A mitral-aortic intervalvular fibrosa false aneurysm in a patient without overt heart disease

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False aneurysms originating from mitral-aortic intervalvular fibrosa are clinically very rare. A 22-year-old male patient without overt heart disease was admitted to the cardiology department of the Gulhane Military Academy of Medicine, Ankara, Turkey, with a false aneurysm located between the left ventricular outflow tract and the anterior left atrium. The false aneurysm was repaired at the Department of Cardiovascular Surgery, and the patient was discharged 10 days after the surgery.

Key Words: False aneurysm; Mitral-aortic intervalvular fibrosa

False aneurysms originating from mitral-aortic intervalvular fibrosa are a rare clinical entity. It is frequently detected secondary to infective endocarditis and aortic valve surgery (1-3). Patients with mitral-aortic intervalvular fibrosa aneurysms have many clinical presentations, such as angina pectoris and cardiac tamponade (4,5).

A false aneurysm accidentally detected in an asymptomatic and otherwise healthy patient is presented herein.

CASE PRESENTATION

A 22-year-old male patient was admitted to the cardiology department of Gulhane Military Academy of Medicine, Ankara, Turkey, with the diagnosis of cor triatriatum sinistrum detected by routine echocardiographic examination performed for a cardiac murmur at the local military hospital. The patient's medical history was unremarkable. At the physical examination, the patient's arterial blood pressure was 130/80 mmHg, heart rate was 78 beats/min and body temperature was 37°C. A 2/6 grade systolic murmur on the left sternal border was detected on cardiac auscultation. Other physical examination findings were within normal limits. An electrocardiogram revealed a normal sinus rhythm. In addition to a normal ejection fraction (65%) and a mild degree of aortic regurgitation, transthoracic echocardiography (Vivid 7, GE Medical Systems, Norway) revealed an aneurysm-like structure between the left ventricular outflow tract and the anterior left atrium. Transesophageal echocardiography confirmed the localized out-pouching of the left ventricular outflow tract, which was considered to be a false aneurysm (Figure 1). Cardiac catheterization also confirmed the presence of a noncontractile, narrow-necked false aneurysm originating from the left ventricular outflow tract (Figure 2).

Un faux anévrisme par fibrose intervalvulaire mitrale-aortique chez un patient sans maladie cardiaque patente

D'un point de vue clinique, les faux anévrismes causés par une fibrose intervalvulaire mitrale-aortique sont très rares. Un homme de 22 ans sans maladie cardiaque patente a été hospitalisé au département de cardiologie de l'académie de médecine militaire Gulhane d'Ankara, en Turquie, en raison d'un faux anévrisme sis entre la chambre de chasse du ventricule gauche et l'oreillette antérieure gauche. On a réparé ce faux anévrisme au département de chirurgie cardiovasculaire, et le patient a reçu son congé dix jours après l'opération.

Figure 1) Echocardiographic view of the false aneurysm

Based on these findings, the patient underwent open heart surgery. Surgical inspection revealed a narrow-necked false aneurysm located between the left ventricular outflow tract and the right lateral aspect of the ascending aorta (Figure 3). The sac of the false aneurysm was opened from the right lateral ascending aorta and was communicated with the left ventricular outflow tract and the left atrium. The thrombus inside the aneurysm sac was evacuated. The neck of the false aneurysm was then repaired with a Gore-Tex patch (WL Gore & Associates, USA) 2 cm in diameter using 2-0 Ticron (Tyco

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Figure 2) Angiographic view of the false aneurysm (white arrows show the border of the false aneurysm)

Healthcare Group LP, USA) pledgeted sutures. The sac of the false aneurysm was plicated over the Gore-Tex patch. The patient had an uneventful postoperative period and was discharged 10 days after the surgery. Pathological examination of the surgical specimen revealed a fibrous structure.

DISCUSSION

Mitral-aortic intervalvular fibrosa false aneurysms are detected almost exclusively as a result of infective endocarditis or following an aortic valve surgery (1-3). The relatively avascular property of this region, which lies between noncoronary and left coronary cusps of the aortic valve and anterior mitral leaflet, could explain the tendency of false aneurysm formation. In addition to infection or aortic valve surgery, blunt chest trauma has also been reported as a possible cause (6). Because of the absence of these factors, spontaneous development or a congenital presence of this aneurysm may be suggested for our patient. Mitral-aortic intervalvular fibrosa aneurysms can be diagnosed with the aid of echocardiography, magnetic resonance imaging and, more importantly, by cardiac catheterization. Transthoracic echocardiography, as in our case, is not always beneficial and may lead to false diagnosis, such as cor triatriatum sinistrum. We observed a narrow neck and systolic expansion of the false aneurysm both on transesophageal echocardiography and on cardiac catheterization. These properties of the false aneurysm made a differential diagnosis of aortic ring abscesses possible. Surgical therapy in an asymptomatic patient may seem to be somewhat confusing. However, left ventricular mitral-aortic intervalvular fibrosa false aneurysms have catastrophic complications, such as compression of the coronary arteries (which causes angina [4]),

Figure 3) Surgical view of the narrow-necked false aneurysm (arrow), which was located between the left ventricular outflow tract and the right lateral aspect of ascending aorta

cardiac tamponade (resulting from rupture into the pericardial sac [5]) and mitral regurgitation (resulting from rupture into the left atrium [7]). The possibility of these complications and the absence of long-term results in patients followed in conservative manner justified our choice of surgical approach.

CONCLUSION

We presented an asymptomatic patient in whom a mitral-aortic intervalvular fibrosa false aneurysm was detected. Although the exact cause of this aneurysm remains to be explained, we can consider this mitral-aortic intervalvular fibrosa aneurysm either congenital in origin or from an acquired disease based on a genetic predisposition.

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