6-0 prolene suture.

could get compromised with any other intervention. Hence direct surgical closure was the procedure of choice and was performed successfully.

We conclude that coronary cameral fistula is a rare but potential cause of continuous cardiac murmur in kids and should be evaluated without delay. Early surgical repair is a safe modality of treatment and avoids further left to right shunting and possible myocardial ischemia.

Conflicts of Interest: None

Funding statement: None

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DISCUSSION

Coronary cameral fistulas commonly present in isolation (55%- 88%) while less frequently they are associated with congenital heart anomalies like atrial septal defect, ventricular septal defect, patent ductus arteriosus, tetralogy of Fallot and pulmonary atresia with intact ventricular septum^{5,6}.

Both our patients had an isolated fistula which was neither considered for coil embolization nor device closure as it was too large and was involving the left anterior descending coronary artery and the left main coronary artery respectively. These arteries had multiple distal branches in both the cases, which