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CARDIAC SARCOIDOSIS : A RARE CAUSE OF SHORTNESS OF BREATH

DR BINDU RAGHU UNNI

CONSULTANT FAMILY MEDICINE , PRIMARY HEALTH CARE CORPORATION

EMAIL: bunni@phcc.gov.qa

DR ALI TAJDAR RIZVI

CONSULTANT FAMILY MEDICINE , PRIMARY HEALTH CARE CORPORATION

EMAIL: arizvi@phcc.gov.qa

DR PHILIP SADLER

LOCUM GP , NHS ENGLAND SOUTH WEST

EMAIL : philip.sadler@nhs.net

ABSTRACT

Cardiac sarcoidosis is a rare but significant diagnosis requiring vigilance due to its varied and non-specific presentation. We focus on the general practice aspects noting that in a military personnel reduced exercise tolerance should be treated with suspicion and one should not be reassured by normal observations.



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A previously well military officer presented with acute dyspnoea in the context of 3 months of variable but reducing exercise tolerance. Electrocardiogram (ECG) revealed Ventricular Tachycardia (VT) prompting hospital admission. Troponin was raised, however angiogram excluded significant atheromatous disease. Due to VT and poor ventricular function he was implanted with a cardiac defibrillator. Cardiac Sarcoidosis was later confirmed on Positron Emission Tomography (PET). He was discharged on medical treatment, commenced cardiac rehabilitation and received pulsed Methylprednisolone but over the course of a year spent a significant amount of time in hospital due to VT and had a left occipital infarct.

In this case study , we note the important role of taking a good history in guiding appropriate and timely investigations of patients with complaints of shortness of breath. Furthermore, caution must be taken in those presenting with reducing exercise tolerance even in the presence of normal observations and an essentially normal examination especially in military personnel.

KEYWORDS

Sarcoidosis, ventricular tachycardia, methyl prednisolone, troponin ,atheromatous disease, exercise tolerance , cardiac rehabilitation



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نبذة مختصرة

الساركويد القلبي هو تشخيص نادر ولكنه هام يتطلب اليقظة بسبب عرضه المتنوع وغير المحدد. نحن نركز على جوانب الممارسة العامة مع ملاحظة أنه في العيادة العسكرية يجب التعامل مع انخفاض التسامح مع التمرين بشك ولا ينبغي طمأنة المرء من خلال الملاحظات العادية.

تعرض ضابط عسكري جيد سابقاً بضيق التنفس الحاد في سياق 3 أشهر من التحمل المتغير ولكن المخفض. كشف مخطط كهربية القلب (ECG) عن تسرع القلب البطيني (VT) مما أدى إلى دخول المستشفى. تم رفع التروبونين ، لكن تصوير الأوعية الدموية استبعد مرض عصيدي كبير. بسبب VT وضعف وظيفة البطين ، تم زرع جهاز إزالة رجفان القلب. تم تأكيد الساركويد القلبي لاحقاً في التصوير المقطعي بالإصدار البوزيتروني (PET). تم خروجه من المستشفى لتلقي العلاج الطبي ، وبدأ إعادة تأهيل القلب وتلقى ميثيل بريدنيزولون النبضي ولكن على مدار عام قضى وقتاً طويلاً في المستشفى بسبب VT وكان يعاني من احتشاء في القذالي الأيسر.

في دراسة الحالة هذه ، نلاحظ الدور المهم لأخذ تاريخ جيد في توجيه التحقيقات المناسبة وفي الوقت المناسب للمرضى الذين يعانون من ضيق في التنفس. علاوة على ذلك ، يجب توخي الحذر عند التقديم مع تقليل تحمل التمرين حتى في وجود ملاحظات عادية وفحص طبيعي بشكل أساسي خاصة في الأفراد العسكريين



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INTRODUCTION

“Shortness of breath is a relatively common complaint in General Practice usually from benign causes. We present the initial presentation, pathway to diagnosis and outcome of a case of cardiac sarcoidosis. Sarcoidosis is a disease of unknown aetiology. Cardiac involvement is present in less than 5% of patients and up to 25% of those with pulmonary/systemic sarcoidosis may be asymptomatic [1]. Although a rare cardiological condition, there are some important lessons to be learned from the General practice perspective, of this presentation of a previously fit and well military patient complaining of acute-on-chronic shortness of breath in a military health centre.

In this case study, we note the important role of taking a good history in guiding appropriate and timely investigations of patients with complaints of shortness of breath. Furthermore, caution must be taken in those presenting with reducing exercise tolerance even in the presence of normal observations and an essentially normal examination especially in military personnel.

CASE PRESENTATION

A male military officer in his early 50's presented with breathlessness and dizziness worsening over 3 days. He had varied levels of reduced exercise tolerance over the last 3 months stating that on some days he felt relatively unaffected, but was currently unable to walk the short distance from his car-park to office without severe dyspnoea. The patient stated at the time of presentation he felt there was no involvement with his heart. Denying any palpitations or chest pain he felt that he'd initially had a chest infection which grumbled on for this period and had returned. He was usually in good health attending clinic only



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for minor ailments and vaccinations. His only relevant past medical history was four years previously when he presented for a persistent cough in a well man clinic where an ECG showed normal sinus rhythm. From an occupational medicine perspective, he was previously fit to carry out duties as aircrew, and had been regularly assessed as fit to do so, however he had not been in a flying role for several years. He took regular exercise had never smoked tobacco and drank 8 units of alcohol per week.

