

## Case report

### Fungal Rhinosinusitis (Aspergillosis)-3 cases

<sup>1</sup>Dr. Sneha R. Joshi, <sup>2</sup>Dr Deepa Tekwani, <sup>3</sup>Dr.Smita Pathak, <sup>4</sup>Dr.Janice Jaison,  
<sup>5</sup>Dr. Mangala Nagare

<sup>1</sup>Professor & HOD, Department of Pathology, MIMER Medical College , Talegaon Dabhade, Pune.

<sup>2</sup>Associate Professor, Department of Pathology, MIMER Medical College , Talegaon Dabhade, Pune.

<sup>3</sup> Professor, Department of Pathology, MIMER Medical College , Talegaon Dabhade, Pune.

<sup>4</sup>Assistant Professor , Department of Pathology, MIMER Medical College , Talegaon Dabhade, Pune.

<sup>5</sup> Tutor , Department of Pathology, MIMER Medical College , Talegaon Dabhade, Pune.

Corresponding author : Dr. Sneha R. Joshi

---

#### Abstract:

Fungal infections of nose and paranasal sinuses are not common. They are increasingly recognized entity both in normal and immunocompromised individuals. Aspergillosis and Mucormycosis are the commonest of all fungal infections involving maxillary sinus. Paranasal sinus aspergillus infections are classified as non – invasive, invasive and fulminant. Non-invasive forms present with nasal obstruction, pressure and drainage. The treatment is primarily surgical excision of the lesion and aeration of the involved sinus. In a present study, three cases of aspergillus infections are reported out of which two are immunocompromised. They presented with nasal obstruction, watery discharge and headache. Clinical and radiological findings revealed Nasal/Paranasal mass. Excision of the mass was done and sent for Histopathology. The diagnosis of Aspergillosis was given which was supported with special stains (P.A.S. and Silver methanamine stain).

**Key words:** Aspergillosis, Nasal and paranasal sinus, Special stains

---

#### Introduction

Fungal infections of nose and paranasal sinuses are not common. They are increasingly recognized entity both in normal and immunocompromised individuals.<sup>1</sup>Aspergillosis and Mucormycosis are the commonest of all fungal infections involving maxillary sinuses.<sup>2</sup>

The present study includes three cases of Aspergillosis out of which two were immunocompetent and one was immunosuppressed, suffering from uncontrolled diabetes mellitus.

#### Case report

##### Case no 1

A 19 year old healthy male patient came with the complaints of right sided nasal blockage since 3 months. On Rhinoscopy, whitish mass was observed at the floor of right nostril. Local treatment with 4% xylocaine soaked cotton swab was given .The mass was extruded out and sent for histopathology. Grossly we received 2.5x2.5 cm stony hard, brownish mass.

### Case no 2

A 48 year female had complaints of headache since 3 months, brownish discharge with foul smell since 3 days. Clinical diagnosis of maxillary sinusitis was confirmed with CT scan which revealed polypoid mucosal thickening on right side with collection in the maxillary sinus. Patient underwent FESS (Functional endoscopic sinus surgery). Multiple, brownish black, firm tissue bits aggregating 1 gms were removed sent for histopathology.

### Case no 3

A 55 year old severely diabetic patient came with the complaints of chronic headache since 3 years. On examination patient had nasal deformity. Clinical diagnosis of maxillary sinusitis (? Fungal) was supported with CT scan findings which showed maxillary sinusitis with areas of calcification. Local debridement was done. Grossly brownish necrotic material aggregating 1 gm was received. The debridement procedure was repeated again after 3 weeks.

In all the three cases, microscopically it showed acutely branching, septate fungal hyphae along with acute on chronic inflammatory infiltrate composed of polymorphs, lymphocytes, macrophages, few giant cells and few eosinophils. Also seen were the areas of necrosis and calcification. The diagnosis of Aspergillosis was confirmed with special stains Silver methanmine and PAS.

Case no 1 was relieved from symptoms. Case no 2 was relieved from symptoms after surgical treatment followed by oral anti-fungal agent (voriconazole 200 mgx8 weeks). Case no 3 was put on intensive antifungal therapy but did not respond because of uncontrolled diabetes mellitus later developed palatal perforation. Patient expired of uncontrolled diabetes mellitus.

### Discussion

Aspergillosis, a spore forming fungus, first identified by Sluyter in 1847, is a ubiquitous organism and thrives in soil, water and decaying organic debris (Hinson, 1952). They are frequent inhabitants of human respiratory tract.<sup>3</sup> Fungal infections of paranasal sinuses are an increasingly recognized entity both in normal and immunocompromised individuals.<sup>1</sup> is a commonly recovered organism with extensive sinus involvement fungal sinusitis in immunocompromised patients is more likely to disseminate. In this setting, Aspergillosis and angioinvasiveness.<sup>4</sup> Aspergillosis and Mucormycoses being the commonest of all fungal infections involving maxillary sinus.<sup>2</sup>

Paranasal aspergillosis is considered as a spectrum of diseases encompassing many forms. It can become localized or destructive and invasive and may extend to intracranial structures or even extend to oral cavity and cause palatal perforation.<sup>3</sup>

The more serious invasive infection which occurs in immunocompromised individuals is characterized by its rapid onset, ability to invade tissues and destruction.<sup>5</sup>Case No. 1&2 were suffering from localized form while Case No. 3 was classical example of invasive and locally destructive form of Aspergillosis.

