

A RARE CASE OF CORONARY CAMERAL FISTULA FROM LEFT MAIN CORONARY ARTERY WITH NEW SURGICAL METHOD OF MANAGEMENT

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Article Received on 04/08/2016

Article Revised on 24/08/2016

Article Accepted on 13/09/2016

ABSTRACT

Here we report a case of Left main coronary artery (LMCA) to right atrium communication, presenting with features of hyperdynamic circulation. Both the openings of the tract were closed with polypropylene sutures and fibrin sealant glue was injected into the track to obliterate it ensuring complete obliteration.

KEYWORDS: Left main coronary artery, coronary cameral fistula.

INTRODUCTION

Coronary artery fistulae are found in 0.1–0.2% of routine angiograms, and most of them are clinically silent. When symptomatic, clinical manifestations may include exertional dyspnoea and/or angina, syncope and palpitations.^[1] Here we have used a new surgical approach combining closure of both the openings with sutures as well as obliterating the tract with fibrin sealant glue to ensure complete obliteration.

CASE REPORT

A 26 yrs. old female with history of palpitations, early onset of fatigability and poor weight gain since late childhood which got aggravated for the past one year, presented to outpatient department of cardiology in GB Pant hospital. On examination she had high volume pulse, apical impulse shifted outwards and downwards, systolic murmur in both mitral and tricuspid area and ejection systolic murmur in the left 2nd parasternal area.

2D echo with colour wave Doppler was suggestive of poor ejection fraction of 45% with an abnormal colour flow in left main coronary artery, rest of the study was normal.

CT coronary angiography revealed an anomalous communicating tract originating from LMCA, curving postero-medially into the groove between aortic root and left atrium and opening into RA. The left anterior descending and Left circumflex coronary artery were arising from dilated LMCA and had normal course. RCA originated from right sinus of valsalva with normal course.



Figure 1: Abnormal fistulous tract with its origin from dilated left main coronary artery



Figure 2: Opening of tract in right atrium.

She was referred to department of cardiac surgery for management.

Median sternotomy was done to expose the heart and great vessels. The tract was identified originating from LMCA. Cardiopulmonary bypass was initiated and cardioplegia was administered in aortic root after cross clamping ascending aorta. Anomalous tract was compressed with finger to obliterate it while administering cardioplegia.

After hypothermic cardioplegia, cardiac arrest, transverse aortotomy was done to expose the opening of the tract in dilated LMCA. The whole extent of tract till RA was traced. Right atrium was opened and another opening of the tract was found which was confirmed by ejecting blood through the opening in LMCA. This was ligated and closed by the polypropylene sutures. Fibrin sealant glue was injected into the LMCA opening to fill the tract and opening in LMCA was also suture ligated using polypropylene sutures.

Post-operative CT angiography showed non opacification of the tract after injection of the dye and was suggestive of complete closure of the tract. The patient had uneventful post-operative period and was discharged on 7th post-operative day. She is under regular follow up and doing well.

