Maxillary Sinusitis Due to *Pseudallescheria boydii* in an Immunocompetant Patient

Sheeba P M, Suresh Kumar M, Ambika Devi T R, Apuca Susan Mathew

A. Department of Microbiology, Govt Medical College, Palakkad, Kerala, India; B. Department of ENT, Pushpagiri Institute of Medical Sciences, Tiruvalla, Kerala, India; C. Department of Microbiology, Dr. Somervell Memorial CSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India; D. Department of Pathology, Dr. Somervell Memorial CSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India*

**Abstract**

*Pseudallescheria boydii* is a saprophytic fungus frequently isolated from agricultural soil and polluted water. It is a rare cause of fungal sinusitis. As *P. boydii* resembles *Aspergillus* on pathological examination and as it is resistant to amphoterinc B, culture is necessary to differentiate the two. Earlier reports of Pseudallescheriasis were from immunocompromised patients. Of late, the disease is being increasingly reported from immunocompetant patients. Patients are usually treated with a combination of surgery and antifungal therapy. We report a case of maxillary sinusitis in a 30-year-old immunocompetant male.

**Key Words:** Maxillary sinusitis, *Pseudallescheria boydii*, immunocompetant patient

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**Introduction**

*Pseudallescheria boydii* was first described by Shear in 1922 as a causative agent of mycetoma. It is known to cause infection both in the immunocompetant as well as in the immunocompromised host. It causes septic arthritis, osteomyelitis, meningitis, orbital infections, and mycetoma after traumatic or surgical inoculation. Paranasal sinus involvement, though uncommon, can range from colonisation to locally invasive infection. Histologically it resembles *Aspergillus* spp. Cleistothecia (ascocarps), are characteristic of *P. boydii*. Cultures that produce the asexual conidia but do not produce the sexual reproductive structure, the cleistothecia, after 2-3 weeks are designated by the anamorph name, *Scedosporium apiospermum*.

**Case Report**

A 30-year-old male, residing at Attingal, Trivandrum, Kerala, presented with headache, post-nasal discharge and throat pain of 2 months duration. He gave a history of exposure to cow dung since childhood. On examination, there was deviation of the nasal septum to the left and turbinate hypertrophy. Nasal endoscopy examination showed polyoidal changes in the middle meats. He was treated with anti-allergic drugs and antibiotics. Routine blood investigations, HIV and hepatitis B surface antigen serology were done, which showed a normal study. X-ray of the paranasal sinuses showed the left maxillary sinusitis. He was advised computed tomography scan of paranasal sinuses (axial cut), which revealed a homogenous opacity with specks of calcification in the left maxillary sinus (Figure 1).

He underwent functional endoscopic sinus surgery, septoplasty and the following findings were noted. Deviated nasal septum to left, antrochoanal polyp on the left side, the maxillary sinus filled with polyp and fungal debris, polyps in the left anterior ethmoid. The patient was treated with oral steroids after surgery. The patient was treated with oral steroids after surgery as the diagnosis was made as aspergillosis. The specimen was sent to pathology, and the report was given as fungal ball suggestive of aspergillosis. For confirmation, the specimen was sent to microbiology lab, for fungal culture. Potassium hydroxide mount of the specimen showed septate hyphae. The specimen was cultured on Sabouraud's dextrose agar (SDA) in duplicate, one kept at room temperature and one at 37°C. Growth on SDA kept at 37°C was white and fluffy which later became black with a woolly texture. The reverse of the colony was black. Lactophenol cotton blue mount of the growth showed septate hyphae with conidiogenous cells, which are annellides that develop on the hyphae. SDA was further incubated at 37°C. Microscopic examination of the growth after 14 days of incubation showed the presence of ascocarps, the cleistothecia. They were large, black, globes with thick walls (Figure 2). On rupture of the cleistothecia, subglobose ascii were released.

The growth was identified as *P. boydii*.

**Discussion**

*P. boydii* is a saprophytic fungus which is frequently isolated from soil, manure, and decaying vegetation. It belongs to the group *Hyalohyphomycosis*. The patient was immunocompetant and the only significant history from him was exposure to cow dung. Pseudallescheriasis in immunocompetant patients have been reported by a few authors earlier. Prolonged exposure to cow dung has been reported in patients with Pseudallescheriasis. As it is resistant to amphoterinc, differentiation of the fungus from *Aspergillus* species is very
important. Fungal culture is a better tool compared to histopathology. The presence of cleistothecia, ascocarps, helps in distinguishing \textit{P. boydii} from its anamorphs.\textsuperscript{9} Surgical debridement has been an important adjunct in the treatment. Success has been reported with ketoconazole and itraconazole.\textsuperscript{10,11} With the initial diagnosis of Aspergillosis, the patient was put on oral steroids. Once the etiological agent was reported as \textit{P. boydii}, he was started on itraconazole 200 mg twice daily orally. His liver function test was monitored regularly. After completing 5 weeks of itraconazole therapy, he improved clinically and repeat endoscopy revealed no recurrence or discharge. The new broad spectrumazole antifungals (voriconazole, posaconazole, ravuconazole, and albaconazole) and the echinocandin caspofungin have been shown to be effective in vitro. Clinical response to voriconazole therapy is being increasingly reported. Most experts believe that it is the drug of choice in the treatment of pseudallescheriasis.\textsuperscript{12,13}

\textbf{End Note}

\textbf{Authors Information}
1. Sheeba P M, Assistant Professor, Department of Microbiology, Govt Medical College, Palakkad, Kerala, India
2. Sureshkumar M, Associate Professor, Department of ENT, Pushpagiri Institute of Medical Sciences, Tiruvalla, Kerala, India
3. Ambika Devi T R, Professor (Retd), Department of Microbiology, DRSMCSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India
4. Apuca Susan Mathew, Professor, Department of Pathology, DRSMCSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India

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1. Dr. Feroze Khan, Department of ENT, Aster Medcity, Kochi, Kerala, India
2. Dr. Syed Ali A, Department of Microbiology, TD Medical college, Alappuzha, Kerala, India
3. Dr. Rakesh Pradhan, Junior Resident, Department of Pathology, DR SMCSI Medical college, Karakonam, Thiruvananthapuram, Kerala, India
4. Jobin S R, Tutor, Department of Microbiology, DRSMCSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India.

\textbf{Conflict of Interest}
The authors declare that there is no conflict of interest

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