

RHINO-Cerebral Mucormycosis in an Immunocompetent Patient

Shoba K¹, Sharannya S V², Manoj Kumar L³, Vivekanandhan B³

ABSTRACT

Introduction: Mucormycosis is a rare fungal infection in an immunocompromised patient. It is even rarer in an immunocompetent patient presenting as nasal polyp. This case is presented for its rarity.

Case report: a 48 years old healthy female patient presented with bilateral nasal block for 2 years, right eye diplopia for 15 days and right eye blurring of vision for 2 days. Anterior Rhinoscopy showed multiple polypoidal mass present in both nasal cavity. Right eye had mild ptosis and vision reduced to finger counting test. Computed tomography (CT) of the paranasal sinuses showed heterogeneous opacity filling all paranasal sinuses and bilateral nasal cavities with extensive thinning and resorption of lateral wall of sphenoid bone. MRI paranasal sinuses showed lesion extending into the sella and right parasellar region with dural enhancement in right medial temporal region and no cavernous sinus thrombosis. Patient was diagnosed to have chronic fungal sinusitis with orbital and cranial extension. Extensive sinus debridement surgery done and all dead necrotic tissues and fungal debris present in the sinuses were removed and sent for histopathological examination and fungal culture. Histopathology revealed broad, aseptate, long and right angled branching hyphae consistent with mucormycosis. Patient was followed up for 2 years with no evidence of recurrence.

Conclusion: Mucormycosis should also be considered in immunocompetent patient as early diagnosis affects the progress of the disease

Keywords: Mucormycosis, Nasal Polyp, Immunocompetent.

INTRODUCTION

Mucormycosis is a rare fungal infection in an immunocompromised patient. It is even rarer in an immunocompetent patient. This case is presented for its rarity. Mucormycosis usually presents with unilateral facial pain and numbness with blackish discoloration of nasal mucosa. Our patient presented with bilateral nasal polyp. This presentation is also rare.

CASE REPORT

A 48 years old female patient presented with bilateral nasal block for 2 years which is insidious in onset, gradually increased and more since the past 2 months associated with complete loss of sensation of smell for 1 year. She had history of dull aching headache in the frontal region for 6 months. She also had right eye diplopia for 15 days and right eye blurring of vision for 2 days. There was no history of eye trauma, dental carries, recent surgery or skin infection. She is not a known case of diabetes, hypertension, asthma, jaundice, renal disease and seizures. Anterior rhinoscopy showed multiple polypoidal mass present in both nasal cavities.

Sinus examination revealed tenderness over bilateral frontal and maxillary sinus. There was no swelling around the eyes and pupils were reactive bilaterally with no evidence of a relative afferent pupillary defect in either eye. Right eye had mild ptosis and vision reduced to finger counting test. Visual field test was normal. Blood investigations like plasma glucose, blood urea, full blood count and liver function test were within normal limits. Serology was non-reactive.

Computed tomography (figure 1) of the paranasal sinuses showed heterogeneous opacity filling all paranasal sinuses and bilateral nasal cavities with extensive thinning and resorption of lateral wall of sphenoid bone.

MRI paranasal sinuses (Figure 2) showed lesion extending into the sella and right parasellar region with dural enhancement in right medial temporal region and no cavernous sinus thrombosis.

Patient was diagnosed to have chronic fungal sinusitis with probable orbital and cranial extension. Informed consent taken and extensive sinus debridement surgery done and all dead necrotic tissues and fungal debris present in the sinuses were removed and sent for histopathological examination and fungal culture. Histopathology revealed broad, aseptate, long and right angled branching hyphae consistent with mucormycosis. Amphotericin B was not started as extensive debridement was done, walls of the sinus had good vascularity and patient was immunocompetent. She was discharged after observation for one week with regular diagnostic nasal endoscopic follow-up for 2 years with no evidence of recurrence.

Postoperatively, CT PNS (figure 3 and 4) showed no residual disease / recurrence.

DISCUSSION

Mucormycosis is a rare but aggressive opportunistic fungal infection that is commonly caused by members of the family Mucoraceae that include *Rhizopus*, *Rhizomucor*, *Mucor* and *Absidia*.¹ Mucormycosis can cause severe, sometimes fatal disease in susceptible individuals with uncontrolled diabetic ketoacidosis, neutropenia, chronic glucocorticoid use, hematological malignancy, chronic malnutrition and burn patients.² Diabetes mellitus is the most common underlying disease due to altered transferring binding, poor neutrophil

¹Professor, ²Post Graduate, ³Assistant Professor, ⁴Assistant Professor, Saveetha Medical College and Hospital, India

Corresponding author: Dr Sharannya S V, No.7 Alagammal Nagar, 2nd street, nerukundrum, Chennai-600107, India

How to cite this article: Shoba K, Sharannya S V, Manoj Kumar L, Vivekanandhan B. RHINO-cerebral mucormycosis in an immunocompetent patient. International Journal of Contemporary Medical Research 2017;4(11):2300-2301.

