The Journal of Medical Research

Case Report

JMR 2023; 9(3):39-40
May- June
ISSN:2395-7565

www.medicinearticle.com
Received:07-04-2023
Accepted:18-05-2023
DOI: 10.31254/jmr.2023.9302

Sporobolomyces salmonicolor Infection in a Type 2 Diabetic Patient with a History of Rhino Orbital Mucormycosis and Stroke: A Rare Case Report from Maharashtra, India

Akash K. Dumbhare[1], Nirmal Channe[2], Sunita Gajbhiye[3], Sunanda Zodpey[4]

[1] Junior Resident, Department of Medical Microbiology, Government medical college and Hospital, Nagpur, Maharashtra- 440003, India

[2] Assistant Professor, Department of Medical Microbiology, Government medical college and Hospital, Nagpur, Maharashtra- 440003, India

[3] Associate Professor, Department of Medical Microbiology, Government medical college and Hospital, Nagpur, Maharashtra- 440003, India

[3] Professor and Head, Department of Medical Microbiology, Government medical college and Hospital, Nagpur, Maharashtra- 440003, India

Abstract

Fungal infections are a worrisome threat to public health. We report a rare case of a 75-year-old male patient presented to the Ear, Nose, and Throat (ENT) Outpatient Department (OPD) with chief complaints of pus discharge from the left nose. The patient was already diagnosed with rhino orbital mucormycosis in July 2021. The patient had a history of stroke 1 year ago and is a known case of diabetes mellitus type 2 and systemic hypertension and is on medications. This case is extremely rare in Indian healthcare settings and can have an extensive impact on multiple organs.

Keywords: *Sporobolomyces salmonicolor*, Mucormycosis, Ballistoconidia.

INTRODUCTION

Sporobolomyces is an asexual genus of basidiomycetous with colonies that vary in color from pink to different shades of red to orange. Balistoconidia are produced on large sterigmata, along with true or pseudohyphae. There is no carbohydrate fermentation in any of the species. They are all positive for urease. The most commonly found *Sporobolomyces* species is *Sporobolomyces salmonicolor* (*S. salmonicolor*). It is identified by carotenoid pigment, peculiar morphology of balistoconidium formation, urease production, and carbohydrate assimilation. They are linked to nasal polyps, lymphadenitis, prosthetic cranioplasty infections, bone marrow involvement in AIDS patients. It was also recorded in endogenous endophthalmitis in previously healthy women, and extrinsic allergic alveolitis. As *S. salmonicolor* infections are very rare, there is no standard therapy for it [1]. Serious fungal infections are rare with the most common mycoses such as *candidiasis, aspergillosis,* and *cryptococcosis*. Previous studies have shown that the pathogenic yeast, which has unknown optimum pharmacotherapy, can cause invasive infections of the central line as well as play a critical role in the clinical setting of central line-associated bloodstream infections. This includes dermatitis, cerebral infection, fungemia, encephalitis, ocular infection, and lymphadenitis. *S. Salmonicolor* infects only immunocompromised individuals and rarely infects healthy individuals [2].

CASE REPORT

A 75-year-old male patient presented to ENT OPD with chief complaints of pus discharge from the left nostril and a ringing sensation in both ears. The patient had been diagnosed with rhino orbital mucormycosis in July 2021. Pure tone audiometry was suggestive of right-sided mild sensorineural hearing loss. The patient had a history of stroke 1 year back and is a known case of diabetes mellitus type 2 and systemic hypertension and is on medications. On examination, the bilateral ear sac was clear, the tympanic membrane was retracted and nasal crusting was present. Investigational results indicate right mild sensorineural hearing loss and left-sided moderate to severe mixed hearing loss. The patient was advised to do steam inhalation, alkaline nasal douches, RTPCR test, and nasal endoscopy.

***Corresponding author:**
Dr. Akash K. Dumbhare
Junior Resident, Department of Medical Microbiology, Government medical college and Hospital, Nagpur, Maharashtra- 440003, India
Email:
akash1127.ad@gmail.com

Treatment

Treatment can be difficult and options include Voriconazole, Liposomal Amphotericin B, Albaconazole, Itraconazole, and Ravuconazole.

Microbial diagnosis strategy:

Nasal crusting and nasopharyngeal swabs were collected and processed for KOH mount. The specimen includes a nasopharyngeal swab and nasal scraping. It was processed by a normal saline mount and Gram staining to study morphology. The specimen was inoculated on Sabouraud's Dextrose agar and incubated at 25°C and 37°C for five days and colonies were observed for fungal growth (Figure 1-A and B). A slide culture and lactophenol cotton blue mount were performed on corn meal agar from fungal growth.

