

Prevalence of fungal infections in head and neck cancer patients attending tertiary care hospital in GMC Amritsar

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Abstract

Opportunistic fungal infections, mainly Candidiasis, is common in immunocompromised patients such as those undergoing chemotherapy or Radiotherapy or both Radiochemotherapy (RCT). Opportunistic fungal infections occur in a host whose immunological defense mechanism is weakened by endogenous causes like cancer, diabetes, or exogenous causes like immune-suppressive drug therapy by nonpathogenic fungi. Patients receiving therapy for head and neck cancer are particularly susceptible to oropharyngeal candidiasis. Previously, *Candida albicans* was most common species involved but now a days, other species, such as *Candida tropicalis* and *Candida glabrata*, also present in a clinically significant proportion of patients. This is important because nonalbicans *Candida* species (NCAC), especially *Candida tropicalis*, are more likely to spread into the systemic circulation. Hence, the isolation and speciation of the causative species of *Candida* is gaining importance. In North western region of India, head and neck cancers is one of the most prevalent cancer with huge variations in geographical and demographical characteristics including risk factors and sites of involvement.

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I. Introduction

Cancer is a complex genetic disease derived from accumulation of various genetic changes. opportunistic fungal infections have now emerged as a significant problem in cancer patients. Mucositis and xerostomia are the most common complications of curative radiation therapy in head and neck squamous cell carcinoma [hnscc] and this acts in synergy to considerably increase in patients risk of developing oropharyngeal candidiasis. Studies have reported the incidence of oral candidiasis to be ranging from 7 to 52% in cancer patients on chemotherapy and/or radiotherapy. Oral candidiasis is a common fungal infection affecting cancer patients. Over the years an incidence 6-60% have been reported depending on treatment Interventions and type and stage of malignancy.

AIMS AND OBJECTIVE

1. Prevalence of fungal infection in head and neck cancer patients undergoing cancer therapy in Guru Nanak dev hospital government medical college Amritsar.
2. Characterization of isolated fungi.

MATERIALS & METHODS

- Size of study population :100

• INCLUSION CRITERIA

- 1] The study group included newly diagnosed and histopathological confirmed cases of Head and Neck cancer who received Chemoradiation.

EXCLUSION CRITERIA

- Patients who had taken anti-fungals within four weeks of the study period.
- Patients who were not willing for the study

• SPECIMEN COLLECTION

- Urine and throat swabs were collected from the Head and Neck cancer patients on Chemoradiation.
- Patients samples are taken before exposure to radiotherapy and after 2 weeks of radiotherapy.

II. Results

The most common species isolated was *Candida tropicalis* (42%) followed by *Candida albicans* (30%), *Candida glabrata* (20%), *Candida krusei* (4%) and *Candida kefyr* (4%). Non-albicans *Candida* infection dominated our study. Its correlated with Sirmariyapachachvarat and Kittikun⁴¹ where oral candidiasis was 53.5% throughout the course of radiotherapy. Mucositis, an adverse effect of radiotherapy may be a misleading factor in the diagnosis of oral Candidial infections. Acute form of Oral Candidiasis which can present as erythema could be mistaken as Radiation Induced Mucositis. Another reason for the high incidence in this study could be that the patients in this study were mostly individuals with low socio-economic status because of which proper nutritional status and oral hygiene could not be maintained in spite of strict instructions. In this study, 79% of study population was constituted by males and 21% by females. This distinct male preponderance could be due to increased probability of exposure to risk factors such as tobacco products and alcohol in males when compared to females. This male preponderance was similar to that reported by Raj Sharma et al and Shoba Rani Bkki et al⁴⁴

III. Conclusion

In this context, the present study was conducted in order to estimate the prevalence and characterisation of fungal infections in patients receiving treatment for head and neck cancer. This study demonstrated that chemoradiation given for Head and Neck Cancer is associated with development of oral mucositis and subsequently Oral Candidiasis. There is a recent emergence of non-albicans *Candida* species as pathogens in immunocompromised patients. On that account, non-albicans *Candida* if isolated in culture should never be neglected especially in immunocompromised patients. From a clinical perspective, alertness and high suspicion is required to diagnose such infections which are generally masked by the presence of Radiation associated Mucositis. Hence, appropriate diagnosis should be made by clinical findings and fungal culture particularly in patients with identifiable risk factors.

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