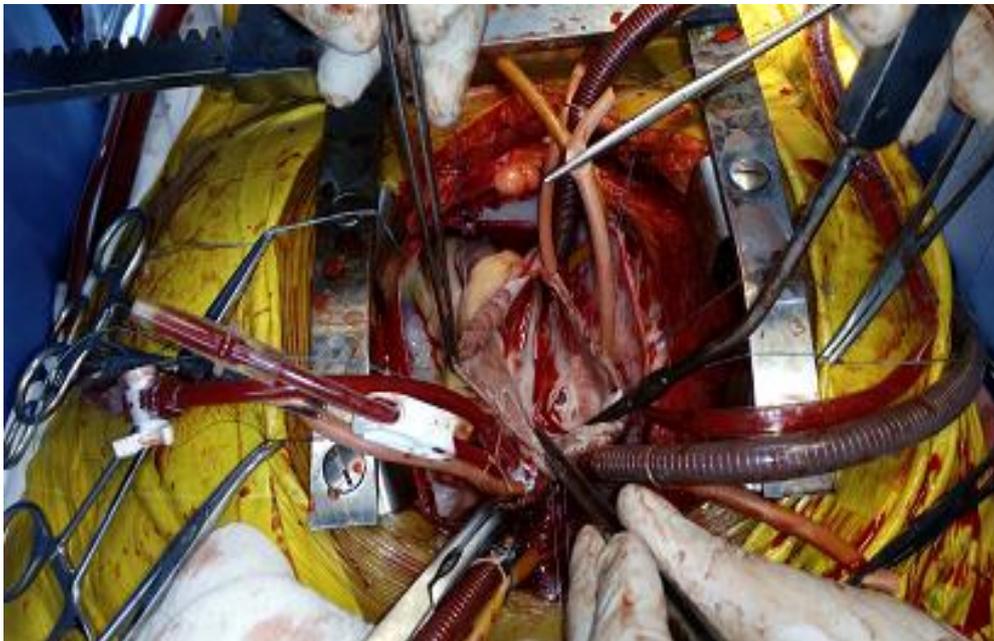


Figure 3: Opening of fistulous tract in RA

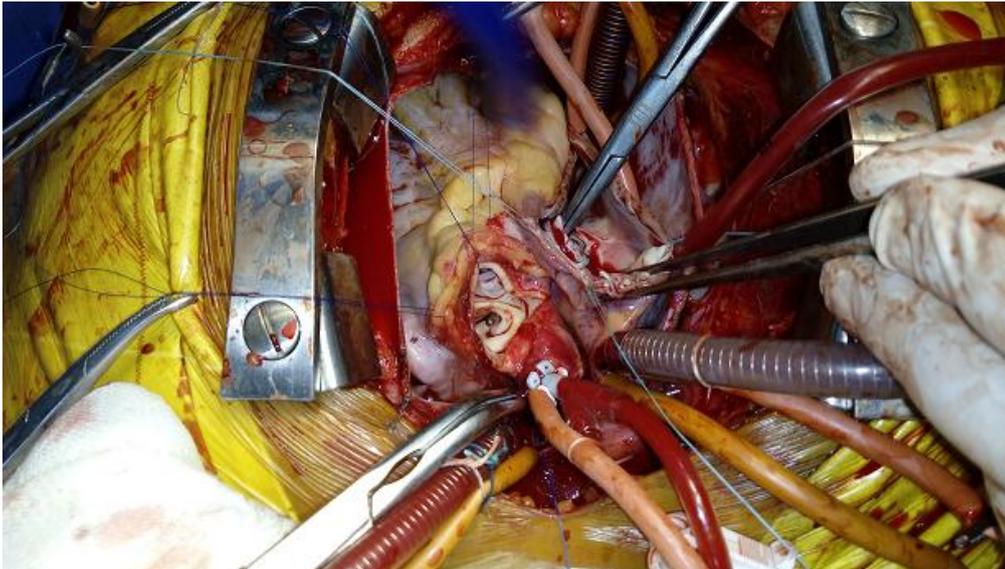


Figure 4: Tracing the opening of fistula in LMCA by passing forceps from RA into the tract

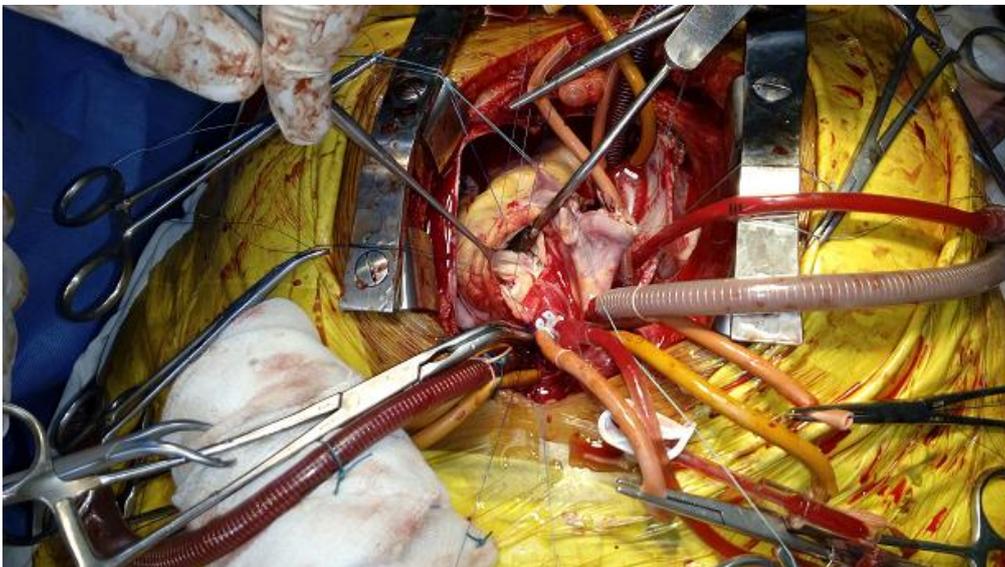


Figure 5: Closing the LMCA opening by sutures.

