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Case Report

Pulmonary infection by *Geotrichum candidum*

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ABSTRACT

Geotrichosis is a condition caused by *Geotrichum candidum*. Apart from thrush and superficial bronchial mucosal infection, pulmonary form is the most common. We report a case of pulmonary geotrichosis in an immunocompetent patient from a tertiary care hospital.

Keywords: Geotrichosis, *Geotrichum candidum*, Arthrospores

INTRODUCTION

Geotrichosis is caused by *Geotrichum candidum* which is saprotrophic in nature. *Geotrichum candidum* belongs to fungi imperfecti. It is a commensal in mouth, bronchi, lungs, gastrointestinal and genitourinary tracts. It is usually considered as a contaminant in laboratory except in case of extremely immunocompromised patients. Its role as a human pathogen is not clear.[1,2]

Clinically it presents as bronchial/pulmonary, intestinal and disseminated forms. Clinically geotrichosis may resemble fibrocaseous tuberculosis.[3]

CASE REPORT

A male patient aged 57 years came with complaints of cough and breathlessness from 15 days. The patient presented with history of productive cough with blood stained sputum from 5 months. Cough was associated with grade 1 dyspnea. On enquiring about his personal history, the patient was found to be a chronic smoker. He was not a known diabetic or hypertensive. There was no history of tuberculosis.

On general physical examination, the patient was pale and dyspneic. There was no cyanosis, icterus, clubbing, lymphadenopathy or oedema. On auscultation, rhonchi and crepitations were noted along with a systolic flow murmur. His vitals were stable. On the day of admission, ECG and ECHO was done.

Electrocardiogram showed changes of ischaemic heart disease with dilated cardiomyopathy. Echocardiogram revealed dilated left atrium, left ventricle, right atrium and right ventricle. Global left ventricular hypokinesia and left ventricular dysfunction type 3 was also present.

With the above findings, the patient was diagnosed to have COPD (chronic obstructive pulmonary disease) with acute exacerbation with ischaemic heart disease in failure.

Spot sample and early morning sputum samples were collected and sent for processing in microbiology laboratory. Gram stain of sputum showed gram positive rectangular thick walled chains of arthrospores. Sputum was negative for acid fast bacilli.

Sputum was cultured on blood agar, MacConkey agar and Sabouraud's dextrose agar (SDA). After 24 hours of incubation at 37°C, the plates were examined. Pure growth was observed on blood agar and SDA. On blood agar, colonies were dull white, opaque and non-haemolytic. Gram stain from the colonies revealed gram positive rectangular, thick walled chain of arthrospores

resembling those in the direct smear. There was no growth in MacConkey agar. After 3 days, on Sabouraud's dextrose agar dry, flat, white to cream colonies were seen (Figure 1). Gram stain and LPCB mount from SDA colonies showed hyaline hyphae breaking into rectangular arthroconidia each measuring around 4-5 microns suggestive of *Geotrichum candidum* (Figure 2). There were no blastoconidia and urease test was negative differentiating it from *Trichosporon* sp. A repeat sputum sample after 5 days showed growth of *Geotrichum candidum*. The patient was treated with fluconazole for five days. The patient improved clinically and was discharged.

Figure 1: Sabouraud's dextrose agar showing creamy yeast colonies.

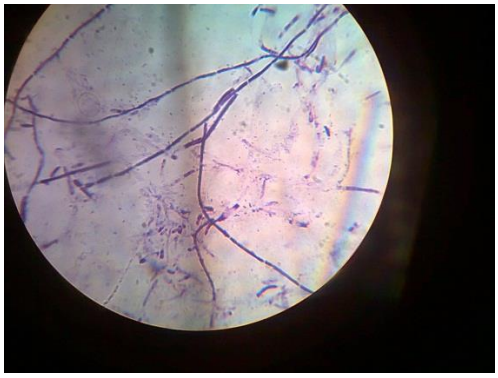

Figure 2: Gram stain showing gram positive yeast like cells splitting to characteristic arthroconidia.

DISCUSSION

Geotrichosis affects mainly patients with systemic illness like diabetes mellitus and those with neoplasms. Clinically it resembles candidiasis.[4] There have been a few reports where Geotrichum is found to have invaded tissue.[5] Disseminated infection has been reported in literature in patient with malignancy.[6] *Geotrichum candidum* was isolated as a single pathogen from sputa and oral samples in Bulgaria.[7] Bonifas et al. have done a study on 12 cases of oral geotrichosis and found that oral geotrichosis is an exceptional infection that clinically present as oral candidiasis.[8] Clinical diagnosis combined with laboratory evidence is needed in the diagnosis of geotrichosis. Direct microscopy of the pathogen in clinical specimen and repeated isolation still remain the gold standard in the diagnosis of geotrichosis. A number of drugs like gentian violet, voriconazole, miconazole and nystatin have been tried in the treatment of geotrichosis.[9] Identification of *Geotrichum candidum* using combination colony characteristics and microscopic morphological features increases the possibilities for diagnostic decision.[10]

Through the present study, we emphasize the role of Geotrichum candidum as probable pathogen in humans.

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