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Rare Case of Sino Nasal Candidiasis

KEYWORDS: Fibroma; gingiva; gingival overgrowth; peripheral ossifying fibroma

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ABSTRACT *Invasive fungal sinusitis is usually caused by mucormycosis and aspergillosis in uncontrolled diabetic and immuno compromised individuals. However invasive candidal infection in nose and paranasal sinus is relative rare. Reporting a case of invasive sino nasal candidiasis in an elderly diabetic patient with history of foul smelling nasal discharge and nasal obstruction since 6 months. Patient was evaluated clinically and necessary investigations done.CT scan of Paranasal sinuses showed opacity in the floor of left maxillary sinus and concha bullosa in right nasal cavity. KOH(potassium hydroxide) mount showed fungal elements. He was treated by caldwell luc surgery and conservative management.*

Introduction

Sinusitis caused by fungal species such as mucormycosis and aspergillus are uncommon. Invasive candidial infections in nose and paranasal sinuses are relatively rare, primarily affecting individuals with uncontrolled diabetes and also in immunocompromised patients [1]. Fungal infection is difficult to treat because antifungal therapy for *Candida* infections is still controversial and based on clinical grounds, and for molds, the clinician must assume that the species isolated from the culture medium is the pathogen [2]. Timely initiation of antifungal treatment is a critical component affecting the outcome. Disseminated infection requires the use of systemic agents with or without surgical debridement, and in some cases immunotherapy is also advisable. Preclinical and clinical studies have shown an association between drug dose and treatment outcome. Drug dose monitoring is necessary to ensure that therapeutic levels are achieved for optimal clinical efficacy.

Case report

45 year old male came with complaints of nasal obstruction and foul smelling nasal discharge since 6 months. No h/o headache, epistaxis. No h/o ear, throat complaints. H/o dengue and hemothorax 15 years back. H/o uncontrolled diabetes since 5 years and on treatment. H/o septoplasty and bilateral inferior turbinoplasty with excision of mass from right maxillary sinus 8 months back. In the local examination noce anterior rhinoscopy–synechiae present between middle turbinate and septum. DNS to left with mucopurulent discharge from left nasal cavity. Concha bullosa in the right nasal cavity. In the eye Proptosis of left eye. Diagnostic Nasal Endoscopy was done and a mass was excised from the left nasal cavity which had features suggestive of *Candida albicans.* Pus was sent for culture and KOH mount which showed fungal elements. The CT PNS showed homogenous opacity in the floor of left maxillary sinus; DNS to left with synechiae between left middle turbinate and septum; Concha bullosa in the right nasal cavity. A sample was sent for Histopathological Examination. PAS and GSM stain showed positive for yeast and psuedohyphae form of *Candida.* Pus culture showed features of methylene resistant *Staphylococcus aureus.* KOH mount showed fungal elements suggestive of *Candida albicans.*

Management

Patient was started on Injection Fluconazole 200mg OD for 6 days. Repeat CT PNS was done. It showed no regression of the mass. Cald Well Luc surgery was performed with excision of the mass from the left maxillary sinus under GA. Findings- A fleshy mass in the floor of the left maxillary sinus.

Discussion

Invasive fungal infections are a significant health problem in immunocompromised patients. The clinical manifestations vary and can range from colonization in allergic bronchopulmonary disease to active infection in local aetiologic agents [3]. Many factors influence the virulence and pathogenic capacity of the microorganisms, such as enzymes including extracellular phospholipases, lipases and proteinases, dimorphic growth in some *Candida* species, melanin production, mannitol secretion, superoxide dismutase, rapid growth and affinity to the blood stream, heat tolerance and toxin production. Infection is confirmed when histopathologic examination with special stains demonstrates fungal tissue involvement or when the aetiologic agent is isolated from sterile clinical specimens by culture. Both acquired and congenital immunodeficiency may be associated with increased susceptibility to systemic infections. Fungal infection is difficult to treat because antifungal therapy for *Candida* infections is still controversial and based on clinical grounds, and for molds, the clinician must assume that the species isolated from the culture medium is the pathogen [4]. Timely initiation of antifungal treatment is a critical component affecting the outcome. Disseminated infection requires the use of systemic agents with or without surgical debridement, and in some cases immunotherapy is also advisable. Preclinical and clinical studies have shown an association between drug dose and treatment outcome. Drug dose monitoring is necessary to ensure that therapeutic levels are achieved for optimal clinical efficacy. The clinical manifestations of fungal infection are not specific, and like other infective diseases, a high degree of suspicion is required for the early diagnosis and optimal management of these infections. Systemic fungal infections, according to standard criteria, are established when histopathologic examination with special stains confirms fungal tissue involvement or when the aetiologic agent is isolated from clinical sterile specimens by culture [5].

