Introduction

The congenital coronary artery anomalies are a rare cause of sudden cardiac death and myocardial infarction in children and in adults.

We report the case of a rare congenital malformation of the left coronary artery (LCA) taking off from the posterior non-coronary Valsalva sinus associated with another rare congenital anomaly represented by accessory mitral valve tissue (AMVT). Although the association of several cardiac anomalies is common, the finding of both malformations in the same subject is not described in literature to date.

Case Description

A 73-year-old man presented to our department for ischemic alterations appeared during a stress electrocardiogram. The diagnostic process including coronary angiography, cardiac computed tomography and echocardiography revealed an anomalous origin of the left main coronary artery from the commissural region between the left and the non-coronary Valsalva sinus associated with non-obstructive accessory mitral valve tissue. Although these malformations are relatively common the association is not described in literature to date.

Abstract

A 73-year-old man presented to our department for ischemic alterations appeared during a stress electrocardiogram. The diagnostic process including coronary angiography, cardiac computed tomography and echocardiography revealed an anomalous origin of the left main coronary artery from the commissural region between the left and the non-coronary Valsalva sinus associated with non-obstructive accessory mitral valve tissue. Although these malformations are relatively common the association is not described in literature to date.

Discussion

The incidence of coronary artery anomalies is reported about 1% but it is estimated about 4-15% in autopsy of young people who experienced sudden death [1].

In a study by Kilner et al. including 7694 patients with coronary artery anomalies, the authors found that the 95.2% had anomalies of origin and distribution and 4.8% had coronary artery fistulae. The incidence was the highest for the separate origin of the left anterior...
descending and circumflex (Cx) from the left sinus of Valsalva (52.4%). Anomalous origin of the left Cx from the right coronary was 8.7% while from the right coronary sinus of Valsalva was 18.4%. Ectopic coronary origin from the opposite aortic sinus (1.9%) and single coronary artery (3.88%) were described but they are rare [2]. The literature is poor of cases describing an anomalous origin of the LCA from the non-coronary sinus of Valsalva [3-6]. Two-dimensional echocardiography, computed tomography angiography and magnetic resonance are the most important diagnostic instruments for the evaluation of the coronary anomalies [7]. The advantage of these techniques is to individuate high risk conditions, or eventual further congenital cardiovascular malformations associated, and to state if the ischemic ECG alterations are related to the anatomical defect or to others coexisting pathological conditions.

Accessory mitral valve tissue consists in the presence of a free floating membrane-like structure contiguous to the ventricular side of the anterior mitral leaflet valve leaflet, or as a fixed structure anchored to the interventricular septum by a short chordal apparatus; nevertheless, the literature reports many intermediate and variable configurations. Patients are often asymptomatic; however someone may experience palpitations and fatigue. Although in a restricted number of cases a cerebrovascular embolic event is the first manifestation of the AMVT. The most frequent echocardiographic aspect is an irregular parachute or sail-like structure attached to the chordae, anterior MV leaflet, accessory papillary muscle, or the interventricular septum. In some cases it appears as a globular or even cystic mass. The redundant tissue typically prolapsed into LVOT during systole, following the blood flow, and retracting away during diastole. Doppler imaging is useful for evaluation of prognosis: a gradient higher than 50 mmHg in LVOT is correlated to a worse outcome, and in those cases the surgical treatment can be considered [10]. To the best of our knowledge, this is the first demonstration of the coexistence of AMVT and anomalous origin of the LM by means of integrated cardiac imaging.

References