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SHORT REPORT

A 15-year-old girl with a large pericardial effusion

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Abstract Pericarditis is a rare manifestation of tuberculosis and can be fatal. We describe a 15-year-old girl admitted for a large pericardial effusion. Subxiphoid pericardial biopsy was performed. Biopsy samples were positive for *M. tuberculosis* DNA by PCR, which confirmed the diagnosis of tuberculous pericarditis.

Keywords Tuberculosis · Pericarditis
Subxiphoidal biopsy · Corticosteroids

A 15-year-old girl was admitted with chest pain, progressive shortness of breath, fever, nonproductive cough, decreased appetite, weight loss, and fatigue. The patient was born in Angola, but had lived in the Netherlands for 14 years. Seven months before admission she had traveled to the Democratic Republic of Congo in Western Africa.

Her temperature was 39.7°C, her pulse 90 beats/min, respiratory rate 28 breaths/min, and blood pressure 96/58 mmHg. No enlarged lymph nodes were found. Soft cardiac tones and a friction rub were noticed. The liver was enlarged.

Laboratory results showed normal white blood cells and platelets with a decreased hemoglobin (4.3 mmol/l). The erythrocyte sedimentation rate was 60 mm/h.

A chest radiograph showed marked enlargement of the cardiac silhouette with no other abnormalities. Echocardiography revealed a large pericardial effusion containing exudative debris and fibrin strands (Fig. 1). Extensive laboratory studies for auto-immune diseases and infections, including HIV, did not reveal the cause.

Under general anesthesia the pericardial fluid was drained and a subxiphoid pericardial biopsy was performed. The PCR for *M. tuberculosis* DNA was positive on the pericardium, though not in the pericardial fluid. The patient was treated with four anti-tuberculous drugs (isoniazide, ethambutol, pyrazinamide, rifampicin) for 4 months and two anti-tuberculous drugs for an additional 4 months. Adjunctive treatment with predinisolone was tapered over a 12-week period. The patient completely recovered and did not develop any signs of constrictive pericarditis. She was followed up for more than 1 year and then discharged because of uneventful recovery.

Discussion

Pericarditis is a rare manifestation of tuberculosis that can be fatal and accounts for approximately 1–2% of all cases

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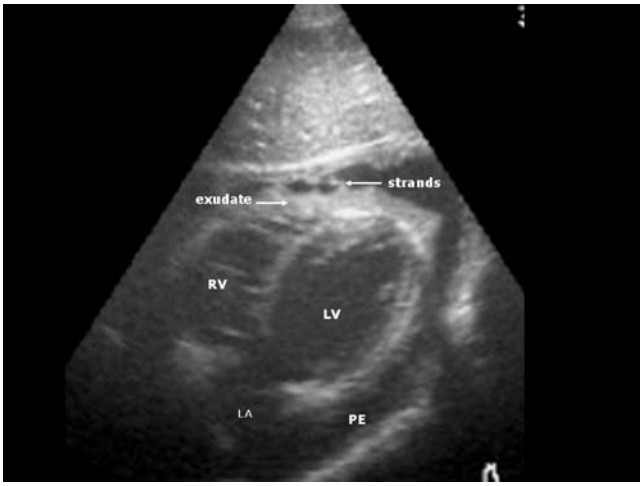

Fig. 1 Echocardiography showing a large pericardial effusion with exudative debris and fibrin strands. *RV* right ventricle, *LV* left ventricle, *LA* left atrium, *PE* pericardial effusion

of tuberculosis [6]. Children in particular are at high risk of the development of extra-pulmonary disease [5]. Clinical manifestations of tuberculous pericarditis are nonspecific and cardiopulmonary complaints usually develop later. Accumulation of pericardial fluid may compromise venous return, leading to cardiac failure.

Echocardiography plays a major role in confirming the presence of a pericardial effusion. In addition, several echocardiographic abnormalities including pericardial thickening, exudative coating and strands crossing the pericardial space are suggestive of tuberculous pericarditis. Thickened pericardium and fibrin strands are highly specific (94% and 88% respectively), and exudative coating has a high sensitivity (100%) in tuberculous pericarditis [4].

The diagnosis is confirmed with detection of *Mycobacterium tuberculosis* in either pericardial fluid or pericardial tissue. Pericardial fluid aspiration, however, has low diagnostic yield, both for PCR and culture, whereas pericardial biopsy provides the best chance of definitive diagnosis [2, 6]. A positive tuberculin skin test may increase the suspicion of tuberculous pericarditis, but a negative skin test does not exclude the diagnosis. A tuberculin skin test was not performed in this case because the girl had been immunized with BCG. There was no history of any family members being diagnosed with TBC.

The spread of tuberculosis to the pericardium, resulting in an effusion, occurs most often from the mediastinal lymph glands. However, pericarditis may also represent reactivation of disease in the absence of an apparent primary focus of infection [3].

Current recommendations for treatment of tuberculous pericarditis include an initial four-drug regimen for a period of 8 weeks with a subsequent continuation phase of treatment for 4 months when the isolate is drug-susceptible [1]. Controversy exists with respect to the use of corticosteroids for tuberculous pericarditis. The American Thoracic Society's consensus statement on tuberculosis recommends adjunctive therapy with corticosteroids (1 mg/kg of prednisolone with tapering over 11 weeks) for tuberculous pericarditis [1].

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