was made primarily by transthoracic echocardiography, but MVA was not found until TEE was performed. The 3D-TEE modality is an important and reliable diagnostic option compared with conventional 2D-TEE [7]. The ability of 3D-TEE to display a surgeon’s view from the left atrial side provides valuable information preoperatively.

An MVA with a cleft is a good indication for mitral valve repair. The precise preoperative diagnosis by TEE is useful for developing a strategy for mitral valve repair [1, 4]. However, it is sometimes difficult to repair, and valve replacement is needed, such as in cases with the MVA occupying a larger part of the mitral leaflet [3, 8]. Mitral valve repair should be considered, especially in such a young and elective patients. Long-term results of mitral valve repair for these entities are not clear because of its rarity, so careful follow-up is necessary.

In conclusion, we encountered a rare case of an MVA with a cleft in an adult patient and successfully repaired the lesion. The 3D-TEE modality provides excellent anatomic information preoperatively.

References

Giant Aneurysm of the Left Atrial Branch of the Left Circumflex Artery With Fistula

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Giant coronary artery aneurysm with a fistula is a rare condition. We present one of the largest aneurysms of left circumflex coronary artery territory, arising from the left atrial branch of the left circumflex coronary artery. It had

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a maximum diameter of 10 cm, with a fistulous connection to the right atrium. Total exclusion of the aneurysmal mass was achieved by ligation of the afferent artery, closure of the entry point from within the aneurysm, and closure of the fistulous communication from within the right atrium. The patient’s postoperative course was uneventful.


Coronary arterial aneurysm (CAA) is defined as a coronary dilatation that exceeds by 1.5 times the diameter of the adjacent normal arterial segment or the patient’s largest coronary artery. CAAs are uncommon lesions, noted in 0.2% to 4.9% of patients undergoing coronary angiography [1]. Some CAAs may enlarge to a diameter exceeding 20 mm and are called “giant CAA” [1]. At times, CAAs (usually of the right coronary artery) can develop fistulous connections with adjoining chambers or vessels [2]. We report the successful repair of a giant CAA of the left atrial branch of the left circumflex coronary artery with a fistulous connection to the right atrium. This is one of the largest CAA of circumflex coronary artery territory to be reported to date in world literature.

A 51-year-old woman presented with exertional dyspnea, chest pain, facial puffiness, difficulty in swallowing, and pedal edema. On physical examination, she had raised jugular venous pressure, continuous thrill, and continuous grade V/VI murmur along the right sternal border. Stigmata of Marfan syndrome were not present.

A chest roentgenogram showed cardiomegaly and right atrial enlargement. Echocardiography showed a dilated left circumflex coronary artery and a large cystic mass communicating with the right atrium. Coronary angiography revealed a huge aneurysm from a branch of the circumflex coronary artery (Fig 1). To help delineate the anatomy, cardiac computed tomography was performed and revealed a giant saccular aneurysm compressing the superior vena cava and both the atrial chambers (Fig 2).

During the surgical repair, femorofemoral bypass was instituted to avoid the risk of rupturing the large aneurysm that was abutting undersurface of the sternum. Then, midline sternotomy was done using a oscillating saw. After pericardiotomy, a 10- × 8-cm aneurysm was noted posterior to the right atrium (Fig 2) supplied by a left arterial branch of the left circumflex coronary artery. The afferent artery was looped, doubly ligated, and transfixed.

The aneurysm was dissected from the superior vena cava and the right atrium. The aneurysm was opened, and part of its wall was excised and sent for histopathologic examination. The entry point of the afferent artery into the aneurysm was sutured from within the aneurysm. The fistulous connection of the aneurysm to the right atrium was closed from the right atrial aspect because the external margins were calcified.

Microscopic findings of the resected specimen were consistent with cystic medial change (Fig 2). There was no sign of atherosclerotic change (Fig 2). There was no sign of atherosclerotic change (Fig 2). There was no sign of atherosclerotic change (Fig 2).