Microbiological findings: The organism under study had a rapid growth rate, maturing in five days. Its maximum growth was at 25–30°C, but not at 35–37°C. Its colony morphology was smooth to slightly rough, with a characteristic salmon pink/ coral color (Figure 1-C). Satellite colonies eventually formed around the original colonies due to the production of ballistoconidia. Microscopically, oval to elongate yeastlike cells were seen as well as pseudohyphae and kidney-shaped ballistoconidia produced on the denticles (Figure 1-D). On the basis of patient history, clinical findings, and microbiological examinations and findings the organism was identified as *S. salmonicolor.*

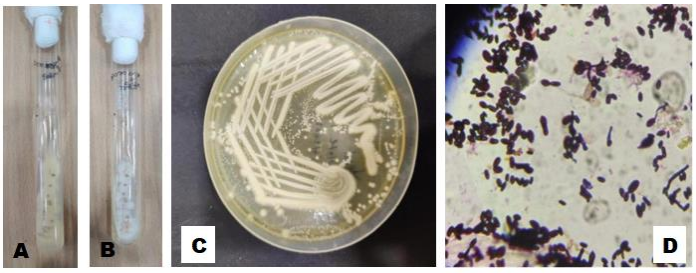

Figure 1: A) *S. salmonicolor* on SDA slope reverse view **B)** *S. salmonicolor* on SDA slope obverse view **C)** Satellite colonies around main streaking lines **D)** Kidney shaped ballistoconidia with denticles

DISCUSSION

S. salmonicolor is a yeast-like fungus known to cause deep cutaneous fungal infections, especially in hospital settings. Infections that are reported due to *Sporobolomyces* are lymphadenitis, dermatitis, cerebral infection, endophthalmitis, meningitis, and fungemia [2,3]. A case of a 47-year-old male diagnosed with cutaneous *S. salmonicolor* infection after suffering from an extensive cutaneous eruption for 4 years was reported in Canada [4]. Detailed case studies of *S. salmonicolor* have not been reported in India. This is the first report presenting *S. salmonicolor* infection in immunocompromised individuals with diabetes mellitus type 2 and systemic hypertension. Due to the rarity of *S. salmonicolor* infections, very few reports are available in the literature. It is often reported as the cause of fungemia in immunocompromised patients. In our study, we found yeast cells with kidney-shaped ballistoconidia on gram staining. Ballistoconidia was demonstrated by the growth of satellite colonies around streaking lines. This atypical fungus can cause infections in immunocompetent and immunocompromised patients and therefore is a potential threat. *S. salmonicolor* infections are very rarely reported, so there is no standard treatment. Terbinafine was found to be active against *S. salmonicolor* according to an antimicrobial study [5]. Treatment with Liposomal Amphotericin-B was found to be most successful and the organism was found resistant to most azoles and micafungin. It appears that *S. salmonicolor* infections are prevalent among immunocompromised patients, particularly those with HIV/AIDS [2]. Even though our patient did not have AIDS, the possible risk factors may be type 2 diabetes, rhino orbital Mucormycosis, and stroke. *Sporobolomyces* spp. A central line-associated bloodstream infection has been reported in a 65-year-old patient with diabetes mellitus in the past. Currently, limited information is available regarding infections with *S. salmonicolor* due to its rarity.

Acknowledgments

The authors would like to thank the Dean, Government medical college and Hospital, Nagpur, MS, India; 440003 for providing necessary laboratory support for carrying out the research work

Declaration of Conflict of Interest

The author (s) declared no potential conflict of interest, with respect to the research, authorship and /or publication of this article.

Funding

The author (s) received no financial support for the research, authorship and /or publication of this article.

Ethical approval

Institutional ethical approval is not required for reporting individual case and or case studies

REFERENCES

1. Anaissie E, McGinnis J, Pfaller M. Clinical Mycology (2nd ed.). Elsevier Health Sciences. 2009. pp. 258-259. doi : 10.1016/B978-1-4160-5680-5.X0001-1
2. Tang HJ, Lai CC, Chao CM. Central-line–associated bloodstream infection caused by Sporobolomyces salmonicolor. infection control & hospital epidemiology. 2015;36(9):1111-2.
3. Sharma V, Shankar J, Kotamarthi V. Endogeneous endophthalmitis caused by Sporobolomyces salmonicolor. Eye (Lond) 2006; 20:945–946.
4. Damji R, Mukherji A, Mussani F. Sporobolomyces salmonicolor: A case report of a rare cutaneous fungal infection. SAGE Open Medical Case Reports. 2019;7:2050313X19844154.
5. Serena C, Pastor FJ, Ortoneda M, Capilla J, Nolard N, Guarro J. In vitro antifungal susceptibilities of uncommon basidiomycetous yeasts. Antimicrobial agents and chemotherapy. 2004;48(7):2724-6.