Penicillinosis in a HIV-positive individual

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Abstract

Penicillium marneffei is a dimorphic fungus, which can cause fatal infection in HIV-infected patients. The aim of this article is to report a rare case of penicillinosis in an HIV-positive patient from a nonendemic area such as Paonta Sahib, Himachal Pradesh. The patient presented with nonhealing painful ulcer on tongue, chest pain, cough, and chronic diarrhea. Diagnosis was made possible through blood investigations and culture reports of saliva and blood samples.

Key words: Fungal, HIV, Penicillium marneffei

INTRODUCTION

Infection with Penicillium marneffei, an emerging facultative intracellular dimorphic fungus, is an important disease among human immunodeficiency virus (HIV) infected persons in South East Asia.[1] In South East Asian countries such as Thailand, Penicilliosis Marneffei (PM) ranks as the third most common opportunistic infection, after extra-pulmonary tuberculosis and cryptococcus, in people with acquired immunodeficiency syndrome (AIDS).[2] Although P. marneffei has been reported in varied clinical manifestations, it has rarely been isolated from the oral cavity. We report a patient with HIV who presented with oral lesions wherein a diagnosis of P. marneffei was made after microscopic examination and culture tests.

CASE REPORT

A 32-year-old male reported with the chief complaint of nonhealing painful ulcer from past two months on the left border of the tongue. The ulcer was small, superficial with clinical resemblance to recurrent apthous ulcer [Figure 1]. Careful history revealed that patient was a chronic smoker and he had chest pain and chronic productive cough from past 2–3 months. Patient was also suffering from chronic diarrhea from past 3–4 months. The patient was on some medication which he used to take off and on depending on cough and diarrhea. These were given to him by a local doctor. The doctor also advised him to put some “Katha” (an ingredient of paan) on

Figure 1: Clinical picture showing ulcer on left lateral border of tongue

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ulcer. When no sign of ulcer healing was seen and pain increased, then the patient reported to dental college.

Examination of oral cavity revealed that the patient had a very poor oral hygiene with generalized gingival recession. Cervical and submandibular lymph nodes were also palpable and tender.

The blood investigations revealed that the patient was anemic with hemoglobin level of 8.5 g/dl. ESR was 30 mm in first hour. The patient was found to be seropositive with a CD4+ count of 110 cells/ml.

Patient's saliva samples and scrapping from ulcers were inoculated separately on Sabroud's dextrose agar (SDA). Slight growth was also seen on SDA on 5th day in both samples but nothing conclusive could be drawn. On 10th day of inoculation, greenish black folded colonies on the surface of SDA could be seen. Red-colored pigment diffused into SDA. These features are characteristics of *P. marneffei* [Figure 2]. The inoculation was examined under microscope after lactophenol cotton blue preparation. It showed typical brush border appearance with the presence of conidiophores and stergimata which confirmed the diagnosis [Figure 3].

The patient was treated with amphotericin B followed by itraconazole maintenance therapy and he was also referred to department of general medicine for antiretroviral therapy and other medical problems such as cough and diarrhea.

**DISCUSSION**

Penicilliosis is a systemic fungal infection caused by *P. marneffei*. The infection is most commonly seen in Southeast Asia, Southern China, Hong Kong, and Taiwan. *P. marneffei* has been reported in varied clinical manifestations in India.[3] It is one of the commonest opportunistic infections among AIDS patients in areas of endemcity and is considered an indicator disease for AIDS.[4]

*P. marneffei* has been isolated from bamboo rat furrows and the current consensus would favor soil as the most probable reservoir, with transmission to humans via the respiratory root. Therefore, there seems to be no role for the rats on the natural occurrence of the disease.[5] Similar to other pathogenic fungi, the conidia are inhaled and internalized by alveolar macrophages and transported to the reticuloendothelial system. The organisms then proliferate as soon as host immunodeficiency takes place, leading to systemic infection.[6]

The incidence of penicilliosis has increased over the past few years.[7] The first cases in English literature from India were published by Singh NP *et al.* in four HIV positive patients from Manipur.[8] In 2009, Baradkar *et al.* reported a case of *P. marneffei* infection in HIV positive individual from Mumbai, which is a non endemic area.[9] History of travel to endemic area was a major clue to diagnosis in case from Vellore, India.[10]

The incubation period of *P. marneffei* infection has not been well defined. A report of a patient who lived in an nonendemic area but developed penicilliosis 11 years after visiting Hong Kong has suggested the possibility of a long latency with subsequent reactivation.[11] There is also evidence that primary infection might occur as *P. marneffei* infection can present early in young children who had acquired HIV perinatally.[12]

Maniar *et al.* reported a case of *P. marneffei* infection
in an HIV-infected individual from Manipur. Multiple erythematous, discrete papules, and nodules with umblication were situated over the face, chest, back, and proximal parts of extremities. But, there were no oral and genital lesions.\textsuperscript{13}

Nittayananta suggested that oral \textit{P. marneffei} lesions usually occurs in patients with disseminated infections, presented as erosions or shallow ulcers covered with whitish yellow, necrotic slough which may be found on palate, gingival, labial mucosa, tongue and oropharynx.\textsuperscript{14}

The mortality rate in patients with acute disseminated penicilliosis is high if the infection is not diagnosed early enough and a timely and effective antifungal therapy is not used.\textsuperscript{15} In a correctly diagnosed case of infection with \textit{P. marneffei}, amphotericin B followed by itraconazole maintenance therapy is generally curative or effective in preventing a relapse of disease.\textsuperscript{16} Thus, an early diagnosis is a prerequisite for lowering the mortality rate in patients with acute disseminated \textit{P. marneffei}.\textsuperscript{15}

This case aims to emphasize the fact that \textit{P. marneffei} can be isolated from oral cavity and also from the nonendemic areas. The isolation of \textit{P. marneffei} from nonendemic areas suggests the changing scenario of infections, which may result in greater morbidity and mortality.

Further research work is required in the field of infections with \textit{P. marneffei}, with respect to its global distribution, natural history, pathogenesis, and impact of antiretroviral therapy.

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