Pulmonary dirofilariasis causing a solitary lung mass and pleural effusion

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Abstract

A 63 year old patient presented with a pleural effusion and a solitary lung lesion on the computed tomogram. He was found to have an inflammatory granuloma due to *Dirofilaria immitis* at thoracotomy.

Dirofilaria immitis often infects dogs and its vector is the mosquito. Pulmonary dirofilariasis is rare in man,¹⁻³ though on the increase.² Most cases are asymptomatic.⁴ Chest radiographs often show a coin like lesion resembling lung cancer; pleural effusion is very unusual.

Case report

A 63 year old Japanese man, living in Fukuoka, developed chest pain and general fatigue during a golf match in April 1987. He noted pyrexia, cough, and haemoptysis later that night and on admission to hospital a chest radiograph showed a left pleural effusion. Computed tomography two days later confirmed the effusion and identified a solitary mass in the left lower lobe (figure). The aspirated pleural fluid was blood stained but showed no cytological evidence of malignancy. He was treated with antibiotics and discharged, but was readmitted a month later for further

investigations. At this time there were no abnormal findings on clinical examination. Chest radiography and computed tomography showed the solitary round mass, about 2 × 2 cm, but the pleural effusion had cleared. The blood leucocyte count was $7.1 \times 10^9/l$ with 10% eosinophils. The erythrocyte sedimentation rate was 38 mm in one hour. Liver enzyme activities were minimally increased (glutamate oxaloacetate transaminase 58 (normal <40) units/l, glutamic pyruvic transaminase 45 (normal <35) units/l, total protein 72 g/l). No tubercle bacilli or malignant cells were seen in the sputum. Bronchoscopic appearances were normal and cytological examination of brushings from the left lower lobe showed no malignant cells.

A benign tumour of the lung was suspected and the patient underwent thoracotomy in June 1987. A hard mass, 2.5 × 2.5 × 1.5 cm, was found in a segment of the left lower lobe. There was no pleural effusion but adhesions were present between the mass and the diaphragm. The resected mass was encapsulated and appeared to be necrotic. An inflammatory granuloma was diagnosed from a frozen section. Subsequent examination showed a *Dirofilaria immitis* worm, surrounded by eosinophilic infiltration and granulation tissue. Immunological examination showed a positive response between the antigen of the female *Dirofilaria immitis* and the patient's serum. There has been no evidence of new lesions on the chest radiograph during the two years of follow up.

Discussion

Dirofilaria immitis sometimes infects dogs and the microfilariae are carried by mosquitos. The detection of *Dirofilaria* in man is rare.¹⁻³ Pulmonary dirofilariasis in man appears to have gradually increased² since the description by Dashiell in 1964.⁵ Most cases are asymptomatic.⁴ Symptoms related to dirofilariasis are non-specific and may include cough, sputum, chest pain, and low grade fever.^{6,7} Our patient had cough, haemoptysis, a high temperature, and pleurisy.

The solitary mass on the chest radiograph was due to pulmonary dirofilariasis.³ Peripheral blood eosinophilia is sometimes seen but no laboratory test gives an accurate preoperative diagnosis.⁶ For this reason the surgeon is likely to proceed to thoracotomy.

Anthelmintics, such as diethylcarbamazine and mebendazole, were not prescribed because the parasite in the lung was dead and the stage of degeneration is usually advanced.^{1,3,7} The titre of antibody to *Dirofilaria immitis* fell in our patient after surgery without anthelmintic drugs.

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Computed tomogram taken
at admission showing a
pleural effusion and a coin
like lesion (arrow).

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Fatal haemoptysis from the pulmonary artery as a late complication of pulmonary irradiation

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Abstract

Fatal massive haemoptysis occurred as a late complication of erosion of the pulmonary artery by a non-malignant ulcer of the left main bronchus.

Symptoms attributed to radiation pulmonary fibrosis are uncommon.¹ We report a case of fatal massive haemoptysis in a patient known to have postirradiation pulmonary fibrosis.

Case report

In January 1990 a 69 year old man, an ex-smoker, was admitted to hospital with a three week history of cough, purulent sputum, minor haemoptysis, and worsening dyspnoea. An inoperable bronchogenic carcinoma of the right upper lobe bronchus had been diagnosed in 1982 on the basis of a right hilar mass on the chest radiograph and bronchoscopic biopsy specimens described as "suspicious of carcinoma." In view of the proximity of the lesion to the mediastinum he was treated by radiotherapy with small field rotational treatment focused on the right hilum (8 × 8 × 8 cm; dosage 4250 cGy in eight fractions over 10 days). The initial diagnosis was amended in 1985, however, a review of the initial bronchial biopsy material and subsequent biopsy specimens. On admission in 1990 he was dyspnoeic, centrally cyanosed, febrile (37.5°C), and drowsy. On examination of the chest the clinical and radiological signs (fig 1) were consistent with right upper lobe fibrosis. Laboratory investigations showed leucocytosis (18.7 × 10⁹/l with 89% neutrophils. Sputum grew *Staphylococcus aureus* but

blood cultures were sterile. He received appropriate antibiotics and supportive treatment. His sputum cleared and he had no further haemoptysis until during the second week of his hospital stay, when he was ready to be discharged, he had an unheralded and rapidly fatal massive haemoptysis.

Pathology At necropsy the left main bronchus showed an annular ulcer extending for two centimetres. There was an adherent clot at the base of the ulcer and a well demarcated area where the base of the ulcer had eroded into the underlying pulmonary artery. Microscopic examination of the ulcer showed focal necrosis and inflammatory infiltrates of the pulmonary artery, closely opposed adjacent cartilage with a narrow intervening zone of fibrosis and aggregates of inflammatory cells (fig 2a). The appearances were consistent with this being the site of haemorrhage. Adjacent branches of the pulmonary artery showed intimal proliferation, occlusion and recanalization changes consistent with chronic radiation damage (fig 2b). There was no evidence of malignancy, lung abscess, or aspergilloma.

Figure 1 Chest radiograph showing postirradiation right upper lobe fibrosis.

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