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Candida albicans abscess of lung

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Rubin, A-H. E. and Alroy, G. G. (1977). *Thorax*, **32**, 373–376. **Candida albicans abscess of lung.** *Candida albicans* lung abscess is a rare entity. We present a case in a patient who suffered from Hodgkin's disease and was receiving immunosuppressive therapy. The patient responded to treatment with 5-fluorocytosine.

The importance of *Candida* species as pathogens has increased in the past few years. Systemic candidiasis and Candida organ involvement as haematogenous chorioretinitis, osteomyelitis, and skin infection have been described (Hughes and Remington, 1972; Fishman *et al.*, 1972; Balandran *et al.*, 1973; Edwards *et al.*, 1975).

We present a case of lung abscess due to *Candida albicans* in a patient with deficient immunity. This entity is rare but might prove to be of increasing importance.

Case report

A 49-year-old man was diagnosed in April 1973 as suffering from Hodgkin's disease, lymphocytic depleted type, grade III B. Splenectomy was performed and large, hard, para-aortic lymph-nodes were found at laparotomy. Treatment was begun with MOPP[1] according to routine protocol (De Vita *et al.*, 1970). In August 1974 he was readmitted with disseminated herpes zoster and made a full recovery after discontinuing treatment with MOPP for five months. He was readmitted in May 1975 with pyrexia, dyspnoea, and purulent sputum of 24 hours' duration. On physical examination a temperature of 39°C was found. Breath sounds were reduced with bronchial breathing and inspiratory crackles at the right base anteriorly and posteriorly. There were also inspiratory crackles at the left base. There were no other notable physical findings. On laboratory examination: ESR 122 mm per hour (Westergren), haemoglobin 9·4 g/dl, WBC $3{\cdot}6\times10^{9}$ l^{-1} with 37% band forms. Protein electrophoresis was normal. A chest radiograph (Fig. 1) showed a homogenous opacity in the right middle lobe and an opacity at the left base. Sputum culture showed a rich growth of Klebsiella, Enterobacteria, and *Candida albicans*. Blood cultures were sterile.

In view of these results treatment was begun with crystalline penicillin, 6 mega units daily, and gentamicin, 80 mg three times a day intravenously for one week without any beneficial effect. Treatment was then changed to cephalexin, 3 g daily, and gentamicin, 80 mg twice daily, also without any improvement. During this time (2 weeks) a cavity containing a central opacity developed in the right middle lobe (Fig. 2).

From this time on all sputum cultures showed a pure growth of *Candida albicans*. Treatment was changed to 5-fluorocytosine (5-FC) in a dose of 100 mg/kg per day orally. During the course of one week there was a dramatic clinical improvement and a gradual radiographic improvement (Fig. 3). Treatment was continued for eight weeks and at the end of five months the lung abscess had disappeared (Fig. 4) and he then resumed MOPP treatment.

Discussion

It is difficult to estimate the true frequency of candidiasis of the lung, but most authorities agree on the extreme rarity of primary Candida bronchopneumonia (Spencer, 1968). The diagnosis is especially difficult because of the common presence of *Candida albicans* in the normal upper respiratory tract. The frequency of respiratory infection with Candida increases in the presence of predisposing factors such as antibiotic therapy, immunosuppressive therapy, heart valve replacement, and the use of a central venous catheter. However, we have found in the medical literature since 1969 only three cases of *Candida albicans*

