Thorax 1984;**39**:550–551

Short reports

Right atrial tuberculoma: report of a case with complete recovery

HEMALATHA KRISHNASWAMI, G CHERIAN

From the Departments of Pathology and Cardiology, Christian Medical College Hospital, Vellore, Tamil Nadu, India

Localised tuberculous myocardial lesions (tuberculomas) are extremely rare and usually diagnosed at necropsy.[1 2] We present here the clinical, angiographic, and pathological findings in a patient with myocardial tuberculosis presenting as an obstructing mass in the right atrium. The disease was successfully treated by antituberculous chemotherapy.

Case report

An 18 year old man was admitted with progressively increasing chest pain of one year's duration and palpitation, breathlessness, and oedema of the lower limbs that had lasted for three months. On examination there was ankle oedema; the blood pressure was 90/60 mm Hg and the jugular venous pressure was 7 cm from the sternal angle with prominent V waves and Y descent. The apex beat was easily felt in the 4th LICS at the mid-clavicular line. The first and second heart sounds were unremarkable and a clear early third heart sound was audible over the right sternal border. There were no murmurs. The liver was palpable 4 cm below the costal margin and tender. The spleen was not felt and there was no free fluid in the abdomen. The lungs, central nervous system, and musculoskeletal system were normal. Results of laboratory investigations of blood and urine were normal except for an increased erythrocyte sedimentation rate. The electrocardiogram showed regular sinus rhythm with a rate of 120 beats/min, with no features of atrial or ventricular hypertrophy and normal QRS voltage. The posteroanterior chest radiograph showed a cardiothoracic ratio of 45% with a prominent right atrial shadow and main pulmonary artery. The lung vascular pattern was normal.

On cardiac catheterisation the pressure data suggested a restriction to filling of the right ventricle. A right atrial angiogram showed an irregular filling defect in the lower part of the right atrium (fig *a*). The right ventricular angiogram showed a moderate sized right ventricle with no tricuspid regurgitation. A left heart study including a left ventriculogram yielded normal results. An endocardial biopsy of the right atrial mass was carried out with a bioptome. Examination of the specimen showed much necrotic tissue, with occasional granulomas suggesting tuberculosis. Surgical exploration using cardiopulmonary bypass was undertaken and this showed a firm tumour like mass almost filling the right atrium and extending above to the superior vena cava. Abnormal tissue was also present on the root of the aorta and pulmonary artery, with dense adhesions between a thickened pericardium and the heart in this region. Examination of biopsy material taken from the mass confirmed the diagnosis of tuberculosis.

The patient started treatment with streptomycin, isoniazid, and para-aminosalicylic acid in standard doses and was discharged from hospital.

He was seen 11 months later, at which time his effort tolerance had improved considerably and he was clinically normal. The erythrocyte sedimentation rate and electrocardiogram were normal. The chest radiograph showed reduction of heart size. A reassessment of his cardiac condition showed haemodynamic improvement. A repeat right atrial angiogram showed clearing of the filling defect in the right atrium (fig *b*). The other cardiac chambers were unremarkable.

The patient was seen again 36 months after surgery and after a full course of antituberculous treatment, at which time he was free of symptoms and had normal effort tolerance. There were no clinical signs of cardiac disease. A chest radiograph showed a heart of normal size and shape and normal lung vascularity.

Biopsy findings Light microscopic examination of biopsy specimens showed large areas of amorphous, pink staining necrotic material bordered by epithelioid cells and occasional giant cells, with areas of fibrosis. Acid fast bacilli, other bacteria, and fungal elements could not be demonstrated initially. Electron microscopic examination showed typical epithelioid cells with an elaborately convoluted plasmalemma that interdigitated with similar adjacent cells. A few of these cells showed phagocytic vacuoles containing bacilli.

Subsequently many fresh sections were prepared from the paraffin blocks and more than 25 of these, stained by the Ziehl-Neelsen method, were examined. Typical acid fast bacilli were present, though they were extremely infrequent.

