

Chronic Invasive Fungal Sinusitis in an Immunocompetent Patient

Angshuman Dutta*, Sabarigirish K.**, Sunita Patil***, Debmita Dutta****, Sanjeev Saxena*****, Siddeshwar K.G.*****, Lohith B.R.*****

Author Affiliation: *Associate Professor *****Resident, Dept of ENT, ***Assistant Professor, Dept of Microbiology, Command Hospital Air Force, Bangalore, Karnataka, India. **Professor, Dept of ENT, Army Hospital R&R, New Delhi, India. ****Consultant Microbiologist, Bangalore, Karnataka, India. *****Professor, Dept of ENT, AFCME, New Delhi, India. *****MS ENT, Military Hospital, Jalandhar, Punjab, India.

Reprint Request: (Gp Capt) Angshuman Dutta, Department of ENT, Command Hospital Air Force, Post Agaram Old Airport Road, Bangalore 560007, Karnataka, India. E-mail: dutta_angshuman@rediffmail.com

Received on: 17.04.2017, Accepted on: 09.05.2017

Abstract

Aspergillosis of the nasal and paranasal sinuses is a common opportunistic fungal infection in immunocompromised patients. However invasive variant in normal hosts is a very rare occurrence. We report a case of invasive aspergillosis involving the maxillary sinus in an immunocompetent patient. The patient underwent endoscopic clearance followed by antifungal therapy.

Keywords: Aspergillosis; Immunocompetent; Antifungal.

Introduction

Aspergillus is a common fungus which lives in soil and decaying organisms. Aspergillosis of head and neck primarily affects the nose and paranasal sinuses. Invasive paranasal aspergillosis has been increasing over the past few years and has been associated with an increase in immune-deficient states such as steroid therapy, cancers. Rarely invasive aspergillosis has been reported in patients in immunocompetent patients [1]. In this case report a case of a immunocompetent patient with chronic invasive sinus aspergillosis is discussed.

Case Report

37 yr lady from Karnataka presented with swelling left cheek and nasal obstruction on the left side 6 months. There was no history of any epistaxis, headache, postnasal drip, loosening of teeth or diplopia. There was no history of any medication. There was no history of systemic illnesses like Tuberculosis, Diabetes. On examination she had fullness left maxillary region with distortion of the

left nasolabial fold. Anterior rhinoscopy showed a fleshy mass left nasal cavity arising from left middle meatus which did not bleed on touch. Local examination showed diffuse fullness of left maxillary region. Computerized Tomographic scan of paranasal sinuses showed homogenously enhancing mass lesion filling left maxillary and ethmoidal [Figure 1] sinuses causing bony destruction. Investigations serological tests including HIV were negative. Blood sugar levels were normal. Provisional diagnosis was of a paranasal sinus neoplasm left. Patient was taken up for an endoscopic biopsy. Endoscopic biopsy report showed lining by stratified respiratory epithelium with underlying stroma showing both hypocellular edematous area and hypercellular area with proliferating blood vessels. There were many multinucleated foreign body giant cells with moderate to severe degree of lymphoplasmacytic infiltration. No atypia was seen. Periodic acid-Schiff & Grocott stain showed few septate fungal hyphae. Fungal culture grew aspergillus on Sabourand's agar [Figure 2]. Patient was started on oral Voriconazole 200mg twice a day and then taken up for clearance of disease endoscopically. Using 0° and 30° nasal endoscopes part of uncinata process was removed and a mass was found involving left

maxillary sinus left anterior and posterior ethmoids [Figure 3] reaching left frontal sinus and left sphenoid and reaching posterior choanae. The mass was debulked with a microdebrider. Subsequently left anterior and posterior ethmoidectomy and maxillary antrostomy with left frontal sinusotomy and sphenoidotomy was done and the entire mass was cleared [Figure 4]. Her postoperative recovery was uneventful.

