Case Report

Precordial Pain Suggesting Coronary Artery Disease in Patient with Sinus of Valsava Aneurysm

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Abstract

We present the case of a patient with the left Sinus of Valsalva Aneurysm (SVA), complaining of precordial pain suggesting myocardial ischemia.

Case Report: A 34-year-old man, with a clinical picture of intense precordial pain, related to physical efforts, with ECG showing blockage of the left bundle branch, including diffuse and non-specific alterations of ventricular repolarization and effort testing with positive result for myocardial ischemia. He underwent an aortic and coronary artery angiography which showed image of unruptured left Sinus of Valsalva Aneurysm, and normal anatomy of the coronary arteries.

Discussion: The most frequent symptoms are dyspnea, chest pain and palpitations. The patient reported precordial pain, palpitation, and dyspnea when making physical efforts. In the left SVA, the complications usually occurred in the atrium and right ventricle, left atrium or pericardium which may lead to cardiac tamponade, besides an association with interventricular septal defect or aortic valve prolapse. In the case here reported, we did not diagnose the mentioned complications. The diagnosis was made through clinical exam, echocardiogram test and aorta and coronary angiogram. The angiogram confirmed the diagnosis, demonstrated the normal anatomy of coronary circulation, the location of the aneurysm, and ruled out any possibility of possible complications.

Conclusions: SVA is a rare condition that requires clinical investigation, ECG, echocardiogram, and aorta and coronary angiogram for diagnosis, confirmation or exclusion of complications, and use of an adequate therapy.

INTRODUCTION

Sinus of Valsalva Aneurysms is an uncommon anomaly, with an incidence ranging from 0.1 to 3.5 % of all cardiac congenital defects [1], being five times more common in Asian individuals than in the Western population [2] and they may originate from an acquired or congenital disease [3]. The congenital form may be caused by the absence of muscle tissue and elastic in the aortic wall behind the sinus of Valsava or for the lack of continuity between the middle layer of the aortic and the aortic ring [4]. On the other hand, acquired SVA may be caused by a trauma, degenerative diseases such as artherosclerosis, infectious diseases that include bacterial endocarditis, syphilis and tuberculosis, systemic inflammatory diseases like Behcet’s syndrome, anlylosing spondylitis, or through connective tissue disorders such as systemic Lupus Erythematosus and Marfan syndrome.

Most cases of unruptured SVA are difficult to diagnose because, in general, they are, asymptomatic. However, they can sometimes cause some complications such as cardiac blockage, cardiac out flow obstruction, or even compress the coronary arteries, causing ischemic cardiomyopathy. Sinus of Valsalva Aneurysms is an illness that occurs less frequently in the left coronary sinus, than in the right sinus, followed by the non‐coronary sinus [5,6]. Surgical correction is done with the aneurysm resection and biological prosthesis implant [7].

CASE PRESENTATION

A 34-year-old male patient, brown, married, professional driver who received medical assistance at the cardiac emergency service of Hospital de Clinicas Gaspar Viana, Belém-Pará/Brasil. He...
had no personal history of conventional factors of cardiovascular risk or the use of drugs. The clinical exam did not show any sign or suggestive symptoms of Marfan syndrome, Behcet's disease, ankylosing spondylitis, or syphilis. He did not report any thoracic trauma. He complained of intense precordial pain, constrictive, spreading to the dorsum, caused by physical activity, followed by dyspnea and palpitation. Clinical exam: The heartbeat was rhythmic with a normophonetic sound, systolic murmur at the left sternal border, without gallop rhythm. Clean lungs. ECG in sinus rhythm (PR= 0.20 s and CF: 56 bpm), left bundle branch block, and diffuse alterations of ventricular repolarization (Figure 1). Enzymes of negative myocardial necrosis. Thorax x-ray: Cardiomegaly, without signs of pulmonary congestion. The stress test was performed with positive result for myocardial ischemia.

The **echocardiogram showed** aneurismal dilatation of the left Sinus of Valsalva, and mitral regurgitation, with normal ejection fraction. The patient was subjected to angiographic study of the coronary arteries and aorta (Figure 2), which showed the image of unruptured SVA, without atherosclerotic involvement of the coronary arteries or other complications.

**DISCUSSION**

The literature review shows that Sinus of Valsalva Aneurysms are rare cardiomyopathies, being rarer the occurrence of the left coronary sinus. Published reports show that SAVs occur more easily in the East than in the Western world [2,6]. Thus, this report deals with a rare and atypical case of left coronary sinus aneurysm in Brazil.

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**Figure 1** Electrocardiography showed: Sinusal rhythm. BBB+ ADVR.
Previous study findings included endocarditis history (42 cases; 32.6 %), bicuspid aortic valve (21 cases; 16.3 %), interventricular septal defect (15 cases; 11.6%) and Marfan syndrome (12 cases; 9.3%) [7]. The main cause of SVA is congenital. In this case, the findings of diseases previously mentioned were absent, suggesting congenital etiology. In most cases, the patients had the first symptoms in adult life, and, among the most frequent ones were dyspnea, chest pain and palpitations when subject to physical efforts [8,9]. In the case report, the patient was asymptomatic when younger and he reported symptoms only in adult life, which agree with findings from previously mentioned publications.

With evolution of the disease, SVA may form fistulas or cause a rupture of the cardiac wall or cavities. In the left SVA, these complications usually happen in the atrium and right ventricle, left atrium or pericardium, and it may lead to cardiac Tamponade [10]. The association of SVA with a interventricular septal defector aortic valve prolapse is very frequent [11]. In the described case, there was no presence of complications such as fistulas, rupture of walls or even aneurysm. The precordial pain reported by the patient, and that was initially attributed to myocardial ischemia, was possibly associated to coronary compression or “stolen flow”.

The diagnosis of this type of aneurysm is confirmed through echocardiography tests and cardiac catheterization [12]. However, for a better delineation of the fistulous tract it is very important the use of aortography and cinecoronariography study, because, it not only confirms the diagnosis, but also shows the exact anatomy of the coronary circulation, as well as localization of the fistula, the diameter of the involved artery and its debit. The patient was referred for surgical treatment to prevent severe cardiovascular complications associated with SVA.

Valsalva aneurysm is a rare condition and often asymptomatic or without important clinical manifestation. In this case report, the patient mentioned suggestive clinical complaints of myocardial ischemia, requiring investigation through aortic and coronary angiography to diagnose SVA, exclusion of complications and later on surgical treatment.

REFERENCES