[1]Nitrogen mustard, vincristine, procarbazine, and prednisone

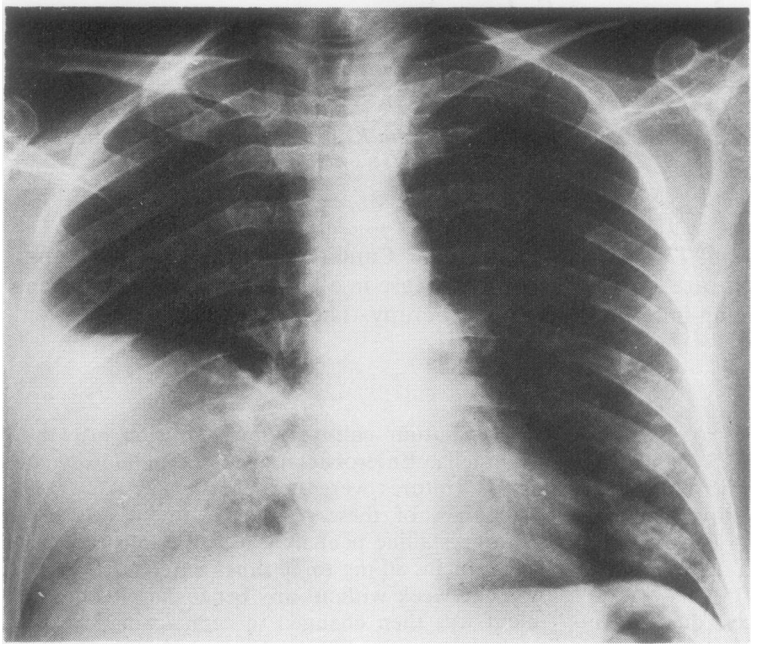

Fig. 1 *Chest radiograph demonstrates homogenous opacity of the right middle lobe and a patchy opacity at the left lower lobe.*

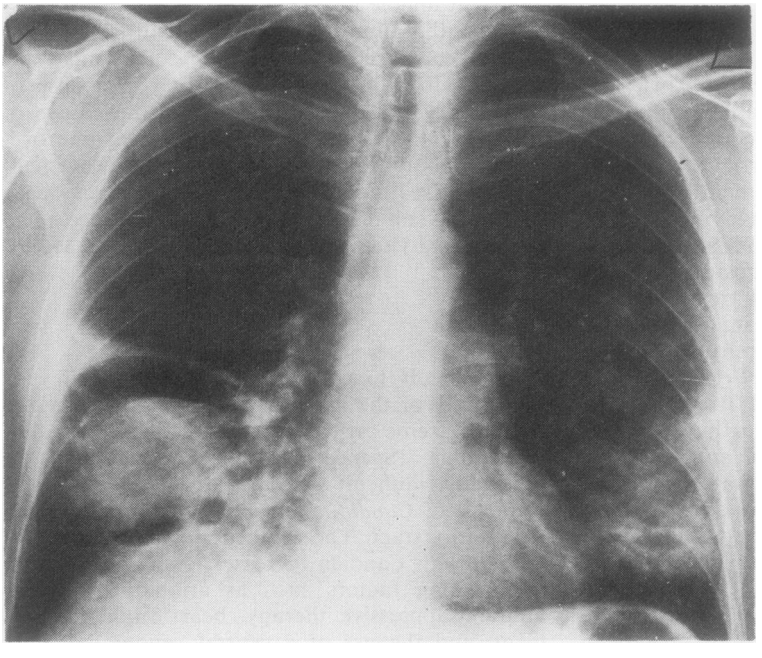

Fig. 2 *Chest radiograph three weeks later demonstrates lung abscess of the right middle lobe. The abscess contains a large central opacity suggestive of mycetoma.*