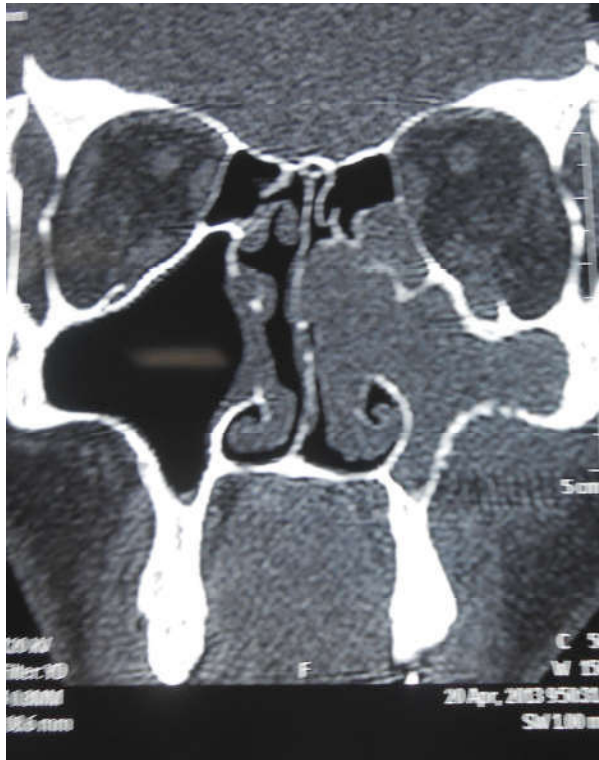


Fig. 1: CT scan PNS showing the mass left maxillary and ethmoidal sinus



Fig. 2: Potassium hydroxide mount from culture showing the fungus

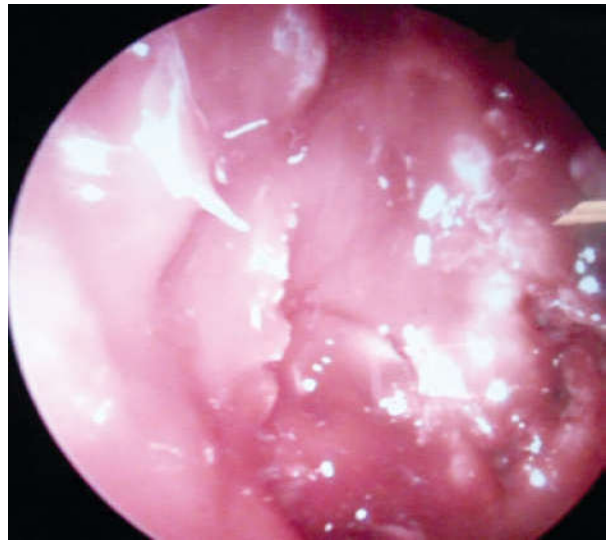


Fig. 3: Endoscopic picture of the mass



Fig. 4: Photograph of the specimen

Histopathology Haematoxylin and eosin section showed normal ciliated columnar lining epithelium with underlying seromucinous glands in stroma. Other sections showed numerous confluent granulomas with foreign body and langhan's type of giant cells and dense lymphoplasmacytic inflammation. Fungal stains showed septate branching fungi with tissue invasion showing acute angle branching. There was no evidence of dysplasia or malignancy. Histopathology was of granulomatous invasive fungal sinusitis. Postoperatively patient was continued on Tablet Voriconazole 200mg BD for 6 months, saline nasal douche and weekly endoscopic toilet. Followup at 2 years showed no recurrence.

Discussion

Aspergillosis has been classified as per Rowe Jones [2] in 1994 as 3 main types namely noninvasive, invasive, destructive non invasive types. Invasive sinus aspergillosis represents true fungal tissue invasion and can be either a) acute fulminant, b) granulomatous, c) chronic invasive. Invasive and fulminant forms are common in immunocompromised patients. However, an invasive form in an immunocompetent host is very rare. Less than 100 cases of chronic invasive aspergillosis in immunocompetent hosts have been reported in literature with more incidence in the tropical regions [3]. Only 5 cases have been reported from India in immunocompetent patients as per available literature [1,4]. Natural immunity plays a major role in defence against aspergillus by recognition and clearance of organism in an immunocompetent host. The mechanism causing invasiveness of aspergillosis in immunocompetent hosts remains unclear with multiple reasons being attributed for it. It could be qualitative cellular or subcellular immunodeficiency that is either unrecognised or poorly characterised [5]. The presence of local pathologies in the paranasal sinuses including nasal polyps and recurrent bacterial infections promote fungal infection with stagnation of nasal secretions [6]. If the maxillary sinus ostium is blocked the mucociliary clearance system is impaired and aspergillus growth is favoured.

Initially aspergillosis presents with symptoms of sinusitis but eventually the infection causes tissue destruction of sinuses and adjacent structures [7]. The presentation of localised invasive aspergillosis of maxillary sinus can mimic conditions such as neoplastic and other granulomatous diseases. A high index of clinical suspicion is needed as the imaging findings may be subtle. Rarely aspergillosis may coexist with squamous cell carcinoma in the maxillary sinus [8]. Successful treatment of aspergillosis requires prompt diagnosis and rapid initiation of therapy because delay or non-aggressive therapy can result in the spread of infection with lethal consequences.

The mainstay of treatment in invasive fungal sinusitis is rapid reversal of any condition compromising immunity, radical sinonasal debridement (external or endoscopic) till bleeding margins are obtained and systemic antifungal therapy. The type of treatment depends on the extent of disease at time of presentation and rapidity of its progression Washburn [9] advocated the need for a prolonged course of antifungal agents in such cases

of chronic invasive sinusitis. Voriconazole is a triazole antifungal agent that acts by inhibiting fungal cytochrome p450 which is essential in fungal ergosterol biosynthesis. The subsequent loss of ergosterol causes destruction of cell wall and fungal death. Herbrecht R et al [10] in their paper observed a satisfactory response at 12 weeks in 53% of patients of confirmed aspergillosis taking voriconazole. Our patient underwent antifungal therapy for 6 months. She has been on followup for 2 years and has remained asymptomatic.

Conclusion

Early recognition of invasive aspergillosis, differentiating it from malignant lesions and other granulomas of sinuses is very important as its presentation is very deceptive. The possibility of invasive paranasal sinus aspergillosis needs to be kept in mind while examining healthy immunocompetent patients.

Conflicts of Interest: Nil

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