PULMONARY MONILIASIS CAUSED BY *CANDIDA TROPICALIS*

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Candida species are normal saprophytes, resident on mucous membranes. Occasionally they assume a pathogenic role giving rise to both local and systematic manifestations. Lesions may occur in the mouth, vagina, skin, nails, bronchi, lungs, oesophagus and intestine; monilia endocarditis and meningitis have also been recorded. Pulmonary moniliasis appears to be the commonest form of visceral involvement. Debilitated patients exposed to the prolonged use of antibiotics and steroids are susceptible to the invasive form of moniliasis; moreover this organism can add to the symptoms of suppurative pulmonary disease even when actual tissue invasion does not occur.

Bronchopulmonary moniliasis is that type of infection where the disease is confined to the bronchi with a minimum involvement of the peribronchial tissues. "Pulmonary moniliasis" is reserved for infections involving the pulmonary parenchyma. Pulmonary moniliasis is a rare condition and the following case satisfies the criteria necessary for inclusion in this class.

Case Report

A 29 year old man, a poultry farmer by trade, was first seen and admitted to hospital on 17. 6. 66. His history dated back exactly one month when he complained of a repetitive hacking cough and low grade fever. A course of Sulphamethoxypyridazine 0.5G daily and Streptomycin 1G injections proved of no avail and within 15 days the cough had become much worse and was now accompanied by copious expectorations of whitish, at times greenish, foul smelling sputum. At the time of admission, he was coughing up about 1 litre of sputum daily. On examination, the only relevant findings were decreased air entry together with expiratory rhonchi as well as coarse crepitations over the base of the left side of the chest posteriorly. Radiography of the chest taken on 19. 6. 66 showed mottling in the left lower zone and bilateral cough fractures of the ribs.

Investigations: Routine blood examination showed haemoglobin 12.79/100 ml, total leucocyte count 11,700/cmm (normal differential), erythrocyte sedimentation rate (Westergren) 99 mm. in first hour. Urine examination did not reveal any abnormality and the blood urea was 31 mg/100 ml. L.E. cells were absent. Sputum culture yielded only normal commensals.

The patient was given a 10 day course of ampicillin 2G daily. At the end of this period, there was no improvement, the expectoration had actually increased and an X-Ray chest taken on 30. 6. 66 showed an increase in the radiological opacity in the left lower zone. At this stage, the sputum was examined specifically for fungi and a copious growth of *Candida tropicalis* was isolated. Nystatin inhalations were started; 20,000 units of Nystatin were administered twice daily for 4 weeks and once daily for another 4 weeks. Within the short space of a week, a marked improvement occurred; expectoration diminished, ESR read 38 mm in first hour. Chest X-Ray taken on 15 .7. 66 showed marked reduction and clearing of the radiological opacities, whilst one taken on 8. 8. 66 showed clear lung fields. Bronchogram taken on 17. 8. 66 showed no evidence of bronchi-

ectasis. No fungi have been found in the sputum since the start of the nystatin therapy. The general conditions of the patient is very satisfactory and he is now doing a full day's work.

Comment

Smith (1959) suggests the following criteria for establishing the diagnosis of pulmonary moniliasis. i) pure isolation of fungus from sputum. ii) presence of agglutinins. iii) every effort should be made to find a primary cause for the pulmonary lesion before accepting the *Candida* as the aetiological agent. iv) Therapeutic test. A pure growth of *Candida tropicalis* was isolated; the pulmonary involvement occurred in the absence of any significant underlying lung disease and the response to nystatin aerosol therapy was very satisfactory, thus fulfilling three of the criteria proposed by Smith. The test for agglutinins was not carried out for technical reasons; however Riddel (1956) claims that in a man, humoral antibody titres are quite unreliable indices of *Candida albicans* infections and Smith (1959) describes patients with severe monilial infection who had no demonstrable agglutinins.

Perusal of the literature has failed to reveal a case of pulmonary moniliasis caused by *Candida tropicalis*. Riddel (1963) states that *Candida albicans* is the only species which is important as a potential human pathogen. *Candida tropicalis* was isolated from the sputum cultures and repeated examination for other pathogens were persistently negative. This finding together with the excellent therapeutic response to nystatin inhalations confirmed by the clearing of the radiological opacities, is the strongest evidence, short of lung biopsy, that the pulmonary lesions in this case were the result of infection by *Candida tropicalis*.