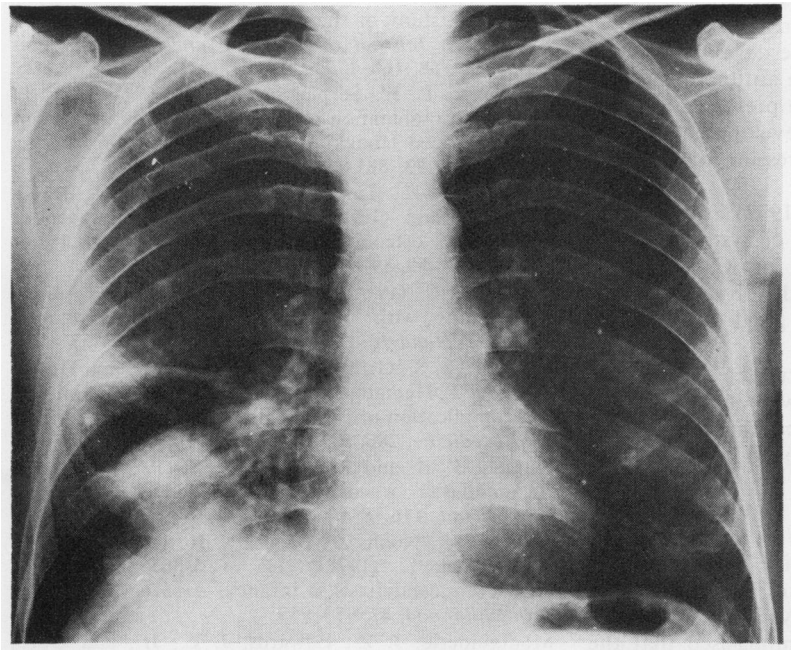

Fig. 3 *Chest radiograph three weeks later demonstrates shrinkage of the lung abscess in the right middle lobe.*

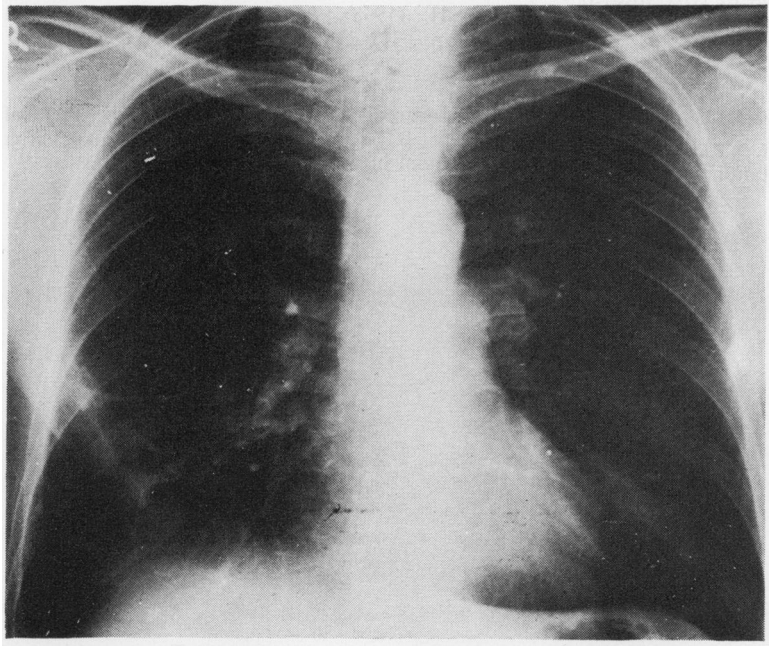

Fig. 4 *Chest radiograph four months later. Normal right and left lung fields with residual pleural thickening and adhesion on the right.*

lung abscess (Isacson *et al.*, 1972; Chidi and Mendelsohn, 1974; Firkin, 1974). Our patient's immunological system was depressed by his illness and by the immunosuppressive treatment, as shown by the systemic herpes zoster he developed a year before. In addition, the massive antibiotic therapy given early in the course of the present admission could have resulted in the development of the Candida lung abscess by suppression of the bacteria competing with Candida.

According to Isacson *et al.* (1972), four criteria are necessary for the diagnosis of systemic candidiasis: (1) positive cultures for Candida; (2) suspicious clinical features; (3) the presence of predisposing factors; and (4) a good response to specific antifungal treatment.

Our patient fulfilled these criteria despite the negative blood culture which was outweighed, in our opinion, by six positive sputum cultures. In addition, the radiographic appearances are suggestive of a 'fungus ball'.

The patient responded well to treatment with 5-FC in a dosage of 100 mg/kg/day. 5-FC is an antimetabolite of the pyrimidine base cytosine, known to have a high degree of activity against Candida, but having relatively little toxcity in man. However, it should be emphasised that the tendency today is to recommend treatment of systemic candidiasis with both 5-FC and amphotericin B owing to their synergistic action *in vitro* and to prevent the development of resistance to the 5-FC (Montgomerie *et al.*, 1975).

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