Sarcoidal Pericardial Effusion Masquerading As Acute Myocardial Infarction

V Madan, B Cottrell, D Sharpstone

Citation

V Madan, B Cottrell, D Sharpstone. *Sarcoidal Pericardial Effusion Masquerading As Acute Myocardial Infarction*. The Internet Journal of Internal Medicine. 2006 Volume 7 Number 1.

Abstract

Sarcoidosis is a multisystemic granulomatous disease, with varying modes of presentation. Pericardial sarcoidosis is rare and cardiac tamponade secondary topericardial sarcoidosis is very uncommon. We present a case of a young man who presented with signs and symptoms suggestive of acute myocardial infarction who was thrombolysed but subsequently died. The cause of his death was made apparent on the post mortem examination which revealed a massive pericardial effusion and a necrotic mature mediastinal teratoma.

INTRODUCTION

We discuss one case of a young man with symptoms and electrocardiographic evidence of acute myocardial infarction who was thrombolysed but later died. Postmortem findings were suggestive of widespread sarcoidosis with a massive pericardial effusion and a necrotic mature mediastinal teratoma.

CASE REPORT

A 43-year-old obese man with type 2 diabetes mellitus was brought with a 2 hour history of central crushing chest pain and shortness of breath. On initial assessment

his blood pressure was 150/90 mm Hg, equal in both arms with a pulse of 90 per minute, sinus rhythm and respiratory rate of 24/min. Cardiovascular examination was normal.

An ECG performed in the ambulance showed 1-2 mm ST elevation in the inferior leads -II, III, aVF. (Figure1). He was transferred to the coronary care unit where he was thrombolysed with reteplase. Subsequent ECG's performed in the CCU showed near normalization of the ST segments. AP view of the chest radiograph showed a prominent right hilum and patchy consolidation of the left upper and lower lobes. After remaining stable and pain free for 4-5 hours, his condition deteriorated and he became hypotensive, tachypnoeic and acidotic. An ECG at this stage showed a sinus tachycardia of 120 per minute. He developed extensive haemorrhagic mottling of his back and rapidly succumbed to the cardiogenic shock despite attempt at resuscitation.

Post mortem study of the gross specimen of the heart showed a 650 ml, blood stained pericardial effusion. Extensive loose pericardial adhesions were also seen. There wasminimal (20%) coronary atherosclerosis and no evidence of scarring or acute myocardial infarction. The ascending and descending aorta were unremarkable without evidence of dissection. In the upper mediastinum, a 7 cm cystic, necrotic tumour containing blood adherent to the left lung and superior pericardium was seen.

Extensive hilar lymphadenopathy was also seen. On histopathological examination, non caseating granulomas and inflammation of the lungs, mediastinal lymph nodes, myocardium, epicardium (Figure 2a) and liver were seen suggestive of extensive multisystem sarcoidosis. The mediastinal mass showed an extensively necrotic and inflamed teratoma with cartilage.(Figure 2b).

Figure 1

Electrocardiogram on admission showing ST segment elevation in inferior leads, II, III, aVF

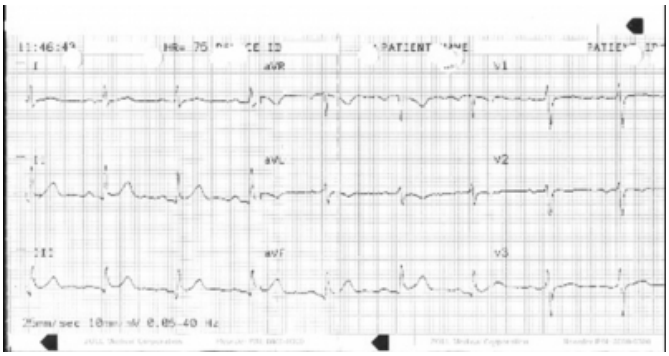


Figure 2

Histopathological section showing epicardium and outer layer of myocardium. There is a well defined granuloma consistent with sarcoidosis in the epicardial fat. Section of the mediastinal tumour showing a necrotic mass. Preserved areas of the tumour show mature elements including cartilage. These features are those of mature mediastinal teratoma. (Haematoxylin and eosin x 40).

