

Short reports

Solitary pulmonary nodule caused by phycomycosis in a patient without obvious predisposing factors

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Pulmonary involvement with phycomycetes such as *Mucor* is uncommon in Japan, the diagnosis being usually made at necropsy in debilitated or immunosuppressed patients. Diagnosis during life is rare and survival with recovery unusual. There has been no previous report of pulmonary phycomycosis presenting in a way comparable to that of our patient in the absence of any predisposing factors.

Case report

A 52-year-old man, living in a rural area near Okayama, was admitted to hospital for assessment of a pulmonary shadow found at annual chest radiography. He had been a farmer for 21 years and then a public worker for 10 years. He had smoked one packet of cigarettes daily for 30 years but was otherwise well and free from symptoms. Physical examination disclosed no abnormality apart from a circumscribed area of leucoderma on the right leg. There was no clubbing or lymphadenopathy and examination of the cardiovascular and respiratory systems was normal. The urine was normal. The white cell count was $5.9 \times 10^9/l$ with 11% eosinophils. The ESR was 1 mm per hour. The PPD skin test was positive. Vital capacity and FEV₁ were close to normal. The sputum grew *Staph aureus* and *Candida albicans* on culture but repeated examinations for acid-fast bacilli and malignant cells were all negative. A PA radiograph of the chest (fig 1) showed enlargement of the right hilum. Lateral tomograms of the enlarged hilum showed a notch sign with spicula formation and obstruction of the related bronchus; bronchography suggested a subsegmental defect of the anterior bronchus of the right upper lobe. At bronchoscopy the bronchus was found to be narrowed without obstruction. Because of the strong suspicion of bronchial carcinoma, thoracotomy and right upper lobectomy was performed on 5 June 1978. The operation specimen showed a large nodular lesion in the anterior segment of the right upper lobe, with narrowing of the proximal segmental bronchus. Microscopically (fig 2), the nodule was shown to be a conglomeration

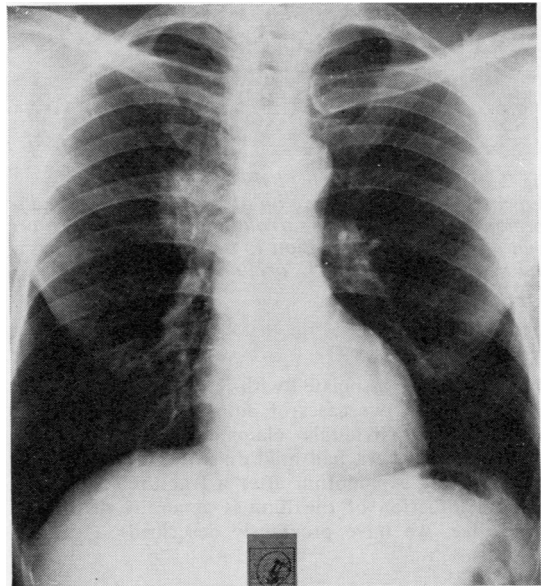


Fig 1 Chest radiograph taken on admission, showing tumour-like shadow in the right hilum.

of granulomas made up of epithelioid and foreign body giant cells concentrically surrounding broad branching non-septate hyphae which had a high affinity for Haematoxylin. The hyphae were identified as of the genus *Mucor* by fluorescent microscopy after treatment with rabbit serum containing fluorescent antibody specific for *Mucor*. The epithelium of the draining bronchus was normal. The patient remains healthy at the time of writing, 19 months after the operation.

Discussion

The present case of primary pulmonary phycomycosis is of interest for several reasons.

First, the patient was asymptomatic, with no underlying disease, in contrast to those patients in whom

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Fig 2 Photomicrograph of the excised specimen, showing granulomas made up of epithelioid cells and foreign body giant cells, surrounding hyphae which are seen at higher magnification to be broad, branching, and non-septate. H and E, original magnifications $\times 25$ and $\times 100$.

phycomycosis is associated with leukaemia, lymphoma, or diabetes. Of two cases of pulmonary phycomycosis reported in individuals claimed to be otherwise healthy, one patient had mild diabetes,¹ and the other was receiving cephalothin after a fracture.² Although mycotic infection of the lung is generally discovered by chance, we have previously described³ a case of

primary pulmonary aspergilloma detected by mass radiography.

Secondly, the strong suspicion of tumour raised by the radiographic appearances, including the notch sign, is unusual. Gale and Kleitsch⁴ reported a case of pulmonary phycomycosis presenting with a nodular lesion but the shadow was circumscribed, dense, and peripheral and accompanied by a pleural effusion. In a survey of the radiographic appearances of pulmonary mucormycosis, Bartrum, Watnick, and Herman⁵ mentioned a single case in which a nodular lesion was observed, but again the shadow was not suggestive of tumour.

Thirdly, the diagnosis was made after operation in our patient, while in nearly all other reported cases diagnosis has been made at necropsy. In most reported cases, pulmonary phycomycosis was found to be fatal because of the lack of effective treatment and the severity of the underlying disease. Fatal haemoptysis may also occur. Of six reported survivors, four, like our patient, had had pulmonary lobectomy, whereas two had been treated with amphotericin B.

References

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