CASE REPORT

Coronaro-cameral fistula, case report and review of the literature

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1. Introduction

Coronary artery fistulas are coronary malformations, most often congenital, in rare cases secondary to cardiac surgery. Its incidence in general population is estimated at 0.002%.1 For all cardiovascular congenital abnormalities, coronary artery fistula represents between 0.2 and 0.4%.2

Since the first described case by Krause in 1865, several others authors have been reported case about coronary fistula.3 Right coronary artery (RCA) and left anterior descending artery (LAD) are most concerned as coronary artery sites of fistula.

We report a case of coronary artery fistula in an adult patient, without cardiac surgery history.

2. Case report

A 40-year-old man was admitted to our department for chest pain and palpitations. He had chest pain and exertional dyspnoea. Clinical examination revealed, blood pressure at 110/78 mmHg, heart rate at 78 bpm, and a pansystolic murmur. There were no signs of heart failure. The ECG was normal. Trans thoracic echocardiography was normal.

A coronary angiogram was performed identify the LAD fistulas; but relation between coronary fistula and cardiac chambers was difficult to determine, thus chest tomography angiography was requested.

He subsequently underwent an ECG-gated contrast-enhanced coronary CT angiography study using dual-tube 128 slice multi-detector CT. This demonstrated several coronaro-cameral fistulas (Figs. 1a and 1b), between the third portion of LAD and right ventricle and right ventricle aneurysm. All biological data were normal.

Indication for coronaro-cameral fistula ligation and aneurysmectomy had been retained.

After providing written informed consent, our patient underwent surgical intervention. A median sternotomy was carried out and complete cardiopulmonary bypass was performed.

Cardiac arrest was induced with cold crystalloid cardioplegia. The fistula was identified at the third portion of left anterior descending artery draining through the trabecular wall of right ventricle, with right ventricle aneurysm (Fig. 2a). The LAD was dilated. There were also small communications between the fistula and right ventricle.

We decided to perform fistula closure and reduction aneurysmectomy.

LAD fistula were closed with felt-reinforced mattress sutures. Then, resecting right ventricle aneurysm, with right ventricular reconstruction, reinforce by two patches of Dacron, with polypropylene 6/0 in continuous fashion (Figs. 2b and 2c).

The post-operative period was uneventful.

3. Discussion

Coronary cameral fistulae (CCF) it’s a vascular congenital abnormal which communicate one of coronary artery and cardiac chamber. Usually, its origin is congenital; and with a prevalence of about 0.2–0.4% of all coronary congenital anomalies.2

Few cases of post cardiotomy coronary cameral fistulae have been described after myomectomy for hypertrophic cardiomyopathy.4 Coronary cameral fistulae after coronary artery bypass grafting are exceptional. In our case, the etiology is probably congenital.

Nomenclature is based upon a descriptive analysis of the vessel of origin and the chamber of termination. Hence, Sakakibara and al distinguish to types of angiographic classification: Type A (prox-
mal type), where the proximal coronary segment is dilated to the origin of the fistula and the distal end normal; Type B (distal type), where the coronary artery is dilated over its entire length terminating as a fistula mainly into the right side of the heart (end artery type) and the proximal coronary segment can or might have regular branches. Said and al, in their study, have been notified that, around 14% of CCF can progress in pseudo aneurysm.

The surgical obliteration of the fistula by epicardial or endocardial ligations is the cornerstone of surgical treatment, first described by Biorck in 1947. In our case, we had realized surgical fistula obliteration by endocardial ligation with aneurysmectomy.

Percutaneous was added to therapeutic approach of fistula in 1983, after the first successful management of coronary fistula by Reidy et al. Percutaneous closure is indicated when the anatomy of the fistula is favorable for this treatment. Vessel tortuosity and lumen caliber appear to be significant limitations in occlusion device delivery. According to literature, percutaneous approach (Amplatzer) might be the first of treatment, if it was available. In our Department, we did not have percutaneous closure approach.

![Fig. 1a. CT, reconstruction in postero-inferior view showed several coronary fistulas with right ventricle aneurysm.](image1)

![Fig. 1b. CT, reconstruction in anterior view, showed three coronary fistula with right ventricle aneurysm.](image2)

![Fig. 2a. Operative view, showing apical right ventricle aneurysm.](image3)

![Fig. 2b. Operative view, after opening right ventricle aneurysm, with coronary artery fistula ostia visualization.](image4)

![Fig. 2c. Operative view with visualization of coronary artery fistula ostia.](image5)
available. Surgical approach is the one available therapeutic approach to treating this pathology.

4. Conclusion

There are several coronary arteries anomalies, among then congenital coronary arteriovenous fistulas. Depending on the importance of left-to-right shunt and the steal phenomenon, patients may be symptomatic or asymptomatic. Coronary angiography remains a main method used for diagnosis. Multidetector computed tomography is added sometimes for complementary data. There is consensus for treatment of symptomatic patients; which might be surgical or percutaneous procedure.

Conflict of interest

Authors declare that there is no conflict of interest.

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