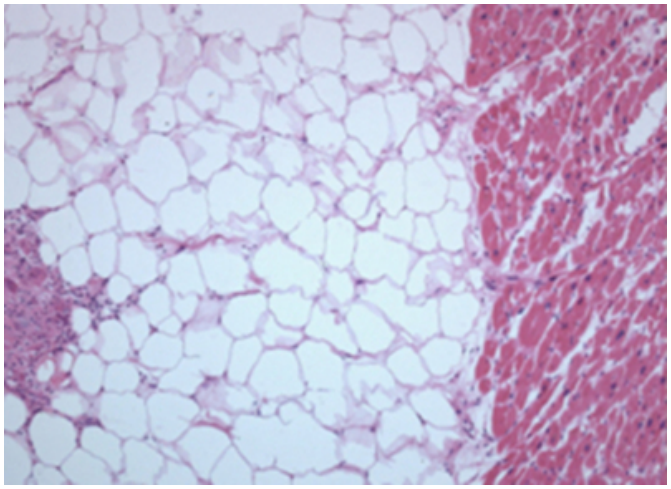
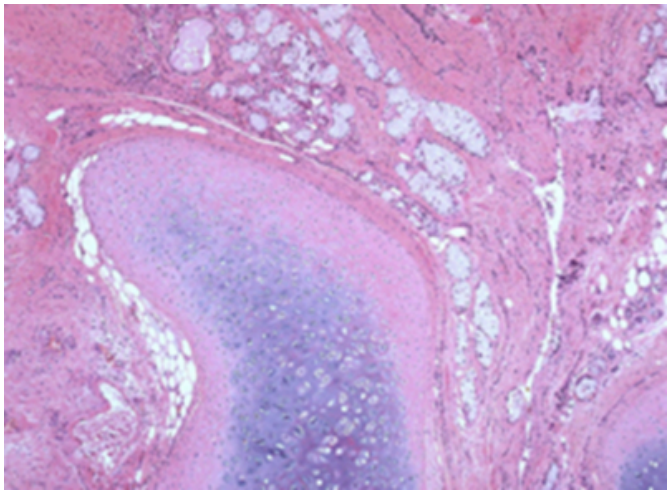


Figure 3



DISCUSSION

Sarcoidosis is a systemic disorder characterized by non caseating granulomas [1]. The spectrum of cardiac sarcoidosis extends from secondary effects on the heart of pulmonary sarcoidosis to primary myocardial involvement [2]. This may manifest as congestive heart failure, pericardial effusion, ventricular aneurysm, ventricular arrhythmias or sudden death, most commonly in young individuals [3, 4]. Sudden death is the most common cardiac manifestation of clinically significant cardiac sarcoidosis [2]. The course of pericardial sarcoidosis is variable, depending upon size of effusion and the extent of myocardial involvement[2].

Although pericardial effusions occur in 3 to 20% of the patients with cardiac sarcoidosis [3], cardiac tamponade or massive pericardial effusions are rare [3, 5].

In a clinicopathological study of 84 unselected patients with systemic sarcoidosis, arrhythmias were the most predictive of extensive or mild cardiac sarcoidosis [2]Patients with extensive, grossly evident cardiac sarcoidosis could be identified by presence of a rhythm or conduction disturbance and defect on thallium 201 myocardial perfusion imaging, in the absence of a history of ischaemic heart disease.

Midline teratomas are also known to be associated with cardiac tamponade [6,7] but this is more commonly associated with rupture of the teratoma into the pericardium [8] Although the mediastinal teratoma was not thought to be directly associated with the patient's death, its size and presence of infarction and inflammation may have contributed to symptoms. The ischaemic changes in the ECG may have been due to transient acute coronary spasm secondary to the inflammatory changes in the myocardium and pericardium.

References

1. Newman LS, Rose CS, Maier LA. Sarcoidosis. N Eng J Med. 1997;336:

1224- 34.
2. Silverman KJ, Hutchins GM, Bulkley BH. Cardiac sarcoid : A

clinicopathologic study of 84 unselected patients with systemic

sarcoidosis.Circulation 1978; 58 (6):1204-11.
3. Verkleeren JL, Glover MU, Bloor C, Joswig BC. Cardiac tamponade

secondary to sarcoidosis. Am Heart J. 1983; 106:601-3.
4. Pesola G, Teirstein AS, Goldman M. Sarcoidosis presenting with pericardial

effusion. Sarcoidosis.1987; 4:42-4.
5. Anurabh S, Verma N, Brady TM. Massive pericardial effusion in sarcoidosis.

Am Fam Phys. 1998; 58:660-2.
6. Sanford JR, Clarke D, Hoffenberg R. Mediastinal benign cystic teratoma. JR

Soc Med.1982; 75:976-7.
7. Prabhakar G, Nigam BK, Williams WG. Benign mediastinal teratoma

causing pericardial tamponade and pleural effusion. Eur J Cardio-thorac

Surg.1987; 1:53-4.
8. Marsten JL, Cooper AO, Ankeney JL. Acute cardiac

tamponade due to perforation of a benign mediastianal teratoma into pericardial sac. J Thorac Cardiovasc Surg. 1966; 51:700-7.

Author Information

Vishal Madan, MD, MRCP
Department of Medicine, West Suffolk Hospital

Barrie Cottrell, PhD, MB BChir, FRCPath
Department of Pathology, West Suffolk Hospital

Dan Sharpstone, MD,MRCP
Department of Medicine, West Suffolk Hospital