1094

Exercise syncope as initial symptom of constrictive pericarditis in a young patient

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Introduction: Constrictive pericarditis is a form of diastolic heart failure that arises because an inelastic pericardium inhibits cardiac filling. Syncope is a rare initial symptom of constrictive pericarditis.

Clinical case: A 22-year-old man with previous medical history of viral meningitis when he was 3 months-old but without any family history of cardiac disease or sudden cardiac death, was admitted to the Emergency Department for syncope. During the last year, he had suffered several episodes of intense exercise-related syncope. The patient denied having prodromes, chest pain, palpitations or any other symptoms. The physical exam of the patient was normal with stable vital signs. Normal S1 and S2 heart sounds were present, no murmurs or gallop. There were no signs of heart failure, only a minimal jugular ingurgitation. An electrocardiogram (ECG) revealed sinus rhythm, signs of bi-atrial enlargement (prominent P-wave with P mitral morphology in DI-II leads, with enhanced negative deflection in V1), and negative asymmetric T-waves in inferior (DII-III-aVF) and V6 leads. Chest X-ray showed minimal calcium density in the inferior pericardial silhouette. The patient was admitted in the Cardiology Department for aetiological study. A transthoracic echocardiogram revealed a marked protodiastolic cleft in the interventricular septum, with 40% variations of the transmitral flow with the respiratory changes and dilation of the cava vein, with absent respiratory collapse. A marked thickening and calcification of the inferoposterior pericardium was also seen. Considering these results, the diagnosis of constrictive pericarditis was suggested (Fig. A, B, C). Blood tests for autoimmune disease screening, as well as infectious diseases, including Quantiferon test, HIV, HVC, HVB and other viral serologies were done, with negative results. A cardiac magnetic resonance was requested, which confirmed the echocardiographic findings, with bi-atrial enlargement and markedly thickened pericardium with loss of signal, suggestive of calcification. Left and right ventricle had normal dimensions and contractility. The CT coronary angiography revealed normal coronary anatomy. Extensive calcification and pericardial thickening were shown, with myocardial infiltration in the lateral-basal area (Fig D). It was considered important to rule out any additional arrhythmic aetiology of the exercise syncope. Therefore, a stress test and, an electrophysiologic study were done, both with normal results. The patient remained asymptomatic and a pericardiectomy was indicated given the severe thickening and calcification of the pericardium and frequent syncopal episodes that our patient suffered.

Conclusions: Syncope as the initial symptom in the absence of significant right heart failure signs is a very unusual form of presentation of idiopathic constrictive pericarditis given the severe thickening and calcification of the pericardium of our patient.

Abstract 1094 Figure.