

Prevalence of Mycotic Flora with Pulmonary Tuberculosis Patient in a Tertiary Care Hospital

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ABSTRACT

Introduction: Tuberculosis is one of the oldest infectious diseases known to mankind. Pulmonary mycosis superimposed on tuberculosis infection influences treatment and has high mortality. This study was done in order to study the prevalence of fungal infection in diagnosed pulmonary tuberculosis patients.

Material and Methods: The study was conducted in Patna Medical College Hospital, Bihar from February 2011 to January 2012. 75 sputum samples were collected in the Department of Tuberculosis and Chest Disease.

Result: Out of 75 samples 24% showed positive culture growth and 20% showed fungal elements in direct examination. *Candida albicans* was the most dominant pathogens (44.4%).

Conclusion: The coexistence of fungal with tuberculosis adds complication to patient's condition by adding more damaging and fatal dimensions to it.

Keywords: Pulmonary tuberculosis, opportunistic fungal.

INTRODUCTION

Tuberculosis is one of the oldest infectious diseases. About 1.7 million people die annually around the world from tuberculosis. Each year nearly 2 million people in India develop TB and also annually around 330,000 Indians die due to TB.^{1,2} Reports shows that India accounts for one fifth of global incidence of TB and it is on the top of list of 22 high TB burdened countries.³ Tuberculosis patients are immunocompromised and this is most important reason to explain that these patients may have superadded fungal infections.⁴ The incidence of life-threatening fungal infection has been increasing in recent years and the increasing incidence has been correlated with increasing number of immunocompromised patients.⁵⁻⁷ Pulmonary mycosis superimposed on tuberculosis infection influences treatment and has high mortality.⁸ As we know that *Candida albicans* has emerged as pathogenic fungus in patients with broncho – pulmonary disease. May be because of increased use of broad spectrum antibiotics and immunosuppressive drugs.^{9,10}

The present study was conducted to find the fungal infection in patients with pulmonary tuberculosis. Most of the times these fungal infections are not diagnosed and often mistaken for recurrence of tuberculosis. These opportunistic infections if diagnosed early can be treated effectively to prevent the prognosis of disease.

MATERIAL AND METHODS

The present study was conducted to isolate fungus which caused infection in patients with pulmonary tuberculosis. This study was conducted in a tertiary care hospital, Patna Medical college Hospital, Bihar from February 2011 to January 2012. Randomly collected 75 diagnosed pulmonary tuberculosis patients sputum samples were included in this study. Treated and cured cases were excluded. Sputum samples were collected in Department

of Tuberculosis and Chest Disease and brought to Microbiology department. Further process was done such as direct examination and culture. Direct examination of specimens were done by

- I. Direct KOH Mount (10% Potassium Hydroxide)
- II. Gram's Stain

Then samples were inoculated onto Sabouraud's dextrose agar with chloramphenicol and incubated at 25° C for 6 weeks. Identification was done by gross examination of the colony and confirmed microscopically by emulsifying a portion of colony in LPCB. Germ tube test was done for identification of different species of *Candida*. This study was done after institutional ethical clearance.

RESULT

Sputum of 75 diagnosed pulmonary tuberculosis patients were taken and subjected to direct examination and then cultured in SDA. In direct examination, 19 samples (20%) showed presence of fungal elements while 46 (61.3%) were negative. 18(24%) culture showed fungal growth. *Candida albicans* was isolated in 8 cases (44.4%) *Aspergillus niger* was isolated in 6 cases (33.3%), *Aspergillus fumigatus* in 3 cases (16.5%) and *Aspergillus flavus* in only 1 case (5.5%).

DISCUSSION

The relationship of fungus and tuberculosis infection has been reported in past. We have reported 24% cases of opportunistic fungal infections in tuberculosis patients. This was strongly proved by study of Shome et al⁸ and Bansod et al¹¹ who reported 18% and 40%.

In the present study majority of the isolates were *Candida albicans* 44.4% which correlates with the study of Khanna et al.¹² and Jain et al.¹³ where they isolated *Candida albicans* in 22.73% cases and 18.57% cases respectively. *Aspergillus niger* was isolated in 33.3% cases which was very close to other study.¹⁴ Mathavi¹⁵ et al showed 4.6%. *Aspergillus fumigatus* was isolated in 16.5% cases.¹² *Aspergillus flavus* was isolated in 5.5%.^{15,16} *Candida albicans* proved to be the most common fungal agent.¹⁷ *Candida* species are emerging as a pathogenic fungus in patients with broncho – pulmonary diseases. Association of *Candida* and *Mycobacterium tuberculosis* patients has increased concern for studying the various *Candida* spp. and its significance in pulmonary tuberculosis patients during current years.¹⁸

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CONCLUSION

Fungal infections of lungs are important infective processes. Diseases like opportunistic infections if it is diagnosed early can be treated and thus can prevent progression to fibrotic stage. Taking this account the present study tries to assess some of aspects of pulmonary mycosis.

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