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Radiological evidence from X-rays and high-resolution computed tomography is useful for the diagnosis of fungal infections. Pulmonary fungal infections such as aspergillosis, fusariosis, scedosporiosis or zygomycosis are characterized by central cavitation of pulmonary lesions, infiltration, pulmonary nodules, and halo or air-crescent signs [6]. Documentation of the diagnosis of infection requires serial high-resolution computed tomography; however, the risk of radiation exposure in children must be considered[7]. The specificity of these methods is lower in children than in adults [7]. Conventional mycological methods include direct microscopic examination and the culture of samples in the mycology laboratory. Pathological examination and direct smears of samples with potassium hydroxide by an expert is the most rapid, cost-effective and sensitive method for the diagnosis of fungal infections. An expert can identify some genera of aetiologic agents such as yeasts or molds (with septated or nonseptated hyphae) and thus help ensure prompt, effective therapy. However, it may not be possible to identify fungal strains by this method, and fungal growth or the use of complementary methods such as hybridization in paraffin-embedded tissue may be necessary.

Prevention

To prevent infection in immunocompromised patients, exposure to fungal spores must be limited with high-efficiency particulate air filters and positive pressure in the patient's room, and high-risk patients should avoid contact with soil, tap water and shower facilities [5]. Decreasing the duration of neutropenia or discontinuing immunosuppressive agents should be considered in efforts to prevent fungal infection. Knowledge of the susceptibility pattern of current fungi in each region and the use of prophylactic doses of interferon-γ and azole antifungal agents can be useful to manage infection in high-risk patients; however, after long-term prophylaxis with antifungal agents, infection by resistant aetiologic agents needs to be considered. In addition, fungal colonization of different sites in the same patient (mouth, rectum, nose, urinary tract and vagina) and cutaneous infections should be evaluated before antineoplastic therapy and major surgery.

Treatment

Localized infection is usually treated with topical antifungal agents, whereas disseminated infection requires the use of systemic agents with or without surgical debridement, and in some conditions immunotherapy is also advisable. Fungal infections are difficult to treat because antifungal therapy in *Candida* infections is still controversial and based on clinical grounds, and in molds, the fungus isolated from the culture medium must be assumed to be the pathogen because these organisms are saprophytic in the environment [8]. The management of fungal infections is different depending on the type of infection and aetiologic agents. Antifungal agents have varying spectrums of activity, dosing, safety profiles and costs. Furthermore, many confounding factors such as the aetiologic agent, age, underlying diseases and surgical complications can influence the outcome [9]. For example, for invasive aspergillosis voriconazole is superior to deoxycholate amphotericin B as the primary treatment in most patients.

Conclusion

Fungal sinusitis caused by fungal species such as Mucormycosis and Aspergillus are uncommon and Candidial infection in nose and paranasal sinuses are rare. Prompt control of diabetes with aggressive surgical and intravenous antifungal agents remains the gold standard treatment. The best approach to the optimal management of fungal infection is early detection and identification of the causal agent, so that appropriate treatment can be initiated as soon as possible, especially in immunocompromised patients. Clinicians should be familiar with the use of diagnostc methods and suitable antifungal agents, because these are the factors with the greatest impact on the outcome for patients. The serum concentration of antifungal agents should be monitored to record both the efficacy and toxicity of these drugs.

Image-1: CT PNS

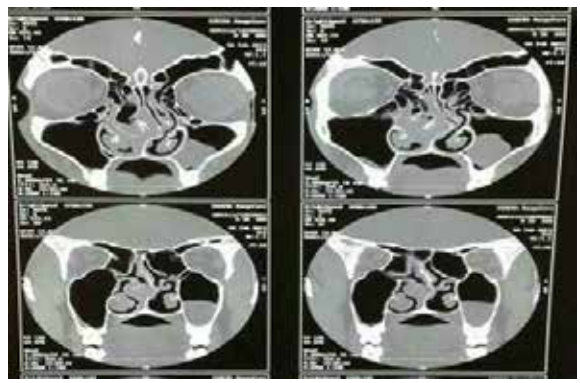
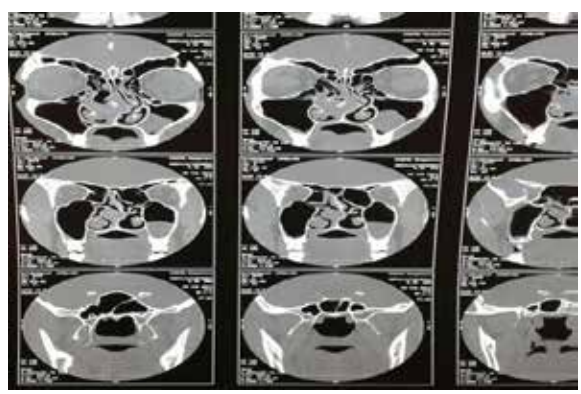


Image-2: CT PNS



Picture-1: Fleshy mass in the maxillary sinus

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