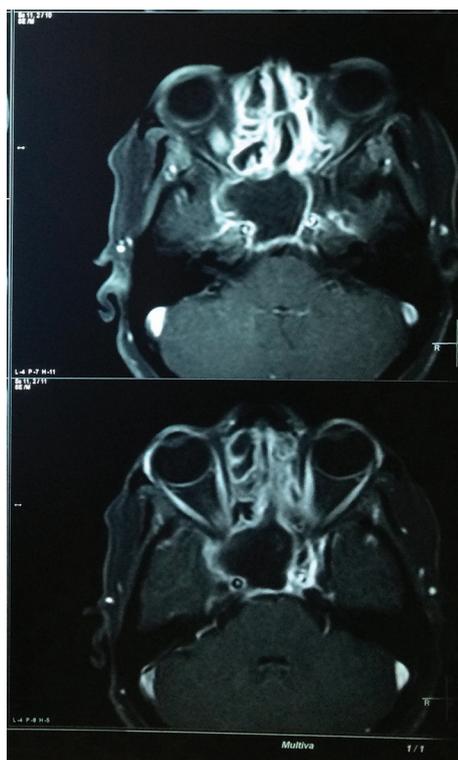


Figure-1: CT PNS - Heterogeneous opacity filling all sinuses and nasal cavities with erosion of lateral wall of sphenoid bone; **Figure-2:** MRI Paranasal sinuses - Lesion extending into the sella and right parasellar region with dural enhancement in right medial temporal region and no cavernous sinus thrombosis



Figure-3 and 4: Post-operative changes seen in the nasal cavity and maxillary sinus. No evidence of fungus seen.

function, microvascular insufficiency and metabolic abnormalities like ketoacidosis.³

These fungi are ubiquitous in soil; spores are present in air and dust. Disease enters the nose by inhalation of fungal sporangiospores.¹ Almost all patients of mucormycosis are immunocompromised. We have a rare case of mucormycosis in an immunocompetent patient. Men and women are equally affected.

Infection spreads along vessels and nerves and infiltrates its walls. It also erodes the bony walls of the sinuses to cause rhino-orbito-cerebral mucormycosis.⁴ Rhinocerebral mucormycosis presents with unilateral facial pain, orbital swelling, blurring of vision and multiple cranial nerve palsies.¹ A black necrotic eschar, due to germination of

angioinvasive hyphae in the nasal mucosa is the hallmark of mucormycosis.⁵ MRI with contrast is more sensitive than CT to detect perineural invasion, orbital and cranial soft tissue lesion.¹

In our patient there was no evidence of necrosis of the wall of the sinus. Only decalcification due to long term pressure was seen. Definite diagnosis is mainly by fungal recovery by culture. Mucorales are irregular shaped, aseptate hyphae with branching.

Aggressive surgery, good glycemic control and parental antifungal are the three important components of treatment. Aggressive debridement until well perfused tissue is reached will be the aim of surgery.⁶

CONCLUSION

Mucormycosis should also be considered in immunocompetent patient. We have to be more vigilant in patients with bilateral nasal polyp. Early diagnosis, aggressive surgical management and regular follow up in immunocompetent patient reduced the mortality and morbidity due to mucormycosis.

REFERENCES

1. Petrikos G, Skiada A, Lortholary O, Roilides E et al. Epidemiology and Clinical Manifestations of Mucormycosis. *Clinical Infectious Diseases* 2012; 54: S23–S34.
2. Mignogna MD, Fortuna G, Leuci S, Adamo D et al. Mucormycosis in immunocompetent patients: a case-series of patients with maxillary sinus involvement and a critical review of the literature. *International journal of infectious diseases* 2011; 15: e533-40.
3. Carlos Rodrigo Camara-Lemarrroy, Emmanuel Irineo González-Moreno, René Rodríguez-Gutiérrez, et al. Clinical Features and Outcome of Mucormycosis. *Interdisciplinary Perspectives on Infectious Diseases* 2014; 5:23-28.
4. Shinde RV, Karande GS, Mohite ST, Patil SR. Rhino-orbital mucormycosis in diabetes mellitus. *Journal of Clinical and Diagnostic Research* 2013; 6; 1145 – 47.
5. Safer S, Carpenter JS, Roberts TD, Bailey N. The black turbinate sign: An early MR imaging finding of nasal mucormycosis. *American journal of neuroradiology* 2010; 31: 771-4.
6. Mohammadi R, Nazeri M, Sayedayn SMA, Ehteram H. A successful treatment of rhinocerebral mucormycosis due to *Rhizopus oryzae*, *J Res Med Sci.* 2014; 19: 72–74.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 20-10-2017; **Accepted:** 30-11-2017; **Published:** 08-12-2017