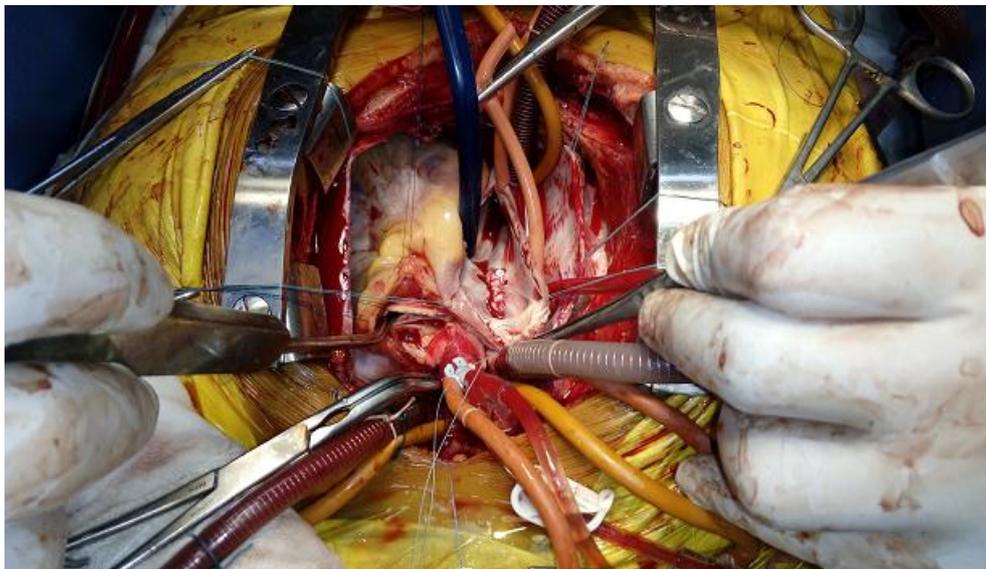


Figure 6: Closing the RA opening by sutures

DISCUSSION

Coronary artery anomalies include anomalies of origin, termination, structure or course. Coronary artery fistulae (CAF) are classified as abnormalities of termination and are considered a major congenital anomaly.

A coronary artery fistula involves a sizable communication between a coronary artery, bypassing the myocardial capillary bed and entering either a chamber of the heart (coronary-cameral fistula)^[1] or any segment of the systemic or pulmonary circulation (coronary arteriovenous fistula). The right coronary artery is the most frequently involved, followed by the left coronary artery.^[2]

Current options for coronary artery fistulae treatment include close clinical follow-up, surgical ligation or transcatheter embolization. It is uniformly accepted that patients with symptoms must be aggressively treated and surgical or transcatheter closure is recommended. Surgical repair^[3] and percutaneous transcatheter embolization using occlusion devices as an alternative to conventional surgery have been reported with good results in a limited number of cases. However, the management of asymptomatic patients is still controversial.^[4] Aneurysmal growth may provoke compressive symptoms, coronary artery dissections or intramural rupture with subsequent cardiac tamponade, acute myocardial infarction and sudden death.^[1] When a significant Qp/Qs is present, these fistulae may induce congestive heart failure, myocardial ischaemia, arterial pulmonary hypertension and right ventricular dilatation, and failure and may be complicated with infective endocarditis.^[5]

Medical management of these patients is still controversial. Beta-adrenergic receptor blockers and angiotensin II receptor antagonists are beneficial treatments for great vessel aneurysmal growth and rupture prevention.^[6]

CONCLUSION

LMCA to right atrial fistula is a rare presentation of patients diagnosed with coronary cameral fistula. Such patients should be operated early due to early onset of myocardial dysfunction due to steal phenomenon cause major drainage of coronary blood through the tract. Surgery is the best modality of the closure of large fistulas and glue infiltration with ligation of both the openings ensures complete obliteration.

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