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CARDIAC SARCOIDOSIS REVEALED BY SUPRAVNTRICULAR TACHYARDIA: A CASE REPORT

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ABSTRACT

We report the case of a 65-year-old man who presented to the emergency department with palpitations. Initial evaluation revealed a supraventricular tachycardia, which was managed with standard therapy. Due to the absence of structural heart disease and the unusual presentation, advanced cardiac imaging was performed. Cardiac magnetic resonance imaging revealed areas of late gadolinium enhancement, while 18F-FDG PET scan showed focal myocardial uptake suggestive of inflammation. The constellation of findings raised strong suspicion for cardiac sarcoidosis. Corticosteroid therapy, cyclophosphamide and methotrexate were initiated with favorable clinical and electrophysiological outcomes.
Cardiac sarcoidosis is a rare but potentially life-threatening manifestation of systemic sarcoidosis, often presenting with arrhythmias or conduction abnormalities. Diagnosis remains challenging due to the non-specific nature of symptoms and the variable sensitivity of diagnostic tools. This case underscores the importance of early multimodal imaging in patients with unexplained arrhythmias and highlights the need for increased awareness of cardiac sarcoidosis among clinicians.

KEYWORDS

Cardiac Sarcoidosis ,Supraventrcular Tachycardia ,Cadiac MRI ,PET Scan

MAIN ARTICLE

Introduction

Cardiac sarcoidosis is a condition where inflammatory granulomas develop in the heart tissue. These granulomas can disrupt the heart's electrical system and muscle function, leading to arrhythmias, heart block, or heart failure. Although it is a rare form of sarcoidosis, cardiac involvement can have serious consequences, making early diagnosis and treatment essential [1].

Patient and observation:

Mr. M.L., a 65-year-old married man with two children, has a history of well-controlled corticosteroid-induced diabetes, chronic hepatitis B under Tenofovir treatment with an undetectable viral load, and stage 2 mediastino-pulmonary sarcoidosis diagnosed two years ago, managed with methotrexate and corticosteroids.

He presented with a sudden onset of palpitations accompanied by sweating and nausea, without chest pain or shortness of breath. On admission, he was tachycardic at 240 bpm with stable blood pressure and no signs of hypoperfusion. The initial ECG showed supraventricular tachycardia resistant to vagal maneuvers, beta-blockers, and amiodarone, requiring synchronized cardioversion (Figure 1).

Following cardioversion, he stabilized hemodynamically, but blood tests revealed elevated troponin levels (1523 ng/L). Cardiac MRI demonstrated subepicardial and transmural late gadolinium enhancement, consistent with active cardiac sarcoid involvement, along with signs of pericardial inflammation (Figure 2).

Holter monitoring revealed frequent polymorphic and unifocal premature ventricular contractions, classified as Lown grade III ventricular excitability (Figure 3). Given the high arrhythmic risk, an implantable cardioverter-defibrillator was placed.

PET imaging showed localized granulomatous activity in the left ventricle and active lymphadenopathy. In light of disease relapse despite prior immunosuppressive therapy, cyclophosphamide chemotherapy was initiated, in combination with methotrexate, corticosteroids, and supportive treatment including beta-blockers, potassium-sparing diuretics, and antiviral therapy. The patient underwent ICD implantation for secondary prevention and was subsequently transferred for continued management by the internal medicine team.

Discussion

Supraventricular tachycardia is an uncommon but clinically significant manifestation of cardiac sarcoidosis, a systemic inflammatory disorder characterized by the formation of granulomas that can involve the heart. When the cardiac conduction system is affected, inflammation and subsequent fibrosis may disrupt normal electrical pathways, particularly in the sinoatrial and atrioventricular nodes, leading to various arrhythmias including SVT [2]. Patients with cardiac sarcoidosis may present with symptoms such as palpitations, shortness of breath, syncope, or near-syncope, especially if the arrhythmia compromises hemodynamic stability. Diagnosis typically involves electrocardiography and Holter monitoring to detect arrhythmias, along with advanced imaging modalities like cardiac MRI and FDG-PET scans, which help identify myocardial inflammation and fibrosis. Treatment aims both to control the arrhythmia and to address the underlying inflammatory process. Antiarrhythmic drugs such as beta-blockers or amiodarone may be used, and catheter ablation can be considered for refractory cases. Corticosteroids remain the cornerstone of therapy to reduce inflammation, often combined with immunosuppressive agents in patients who do not respond adequately. In patients at high risk of severe conduction disturbances or life-threatening ventricular arrhythmias, implantation of a pacemaker or an implantable cardioverter-defibrillator may be necessary to prevent sudden cardiac death [3].

