Chronic Fungal Rhinosinusitis Aspergillus Versicolor - A Rare Human Pathogen

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Abstract- Fungal rhinosinusitis is an increasingly recognized entity in both immunocompromised as well as immunocompetent patients. *Aspergillus* spp. is commonest of all causative fungi. A case of chronic fungal rhinosinusitis in a16-year-old immunocompetent female is reported. Presenting symptoms were bilateral nasal block, discharge, and change of voice. Initially, it was diagnosed as nasal polyposis. Microscopy and culture established the diagnosis of chronic fungal rhinosinusitis due to *Aspergillus* versicolor.

Index Terms- *Aspergillus* versicolor, fungal rhinosinusitis, immunocompetent host

I. INTRODUCTION

Fungal rhinosinusitis refers to a spectrum of disease ranging from benign colonization of the nose and sinuses by pathogenic fungi to acute invasive and fatal inflammation extending to the orbit and brain. The disease causes high morbidity and high mortality if misdiagnosed. Most common fungi causing fungal rhinosinusitis are *Aspergillus* fumigates, *Aspergillus* flavus & mucormycosis [1] A. versicolor is rarely encountered as a human pathogen. An association of nasal polyposis and *Aspergillus* rhinosinusitis has been noted. Here, a rare case of *Aspergillus* versicolor rhinosinusitis in an immunocompetent patient is reported.

II. CASE REPORT

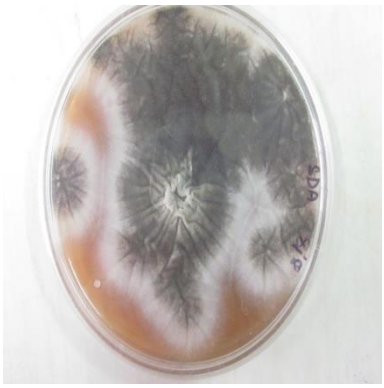
A 16-year-old student presented with history of nasal block, nasal discharge, and sneezing, associated with change of voice, since 5–6 months. She had complaints of repeated episodes of nasal obstruction for the past 1 year with intermittent regression of symptoms. Onset was insidious, starting on the left side, which gradually progressed to bilateral nasal block. She complained of scanty, greenish, odorless nasal discharge.There was no history of trauma to nose, bleeding, headache, or facial pain. No history of diabetes mellitus, asthma, use of corticosteroids, and prolonged antibiotic therapy.

On general examination, vital parameters were within normal range. No facial disfigurement or swelling was observed. Anterior rhinoscopy revealed bilateral sinonasal polyps. Scanty greenish discharge was seen. There was no abnormal finding on posterior rhinoscopy. Laboratory investigations like hemoglobin and blood sugar levels were within normal range. Eosinophil count was 9% and Absolute eosinophil 600. The patient tested negative for HIV. CT scan of paranasal sinuses showed opacity in left and right maxillary sinus. Evidence of polypoidal sinusitis of left maxillary, ethmoid, sphenoid, and frontal sinuses was reported.

The patient was posted for functional endoscopic sinus surgery (FESS). Cheesy, greenish black dirty tissue was removed. Tissue material from the left nostril was received for fungal culture. KOH (10%) mount showed pus cells with hyaline, septate hyphae with acute-angled branching.

The specimen was inoculated on Sabouraud dextrose agar (SDA) with and without antibiotics and incubated at 37°C. On 8th day of incubation, obverse showed small pink-to-flesh—colored velvety colonies. On successive days of incubation, colony colour changed from orange-yellow to green, and reverse of equally variable colour [Figure 1].

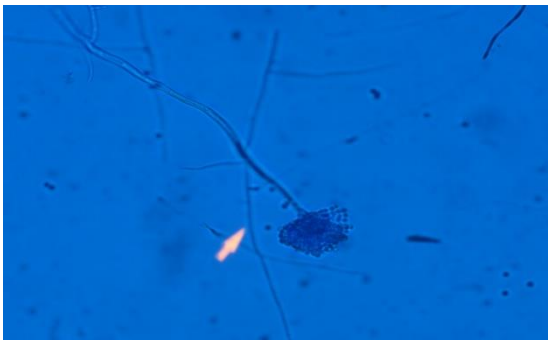
Figure 1 – SDA Varied colour velvety colonies



In lacto phenol cotton blue (LPCB) tease mount of colonies, septate and hyaline hyphae with acute-angled branching were seen. Small conidial heads, consisting of an ovoid vesicle bearing metulae below the layer of phialides, were seen. Reduced conidial structures resembling those of *Penicillium* species were present. These features were suggestive of A. versicolor [Figure 2].

Histopathological examination of tissue showed fungal hyphae with granulomatous inflammation. The patient was started on antifungal therapy.

Figure 2- LPCB –A.Versicolor



III. DISCUSSION

Fungal rhinosinusitis, once considered a rare disorder, is now being reported with increasing frequency worldwide. Now in India, this disease is not only prevalent in northern regions, but also is reported from other parts of the country. [2] In Indian subcontinent, Sudan and other tropical areas, cases of *Aspergillus* invasive disease of paranasal sinuses in immunocompetent patients have frequently been reported. [3] The patient was presented with bilateral nasal stuffiness. Alrajhi *et al.*, in their study reported nasal obstruction as the most common presenting symptom (87%). Patients with anatomic abnormalities of the paranasal sinuses that impair drainage, like nasal polyps, are vulnerable to fungal colonization. [3] Examination showed bilateral sinonasal polyps. Telmesani reported 12.1% (11/91) incidence of allergic fungal sinusitis among patients with nasal polyps.[4]

CT scan of the patient showed multiple sinus involvement with marked opacity in left and right maxillary sinus. In study by Alrajhi *et al.*, abnormalities of paranasal sinuses were noted on CT scan in all patients; all sinuses were involved in 61% of patients.[3] At FESS, cheesy, greenish black dirty tissue was removed, which is a common finding in fungal rhinosinusitis cases.[5] *Aspergillus* spp. are commonly isolated from fungal paranasal sinusitis cases. Other causes include several phaeoid mycelia fungi, zygomycetes.[1] Demonstration of *Aspergillus* spp. by both culture and microscopy provides the most firm diagnosis.[6] In the present study, findings of KOH mount, variable colour changes of colony on SDA, and characteristic structure on LPCB was suggestive of *Aspergillus* versicolor.[7]

Although *Aspergillus* versicolor is not a common cause of invasive aspergillosis, there are case studies in which *Aspergillus* versicolor is reported as causal agent of cerebral abscess [8] and endogenous endophthalmitis in immunocompetent patient. [9]

Hedayati *et al.*, in a study of chronic fungal rhinosinusitis demonstrated that using a standard mycology laboratory protocol, which is relatively inexpensive and readily available, fungus can be isolated from a majority of patients undergoing sinus surgery. [6]

IV. CONCLUSION

In our case, *Aspergillus* versicolor was isolated, which is an infrequent human pathogen. As it is a rare cause, further study and identification at the molecular level is necessary. By reporting this case, we want to suggest that diagnosis of aspergillosis of the paranasal sinuses requires a high index of suspicion, which should be present, particularly in patients with nasal polyposis. Early diagnosis is necessary in order to avoid destructive disease and to start early treatment before irreversible condition arises.

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