

DIFFUSE PULMONARY INFILTRATION BY *PENICILLIUM MARNEFFEI* INFECTION IN A PATIENT WITH HUMAN IMMUNODEFICIENCY VIRUS INFECTION

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ABSTRACT

A 31 years old male patient with HIV infection, had weight loss and cough. Diffuse reticulonodular lesions was seen on chest film in both lung fields, with lower lungs predominance. Multiple skin nodules were also present. *Penicillium marneffei* infection was proved by gram stain. Treatment of the mentioned pathogen resulted in complete disappearance of the pulmonary lesions. Review of the articles concerning this matter was presented.

INTRODUCTION

Penicillium marneffei, is a rare human fungal pathogen (1,2). Disseminated *P. marneffei* infection is endemic in Southeast Asian countries and China (1-4). The number of patients with this systemic mycosis is rising rapidly, especially in Thailand (5). This abrupt increase corresponds with the recent rapid increase in the number of cases of human immunodeficiency virus (HIV) infection (5). We report a case of systemic infection due to *P. marneffei* in an HIV-infected patient with skin and lung involvement.

CASE REPORT

A 31-year-old male patient had weight loss, and cough for 2 months. Chest film showed diffuse reticulonodular lesions in both lungs, more predominant at lower half of the lung fields. The heart size and pulmonary vasculature appeared normal. There was no pleural fluid. Multiple skin nodules was noted and the gram stain and culture of the skin lesion revealed *Penicillium marneffei* infection. Anti-HIV was positive. The treatment to the organism was given and the chest film 2 months later showed complete disappearance of the pulmonary lesions. (Fig. 1)

DISCUSSION

The clinical features of systemic *P. marneffei* infection are described (2-4, 6-8). Patients can range in age from infants to those over 60 years old. The patients are predominantly male, the male to female ratio being 4.5 to 9.0 to 1. Many patients are healthy before developing infection, but some have underlying diseases such as SLE or Hodgkin's disease. The incidence of infection caused by this fungus has recently been reported as increased in patients with HIV infection (3,6,8,9). Most patients have fever, anemia, hepatomegaly, splenomegaly, lymphadenopathy, subcutaneous abscesses and skin lesion.

The diagnosis of systemic *P. marneffei* infection is usually made by demonstrating the organism in smears of a skin lesion specimen and/or bone marrow and by culturing the organism from blood, bone marrow, and/or skin biopsy specimen (1,3).

Eight cases of bone and joint infection by this organism was reported by Louthrenoo W, et al (8). A case of cervical osteomyelitis and retropharyngeal abscess with upper airway obstruction was reported by Fu Ko K, et al (11).

In general, there are three distinctive tissue reactions to *P. marneffei* infection: granulomatous,

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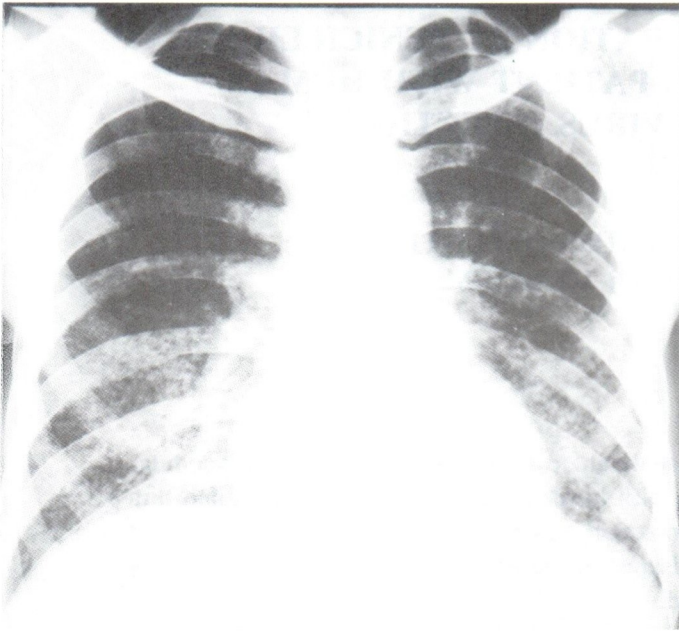


Fig. 1a PA chest film showed diffuse reticulonodular lesions in both lungs with more lower lung fields predominance

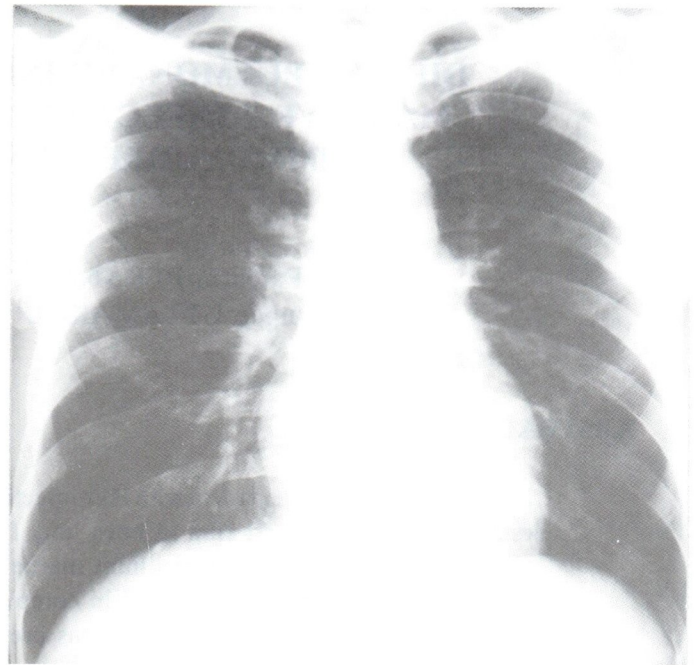


Fig. 1b Follow up chest film two months later showed complete disappearance of the lesions.

suppurative and anergic with necrosis (10). The granulomatous pattern consists of epithelioid granulomas with multinucleated giant cells, organisms are usually sparse and difficult to demonstrate. This form of reaction is seen in patients with normal immunity and is seen especially in organs of the mononuclear phagocytic system. The second form of reaction, suppuration with multiple abscesses, develops in a variety of organs but is common in the lungs, skin and subcutaneous tissue of patients with normal immunity. The suppuration is a reaction by neutrophils and fibrin to the numerous yeast-like cells.

The anergic and necrotizing is characterized by a diffuse infiltrate of histiocytes distended by proliferating fungi and focal necrosis. This pattern indicates a progressive and disseminated infection and is typically seen in patients with compromised immunity. Disseminated histoplasmosis closely mimics penicilliosis *marneffei* both in histological tissue reaction and in the morphology of the organism (10).

Most of the reported cases of natural infection had occurred in residents of Southeast Asia or visitors to the region. The natural reservoir is not known but the fungus appears to be freely present in the environment. The fungus may be inhaled and cause

a primary pulmonary infection before dissemination, or it may be ingested and invade the intestine and liver as the first stage in dissemination (10).

Three patterns of pulmonary infiltration were reported by Supparatpinyo (5) by chest roentgenography. They were diffuse reticulonodular infiltrations as in our case, localized interstitial infiltrations and localized alveolar infiltrations. However, images were not shown in their report.

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