Conclusion

Cardiac sarcoidosis, though rare, can lead to serious arrhythmias such as SVT, requiring prompt diagnosis and multidisciplinary management. Early recognition and tailored treatment are essential to prevent life-threatening complications.

FIGURES:

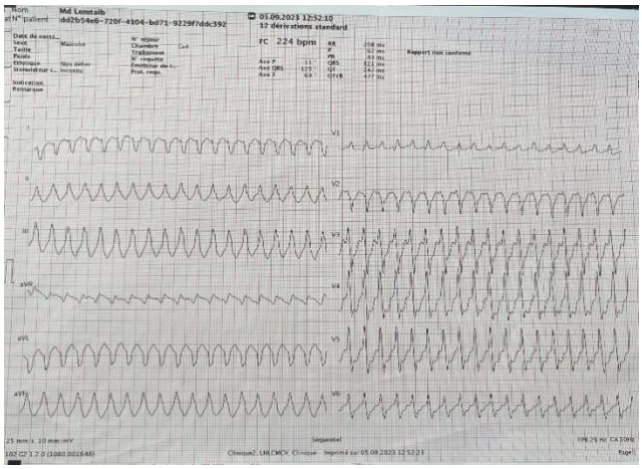

Figure 1: EKG at admission

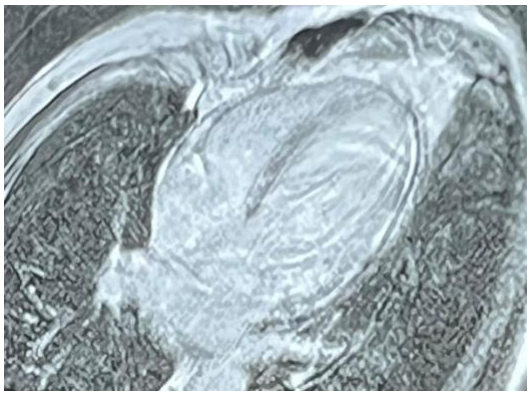

Figure 2: Cardiac MRI

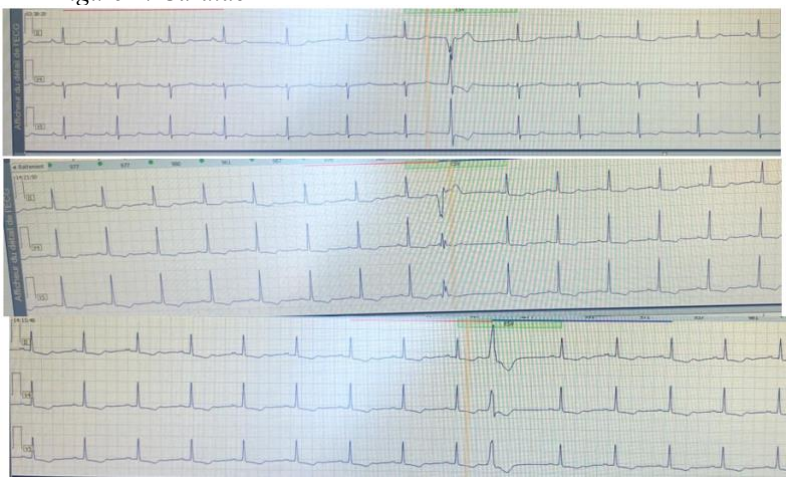

Figure 3: Holter EKG

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