The successful treatment of pulmonary moniliasis by nystatin aerosol therapy confirmed the findings of Shany (1957), McKendrick (1958), Heyden (1959) and Baumann (1959). As nystatin is little absorbed from the intestinal tract, oral nystatin is not essential. The dose used in this case was much lower than that used by McKendrick (1958) 500,000 units four hourly or by Baumann (1959) 200,000 units to 500,000 units daily. It is suggested that smaller doses would achieve the same result.

Summary

A case of pulmonary moniliasis caused by *Candida tropicalis*, responding to nystatin aerosol therapy, is reported.

Acknowledgements

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(Skiagrams on pages 97 and 98)

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Skiagrams illustrating article on "Pulmonary moniliasis" by Dr. F. F. Fenech and Dr. N. Grixti Soler.

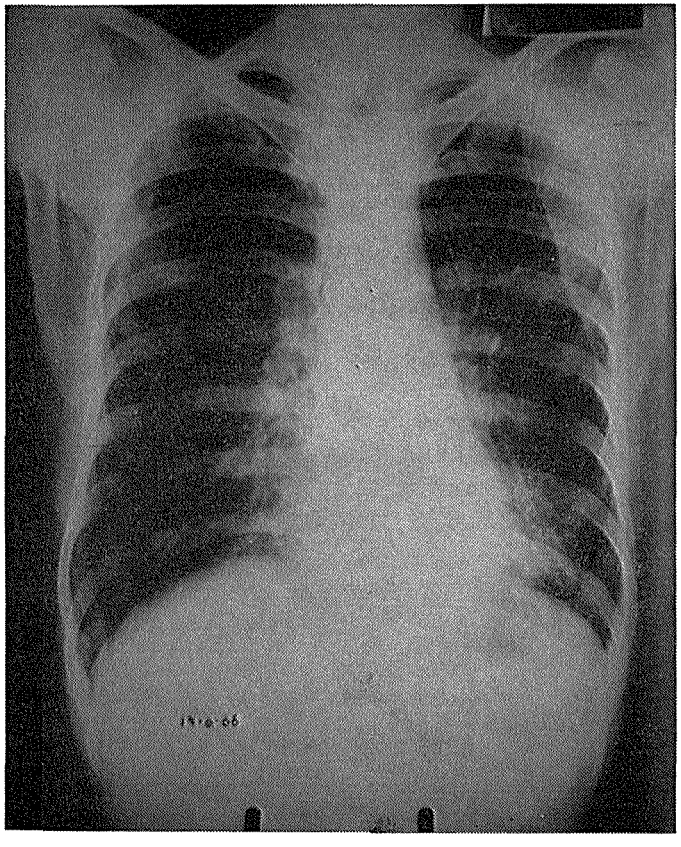

Fig. 1 — (19. 6. 66)

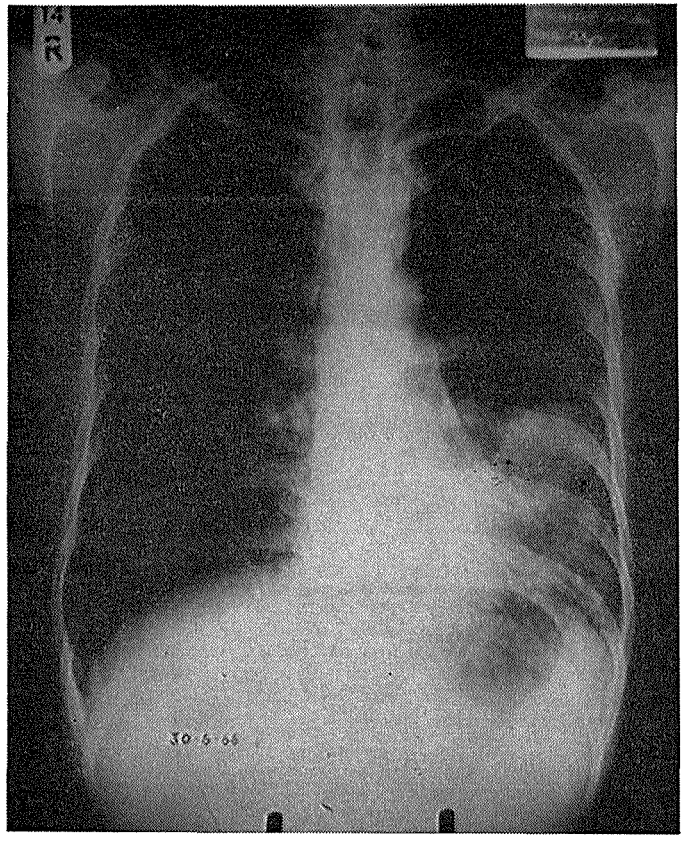

Fig. 2 — (30. 6. 66)

Skiagrams illustrating article on "Pulmonary moniliasis" by Dr. F. F. Fenech and Dr. N. Grixti Soler.

