

ABSTRACT

TITLE: ISOLATION, CHARACTERISATION AND ANTIFUNGAL SENSITIVITY PATTERN OF FUNGI CAUSING OTOMYCOSIS IN PATIENTS REPORTING IN A TERTIARY CARE HOSPITAL

INTRODUCTION

Otomycosis refers to superficial, fungal infection of the external auditory canal. *Aspergillus* and *Candida* are the most common organisms causing otomycosis.

AIMS & OBJECTIVES

- To isolate, identify, speciate and characterise fungi isolated from patients with clinically suspected otomycosis.
- To determine antifungal susceptibility pattern of the isolates.

MATERIALS AND METHODS

This study was conducted in the Department of Microbiology, Kilpauk medical college and hospital, Chennai from January 2016 to December 2016. The fungi isolated from otomycosis were identified using standard identification methods. Virulence factors were determined by virulence tests. Aflatoxin production was tested by HPLC. Antifungal susceptibility was tested by microbroth dilution method for moulds and disc diffusion method for yeasts. Results were interpreted according to CLSI guidelines (M38-A2&M44A). Rare isolates were subjected to PCR followed by Sanger sequencing.

RESULT

In our study, majority of positive samples were in the age group 21-30 years (25.71%). Habitual cleaning of ear (70%) was the commonest predisposing factor. We isolated a total of 105 fungal isolates from 200 cases of clinically suspected otomycosis, among which *Aspergillus niger* 51 (49%) and *Candida albicans* 20 (19%) were the predominant species isolated. Rare isolates were *Cladosporium cladosporoides* (2), *Aspergillus nidulans* (1), *Aureobasidium pullulans* (1), *Fonsecaea pedrosoi* (1), *Rhizomucor* (1), *Candida parapsilosis* (2), *Candida glabrata* (1) and *Candida krusei* (1). Virulence factors like Biofilm in *Candida species* (29%), Urease and Hemolysin in *Aspergillus species* were produced. Higher production of Aflatoxins B₁, G₁ was seen with *Aspergillus niger* while *Aspergillus flavus* and *Aspergillus terreus* produced more amounts of Aflatoxins B₂, G₂. All the filamentous fungi were susceptible to antifungal drugs. Among *Candida* isolates, 2 *Candida albicans* and 1 *Candida parapsilosis* were resistant to Fluconazole and 1 *Candida albicans* was resistant to Itraconazole. 2 isolates were identified as *Cladosporidium cladosporoides* by PCR and Sanger sequencing. All the patients showed good response to treatment, with negative culture by 2 weeks.

CONCLUSION

The present study shows that Otomycosis is a benign condition, frequently encountered in our region, which responds well to topical antifungals. Diagnosis of otomycosis at the earliest, confirmation with virulence tests and identification of antifungal susceptibility pattern is mandatory to effectively manage otomycosis without complications or recurrence.

Keywords: Otomycosis, *Aspergillus*, fungal virulence factors, Aflatoxin, Antifungal susceptibility testing, Molecular diagnosis of fungi.