Comment

CAAs have been diagnosed with increasing frequency since the advent of coronary angiography. However giant CAAs are rare, with a reported incidence of 0.2% to 4.9% in patients undergoing coronary angiography [2]. The reported incidence of CAA and giant CAA in the cardiac surgical population is approximately 0.04% and 0.02%, respectively [1]. The presence of CAAs with fistulization into a cardiac chamber is much more unusual. Proximal and middle segments of right coronary artery are the most common sites of CAA, followed by proximal left anterior descending artery and left circumflex coronary artery. The most common cause of CAA is atherosclerosis, and others include Kawasaki disease, congenital malformations, infective or noninfective vasculitis, neoplasms, connective tissue disorders (Ehlers-Danlos syndrome, Marfan syndrome), and even iatrogenic (trauma, postangioplasty) [3, 4].

The natural history and standard treatment of giant CAAs remain unclear because of its rarity. Most patients with CAAs are asymptomatic. Surgical treatment is essential to avoid complications such as progressive enlargement, compression of surrounding structures, rupture (leading to cardiac tamponade), superior vena cava syndrome, thrombosis, and embolization into the distal coronary circulation. Coronary steal syndrome, angina, myocardial infarction, and sudden deaths of uncertain cause have also been reported [5]. There is also possibility of mechanical interference of coronary flow, dissection of the coronary artery, and fistula formation causing left-to-right shunt with right ventricular overload and congestive heart failure.
Small aneurysms that produce no symptoms may be managed conservatively with regular follow-up, whereas CAAs that produce significant symptoms should be considered for surgical management. Nonsurgical treatment options include coil embolization and covered stents [3]. No typical surgical procedure has been established for giant CAA. Principles of surgical treatment of CAA are to exclude the aneurysmal segment and maintain circulation to the involved artery with a saphenous vein graft or one of the internal mammary arteries. Exclusion is necessary to prevent complications of rupture, embolism into distal coronary circulation, and competitive flow, which could occlude the graft [4].

Various surgical strategies have been adopted, such as plication or resection of the aneurysm and reconstruction with end-to-end interposition of a vein graft and coronary bypass, with or without ligation [1]. In patients with coronary artery fistula, the fistula should be closed. The incidence of recurrence is higher in external plication or division of the fistula compared with intracardiac closure [6].

The aneurysm in our patient was unusually large and involved a rare location. Surgical correction seemed to be necessary because of her symptoms, the large size of the aneurysm (that would pose a risk of rupture or other complications), and fistulization into the right atrium. Although computed tomography imaging showed no mural thrombus in the aneurysmal sac, coil embolization was not considered because we feared that distal embolism might occur due to the presence of major outflow and the fistulous communication. Because the aneurysm was arising from the distal-most portion of the coronary artery and that too from the left atrial branch, coronary bypass was not a treatment option.
We preferred to initiate femorofemoral bypass first, to avoid risk of rupture of the giant aneurysm during sternotomy, because it was seen abutting the sternum on the lateral chest roentgenogram. The opening of the afferent artery into the aneurysm and the fistulous opening into the right atrium were closed from within the aneurysmal sac and the right atrium, respectively, to avoid risk of recurrence. On histopathologic examination, the excised wall, surprisingly, revealed cystic medial change.

We conclude that in patients with giant CAA with fistula, surgical repair is the treatment of choice and the surgical strategy should be carefully planned and individualized.

References

Annuloaortic Ectasia in a Patient With Congenital Absence of the Left Pericardium

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We report a patient with congenital absence of the left pericardium with development of progressive annuloaortic ectasia and aortic insufficiency during a 12-year period. The patient was treated with a Bentall procedure. Pathologic examination of the aorta revealed cystic medial necrosis. The surgical management and a possible association between congenital absence of pericardium and Marfan syndrome are discussed.

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