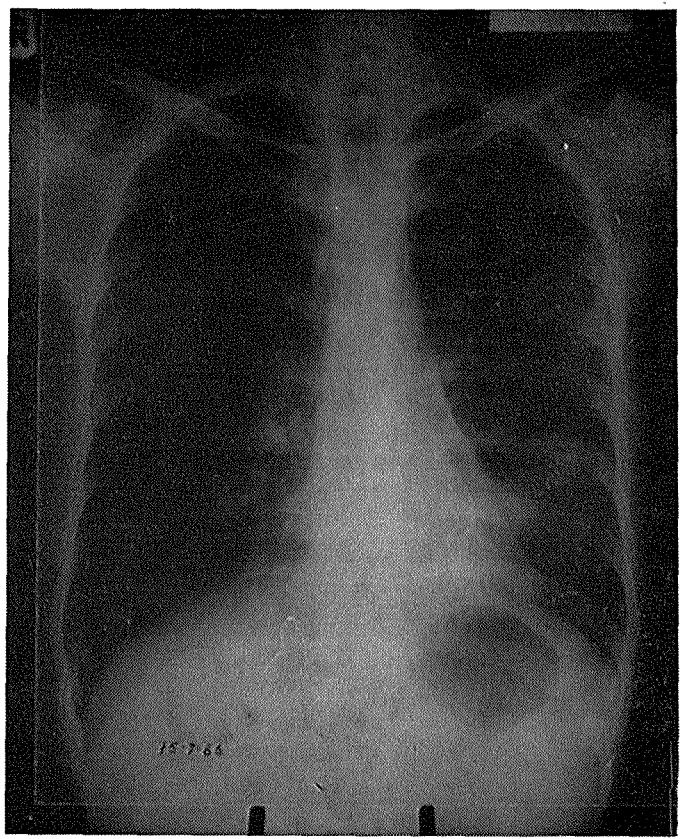

Fig. 3 — (15. 7. 66)

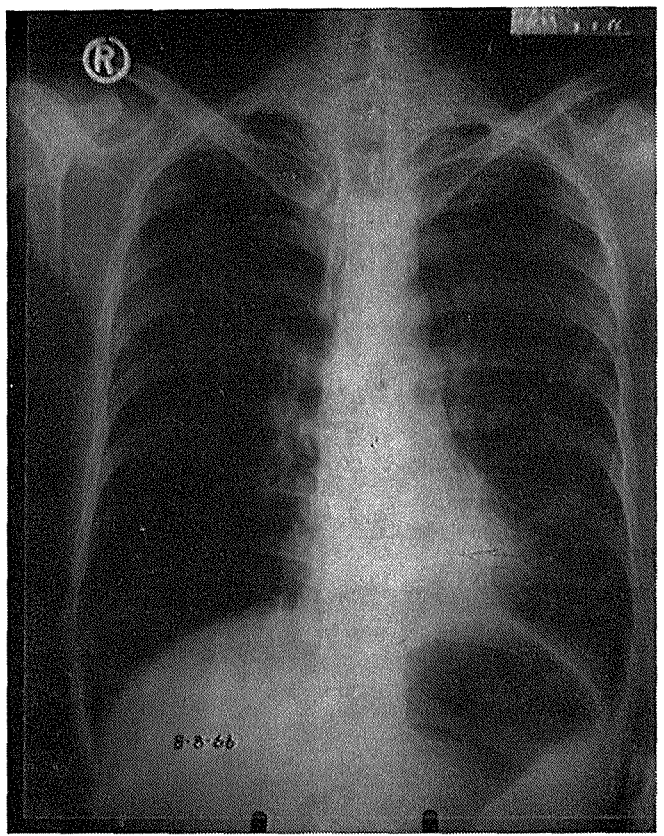

Fig. 4 — (8. 8. 66)