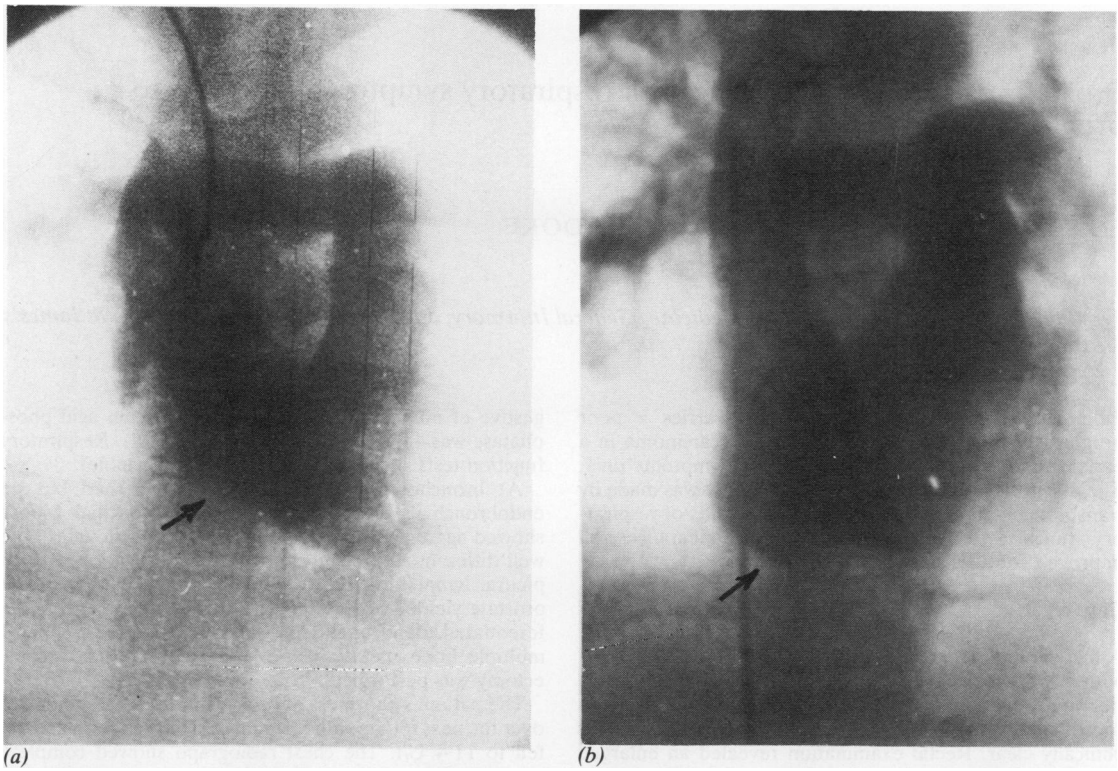
Discussion

Myocardial tuberculosis is usually diagnosed incidentally at necropsy,[2] but it may produce clinical abnormalities—most often cardiac arrhythmias.[1–7] Presentation of the patient with an obstructive, tumour like mass is less common.[2 8]

The initial bioptome biopsy in our patient showed much necrotic tissue with only an occasional granuloma. Though this appearance suggested tuberculosis, a fungal infection or a necrotic tumour with a granulomatous reaction could

Address for reprint requests: Dr H Krishnaswami, Pathology Department, Christian Medical College Hospital, Vellore – 632004, Tamil Nadu, India.

Accepted 27 January 1984



Right atrial angiograms (a) before operation, showing filling defect in the lower part of the right atrium due to the tuberculoma; and (b) 11 months later, showing complete clearing of the filling defect.

not be excluded in the absence of demonstrable acid fast bacilli. The material obtained by open biopsy, however, was typical of tuberculosis and occasional acid fast bacilli were demonstrable. Difficulty in demonstrating acid fast bacilli by light microscopy in such lesions has been noted before.[6 7] Unfortunately culture studies were not performed.

Myocardial tuberculosis results from either haematogenous dissemination from elsewhere, by spread from an affected pericardium, or by retrograde lymphatic spread from tuberculous mediastinal lymph nodes.[1 6 7] The original site of disease in this patient remains unknown since there was no operative or radiological evidence of tuberculosis elsewhere.

Hitherto a diagnosis of myocardial tuberculosis has been made only at necropsy[1-7] except in the case reported by Rawls *et al*,[8] where the tuberculous aetiology was only tentative and based on coexisting tuberculous lymphadenitis. Antemortem laboratory diagnosis of the condition is possible if a bioptome is used to obtain tissue for histopathological study.

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