On examination he had a Glasgow Coma Score of 15/15 and was afebrile with a temperature of 36.5 centigrade. His respiratory rate was 16 breaths/minute with an oxygen saturation of 98% in air. Pulse was 55 beats/minute (irregular) and blood pressure 121/86 mmHg. He had normal heart sounds, apex beat and jugular venous pulse. There was no peripheral oedema and peripheral pulses were present. He was able to complete full sentences and looked pale, was not cyanosed, had equal air entry with no added sounds, a normal percussion note and no clubbing.

Considering the acute presentation, the initial plan was to order a 12 lead ECG and spirometry with immediate review. A further urgent follow up appointment was to be booked for review with results of investigations that were to be taken that same day, which included a chest radiograph to exclude a possible mediastinal mass, full blood count with inflammatory markers and renal function.

The patient denied chest pain, palpitations and breathlessness during the ECG (see below) which showed a regular broad complex tachycardia (pulse 162 beats/minute) in keeping with Ventricular Tachycardia (VT).

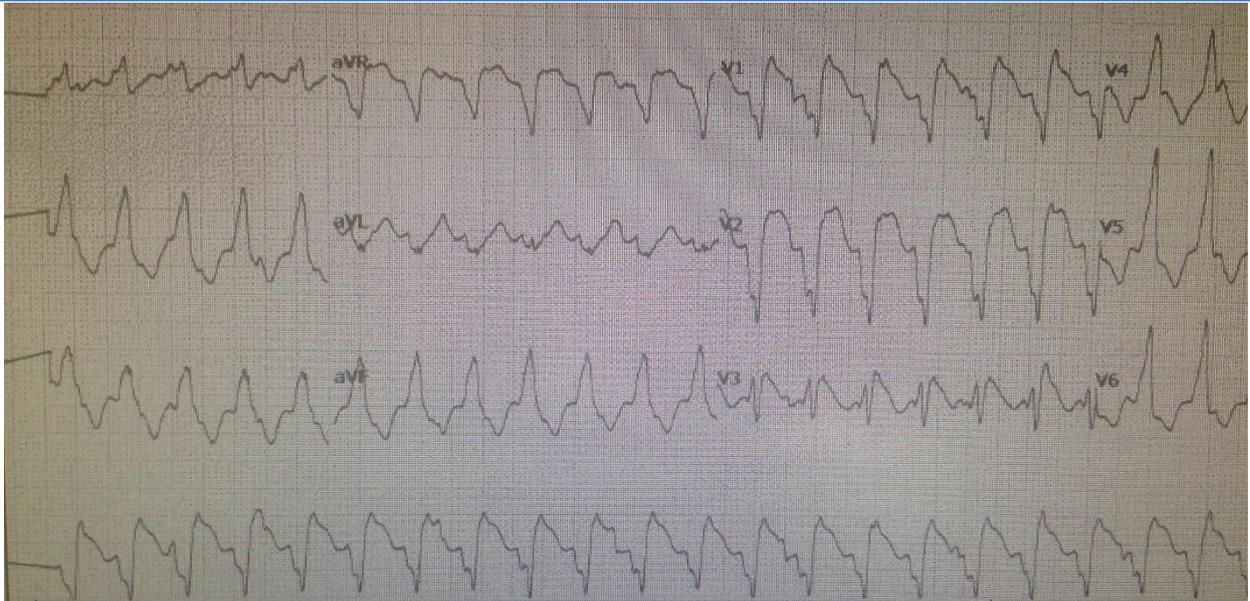


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As soon as VT was identified, an ambulance was called and the patient was admitted to the local District hospital Emergency department.

INVESTIGATIONS

Extensive investigation followed during the four weeks after initial admission as documented below. The patient was mainly an inpatient on the coronary care unit, involving one temporary transfer to another hospital, for an MRI before implantation of cardiac defibrillator at the end of this period, before eventual discharge.

Chest radiograph showed clear lung and heart fields, bloods including potassium were normal, apart from a raised troponin of 0.80 ng/L. After cardioversion with beta blockers and amiodarone in the emergency department, a resting ECG revealed sinus rhythm with right bundle branch block features and an



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intermittently prolonged QRS of up to 140 milliseconds with deep t-wave inversion anteriorly and Epsilon waves in V1 and V2.

Initial echocardiogram during this period, showed biventricular failure with an ejection fraction of 30-35% with calcified thrombus within the right ventricle apex but no significant valvular pathology.

Coronary angiogram revealed no obstructions: The right coronary artery was non-dominant in the small artery. The left coronary artery was normal. The circumflex, which was the dominant artery, and the left anterior descending (LAD) had only minor atheromatous disease.

