Pleural and pericardial fibrosis after ergotamine therapy

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Introduction

Pleural and pericardial fibrosis may develop after asbestos exposure, following drug ingestion, e.g. practolol and methysergide and in some connective tissue diseases (1). Ergotamine is a natural ergot alkaloid with a similar chemical structure to methysergide. We describe a patient who developed pleural and pericardial fibrosis secondary to chronic ergotamine use.

Case Reports

A 70-year-old woman was admitted for investigation of persistent bilateral pleuritic chest pain and progressive breathlessness of 2 months duration. Her symptoms began 18 months previously with left sided chest pain which resolved spontaneously after a few weeks only to recur on the right side and follow a similar pattern. She denied weight loss, arthralgia, Raynaud's phenomenon and haemoptysis but had noted some non-specific malaise.

There was no history of asbestos exposure and she had not smoked for 46 yr. Her only treatment had been half a 'Migril' tablet (ergotamine 2 mg, cyclizine 50 mg and caffeine 100 mg; Wellcome) on alternate days for 30 yr. It was confirmed by her general practitioner that she had taken this treatment regularly but had never received methysergide or beta blockers.

On examination she was not dyspnoeic, cyanosed or clubbed but was dull to percussion at the bases of both lungs, where auscultation revealed a few late inspiratory crackles. The cardiovascular system was normal with a blood pressure of 140/84 and no paradox. Chest radiograph showed bilateral pleural thickening, worse on the left [Plate 1 (a)]. The plasma viscosity was raised to 1.97 mPas, but the full blood count, routine biochemistry, autoantibody screens and ECG were normal. Lung function tests showed a restrictive picture: FEV₁ 1.1 l (58% predicted); FVC 1.75 l (77% predicted); ratio 63%, total lung capacity 3.3 l (72% predicted); gas transfer 5 mmol min⁻¹ kPa⁻¹ (74% predicted). Ultrasound of the thorax showed
small bilateral pleural effusions and computerized tomography confirmed bilateral pleural thickening along with marked pericardial thickening; no calcification or retroperitoneal fibrosis was seen and the lungs were normal (Plate 2). A CT guided cutting needle biopsy showed the pleura to be grossly thickened and fibrotic with little inflammatory cell infiltrate; there was no evidence of neoplasia.

The ergotamine was discontinued with a prompt resolution of her chest pain and breathlessness. Over a 7-month period she has remained well with no migraine. The plasma viscosity is now normal, the chest radiograph has gradually improved [Plate 1(b)], dynamic lung volumes (FEV1 1·31, 71% predicted; FVC 2·1, 90% predicted) and total lung capacity (4·1, 87% predicted) have increased, although her transfer factor remains unaltered.

Discussion

Pleural and pericardial fibrosis are recognized after methysergide therapy (1). Despite having a similar chemical structure there are only four reports in the English language of ergotamine related pleural or pericardial fibrosis. In three of the cases there was a protracted history of ergotamine ingestion (3–5), while the fourth patient had only received treatment for 4 yr and had a large social exposure to asbestos, her husband dying of mesothelioma (6). Three individuals had a high ESR and unexplained anaemia at presentation and one had predominantly unilateral disease on chest X-ray. The results of computerized tomography were reported on one patient, bilateral pleural thickening being identified but no comment was made about the pericardium (5).

Spirometry in two patients showed a restrictive pattern while reduced lung volumes were also found in two patients, one of whom had normal gas transfer. Pericardial disease was identified in only one of the patients after 10 yr of ergotamine therapy, which was not discontinued until she developed pleural problems 9 yr later. All four patients underwent thoracotomy to obtain pleural tissue, histology showing non-specific fibrosis.

Since stopping the ergotamine our patient has been symptom free, the plasma viscosity has fallen and both the pulmonary function tests and chest radiograph have improved. A similar resolution of symptoms and investigations have been described in the previous four case reports (3–6).

It has been suggested that fibrosis develops because of reduced tissue blood supply secondary to vasoconstriction (7), although this seems unlikely given that the potential for vasoconstriction is much greater with ergotamine than methysergide. The high ESR on
presentation and improvement in both symptoms and investigations after stopping ergotamine suggests that a hypersensitivity type reaction is more likely (6,8). This may explain why the fibrosis improves on cessation of ergotamine therapy, although the pleural tissue from the patient we describe showed little evidence of an inflammatory process.

Bilateral pleural thickening is an infrequent finding in asymptomatic individuals attending for a chest X-ray. The cause is usually previous asbestos exposure or connective tissue disease, but in some cases the aetiology is unknown. This case report highlights the importance of a careful drug history in such patients.

References