

Blastoschizomyces Capitatus Pneumonia, Mimicking Pulmonary Tuberculosis - A Case Report

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ABSTRACT

Introduction: *Blastoschizomyces capitatus*, a filamentous fungus is one of the rare causes of invasive fungal diseases in immune-compromised hosts.

Case report: Here we report a case of *B. Capitatus* pneumonia in a 70 years old patient of Coronary Heart Disease with Left Ventricular Failure. Due to episodes of haemoptysis and fever it was confused with pulmonary tuberculosis.

Conclusion: *B. capitatus* is emerging as fungal pathogen in immune-compromised as well as in immune –competent patients.

Keywords: *B. Capitatus* Pneumonia, Immune-Compromised, Pulmonary Tuberculosis

INTRODUCTION

Blastoschizomyces capitatus, a filamentous fungus was previously known as *Trichosporon capitatum*.¹ It is also synonym of *Geotrichum capitatum*.² This is one of the rare causes of invasive fungal diseases in immune-compromised hosts, especially in neutropenic patients. It is reported in bone marrow transplant recipients for aplastic anaemia. It has been also reported in patient with endocarditis.² Infection with *B. capitatus* is seen in most of the patients who had acute leukaemia or related disorders.^{3,4} *B. Capitatus* is an emerging fungal pathogen, that may cause local and disseminated disease in neutropenic patients.⁵

We report a case of *B. Capitatus* pneumonia in a patient of coronary heart disease with left ventricular failure, history of which resembles pulmonary tuberculosis.

CASE REPORT

Presenting complains - A 70 years old male presented with complains of shortness of breath, left sided chest pain with aggravation on exertion for last one week. He also had complains of fever, cough with expectoration which aggravated at night for last four days. Patient had history of one episode of haemoptysis two days back which was mild in nature.

Past history - Patient had similar complains 10 months back for which he was consulted and was diagnosed as Coronary Heart Disease with Left Ventricular Failure and treated accordingly. Patient had no history of hypertension or diabetes. Patient was advised for hospital admission but he refused to be admitted at that time. Therefore, he was treated as OPD patient. He was prescribed corticosteroid tablet along with the other drugs. He was advised to come for re-check-up 10 days after taking prescribed drugs. But

patient did not turn-up for follow up as against the medical advice. Patient used to take drugs from the prescription off and on whenever his condition aggravated.

On physical examination of the patient, he had difficulty in breathing, there was mild pallor, pulse was 112/min (alternate strong & weak), temperature 101°C, blood pressure was 110/68 mmHg. On Auscultation of chest there was vesicular breathing with bilateral basal coarse crepts. Jugular Venous Pressure was raised, liver was enlarged one finger below right costal margin.

Patient was advised for hospital admission. This time patient was admitted to medicine ward (day 0).

Investigations

Samples were sent for laboratory examination on day one.

CBC – Hb = 9.8 gm/dl, TC = 12,000/mm³, N = 72%, L = 28%, E = 8%, M = 2%, ESR was 12mm in first hour, Fasting blood sugar was 126/dl. Patient was non-reactive for HIV and HBsAg. Liver function test and renal function tests were within normal limits. X-ray chest showed patchy consolidation of left lower lobe of the lung and there was mild cardio-megaly also. Morning sample of sputum was collected and send for ZN staining as patient had one episode of haemoptysis, but it was negative for acid fast bacilli.

Gram staining of sputum was done, which showed gram positive, septate fungal hyphae with acute angle branching. Fungal pathogen was suspected, so sputum culture was also done in Sabouraud's Dextrose Agar.

Sputum culture – on blood agar and Sabouraud's Dextrose agar showed white cream coloured, dry colonies like yeast with radiating edges. On day 4 second sample of sputum was taken and culture was done on SDA (fig-1) to rule out any contamination by fungus, confirmation of fungal pathogen and anti-fungal susceptibility testing (AFST). Repeat culture of the sputum sample showed similar findings.

Lacto Phenol Cotton Blue mount was prepared from colonies which showed fungal hyphae, pseudohyphae and annelloconidia resembling arthroconidia.

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Figure-1: Growth on SDA



Figure-2: 100x view of gram stained fungal hyphae in sputum.

On Biochemical test it did not utilize Urea, so it was Urease Negative. On Sugar fermentation test, it fermented only glucose and galactose. Further confirmation of the isolate was done by VITEK 2 System (bio-Merieux). AFST was done showed sensitive to most antifungal agents.

Fungal isolate was identified as *Blastoschizomyces capitatus*. Unfortunately patient expired on day 10 due to cardio-respiratory failure before any antifungal drug could be administered.

DISCUSSION

Common fungal infections in immune-compromised patients are caused by *Candida spp.*, *Aspergillus spp.* or *Mucor spp.* *B. capitatus* is an uncommon pathogen. It can cause opportunistic infection in patients specially when there is immune-suppression including neutropenia.⁶ *B. capitatus* has been described as a cause of disseminated infections particularly in patients with haematological malignancies, like acute leukemia and neutropenia.^{3,6,7} Patients who are severely immune-compromised are at particular risk of acquiring nosocomial infections caused by fungus that were previously considered to be of low virulence or non-pathogenic.⁸

Risk factors known for fungal infections include use of broad-spectrum antimicrobial agents, long duration

of antimicrobial therapy, neutropenia, receiving total parental nutrition and any other immunosuppressive drugs, haemodialysis, previous colonization, extensive surgery or burns.^{8,9} Patients hospitalized in ICUs are also in danger of acquiring infections.¹⁰

In our case patient was 70years old. Immunity of a person decreases with increasing age. He was suffering from coronary heart disease with left ventricular failure for which he was taking treatment. He was prescribed corticosteroids for shortness of breath at the starting of treatment for short duration and was advised for frequent check-up. But patient did not turn up for follow up and used to take the previously prescribed drugs on his own, on and off. He had taken corticosteroid for prolonged period. All these factors collectively may be responsible for fungal infection of the lung by *B. Capitatus*. Patient had fever for more than two weeks and few episodes of haemoptysis along with cough which gave suspicion of infection by *Mycobacterium tuberculosis*.

In our case there was no evidence of pulmonary infection with *Mycobacterium tuberculosis*. But in some cases of *B. Capitatus* infection, previous *Mycobacterium tuberculosis* was reported as underlying lung pathology, reported by S Chauhan et al and Dhevahi E. et al.^{11,12} In another case of *B. Capitatus* pneumonia patient was suffering from hypertension and chronic obstructive pulmonary disease for which he was hospitalized frequently for treatment as reported by S Sreeja et al.¹³ *B. Capitatus* infection was reported along with other bacterial infections in patient of polytrauma for which he remained admitted in ICU for longer duration and was kept on ventilatory support also, as by Marina Radic et al¹⁴ Though fungal infection is commonly seen in immune-compromised patients but it had also been reported in some immune-competent patients by Gill P et al and Wills TS et al.^{15,16}

CONCLUSION

B. capitatus is emerging as fungal pathogen in immune-compromised as well as in immune –competent patients. Although fungal infection is uncommon, there is need to look for fungal etiology also in patients presenting with haemoptysis. A high index of suspicion is needed on part of clinician to suspect fungal etiology.

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