Cardiac magnetic resonance imaging (MRI) showed widespread scarring, with late Gadolinium contrast uptake throughout the right heart, with significant right ventricular impairment. The left ventricle was moderately impaired, with an akinetic mid septum, apical septum and regional wall motion abnormality at the anterior and lateral walls. Apical thrombus in the right ventricle was again noted.

High resolution computerised tomography (CT) revealed hilar Lymphadenopathy which prompted a request for a gated PET scan. This and a repeat echocardiogram were arranged two months after initial discharge:

Echocardiogram: Normal left ventricle cavity size with preserved ejection fraction 55-60%, mild left ventricular hypertrophy, increased wall thickness with prominent trabeculation near apical area, septum appears mildly hypokinetic. Severely dilated right ventricle size, with mildly reduced systolic function. Dilated right atrium, moderate to severe tricuspid regurgitation.

Nuclear medicine: cardiac resting PET Rubidium82 (Rb82); Nonspecific inflammation in several organs typical of sarcoidosis, involving right ventricle and septal myocardium, lung, thoracic, and pelvic nodes, bone and possibly liver. Left ventricle has normal global function but possible apical scar. Right ventricle dilated but with insufficient Rb82 uptake to assess function potentially due to scarring.



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Seven months after initial discharge, a bronchoscopy confirmed nodal disease consistent with sarcoidosis.

During this period, an occipital infarct and patent foramen ovale (requiring a closure device) led to a pulmonary embolus despite being on Apixaban. It was due to this that haematology recommended dual anticoagulation with Apixaban and Clopidogrel as detailed above.

Follow up from Cardiology is planned over the next few months with a view to consider further management including possible Trans-oesophageal echocardiogram to exclude any residual shunt and possible closure and from Rheumatology to co-ordinate treatment locally to the patient.

The patient is also considering requesting referral to the Defence and National Rehabilitation Centre (DMRC) for a period of rehabilitation and input from military rheumatology.



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DISCUSSION

Associated with a high morbidity and mortality, cardiac sarcoidosis can be clinically silent and may present with nonspecific symptoms [2]. Certainly, breathlessness is not pathognomonic of cardiac sarcoidosis, however it is a diagnosis that as can be seen from the above chronology can have significant impact on a patient's life.

There were several confounding factors that made the presentation of this case challenging, and could have potentially steered a physician away from immediate investigation: The patient had strong ideas, concerns and expectations around his symptoms. Looking at the history, the patient was not complaining of palpitations and indeed was convinced it was not his heart but a recurrent chest infection. Apart from the lack of significant cough, this was a reasonable assumption on the patient's part previously being fit to fly with a history of normal ECGs, having no significant medical history, taking regular exercise and being a lifelong non-smoker.

Looking at the clinical aspect, the normal observations and an ostensibly normal examination (apart from an irregular pulse) might again warrant a more routine follow up after investigations. The acute on chronic dyspnoea and irregular pulse, warranted at the very least an immediate ECG to ensure it was safe for the patient to leave the clinic. Then there was the difference between the examination and the initial investigation findings over some 20 minutes later: an irregular pulse of 55 beats/minute becoming VT on ECG of 162 beats/minute. Looking at another case presentation of cardiac sarcoid presenting with VT, the patient had been aware of 10 days of *intermittent*



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palpitations [3] rather than dyspnoea. It is likely that during the examination our patient was not in VT and considering the history of variable breathlessness could have been moving in and out of VT over the previous three months.

A history unbiased by patient ideas concerns and expectations is a powerful diagnostic tool. Here it was the irregular heart beat on examination that triggered the further investigation, but the acute on chronic nature of the shortness of breath necessitated it was done immediately on a patient who was understandably resistant to the concept of his heart being the cause of his symptoms. Sudden cardiac death in military personnel, albeit rare is a well-documented phenomenon [4]. It is thus important to be led by history and not be falsely reassured by normal observations.

LEARNING POINTS/TAKE HOME MESSAGES

- Be led by the patient's history, address their ideas and concerns but be prepared to challenge their expectations when the evidence of your examination demands it.
- Always take a pulse in a presentation of shortness of breath.
- If you feel uncomfortable about letting a patient leave clinic, there is usually a good reason.



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REFERENCES

1. Okada DR, Smith J, Derakhshan A, Gowani Z, Zimmerman S, Misra S, et al. Electrophysiology study for risk stratification in patients with cardiac sarcoidosis and abnormal cardiac imaging. *IJC Heart & Vasculature*. 2019; 23.
2. Chamorro-Pareja N, Marin-Acevedo J, Chirilă R. Cardiac sarcoidosis: Case presentation and Review of the literature. *Romanian Journal of Internal Medicine*. 2019; 57(1).
3. Ekka , Sinha S, Purushothaman R, Naik N, Narang R, Singh L. Ventricular tachycardia – an atypical initial presentation of sarcoidosis: a case report. *Journal of Medical Case Reports*. 2013; 7(1): p. 196.
4. Posselt B, Cox B, d'Arcy A, Rooms M, Saba J. Atrial and ventricular tachyarrhythmias in military personnel. *Journal of the Royal Army Medical Corps*. 2015; 161(3): p. 244-252.