These infections present with the signs and symptoms of allergic sinusitis, rhinitis, facial pain, unilateral proptosis, epistaxis, frequent headache, greenish discharge etc. and some noninvasive and invasive forms can also go unrecognized.<sup>3</sup> In the present study, cases patients presented with nasal blockage, nasal discharge, chronic headache.

CT scan has a role in demonstrating extent of lesion and bone destruction.<sup>5</sup>Bony destruction can be seen in the invasive forms. Calcifications are sometimes

known to occur.<sup>6</sup> Case No. 3 showed bony destruction as well as areas of calcification.

Grossly infected tissue exhibits yellowish, brownish, gray black, dirty or necrotic tissue.<sup>3</sup> The same findings in Case No. 2 & 3 while in case No. 1 stony hard brownish mass was received.

Histopathologically, fungal hyphae can be seen faintly in Haematoxylin and Eosin stained sections are further stained with PAS and Silver methenamine stain which is positive for fungal hyphae. They appear as septate hyphae with branching at 45° angle and are about 2-4 µm in diameter.<sup>3</sup> Same findings were seen in all three cases.

The treatment used for aspergillosis included surgical debridement together with intensive antifungal drugs.<sup>5</sup> Invasive aspergillosis is mostly found in immunocompromised patients and is generally fatal without adequate treatment. It is also frequently found in patients with uncontrolled diabetes mellitus. In case no. 1 surgical removal was done, patient relieved from symptoms and was lost for follow up. Case no.2 underwent surgical procedure followed by antifungal treatment with complete relief of symptoms while case no. 3 underwent surgical treatment and was advised antifungal treatment but unfortunately he died of uncontrolled Diabetes mellitus.

The prognosis is directly related to severity of underlying disease, the extent of the disease when treatment begins and the aggressiveness of treatment.<sup>2</sup>

We thus emphasize that early diagnosis and prompt treatment is essential to avoid the morbidity and mortality associated with this destructive disease in Aspergillosis.<sup>2</sup>

Fig 1: CT Scan showing polypoid oedema involving right nasal cavity and right maxillary sinus with bone erosion.

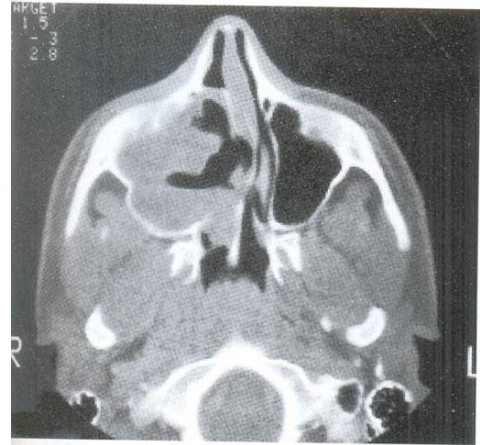


Fig 2: Photomicrograph showing acutely branching septate fungal hyphae (H & E X40)

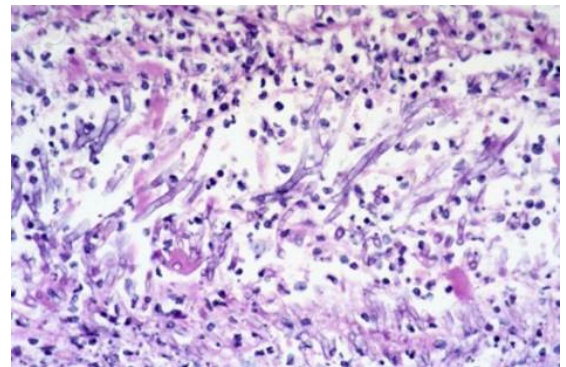


Fig 3: Photomicrograph showing Silver methenamine positive fungal hyphae (SM X 40)

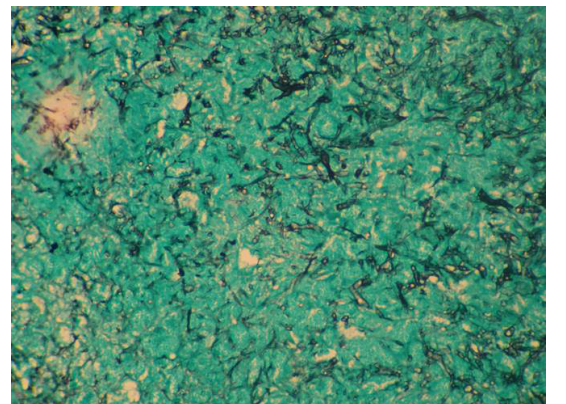
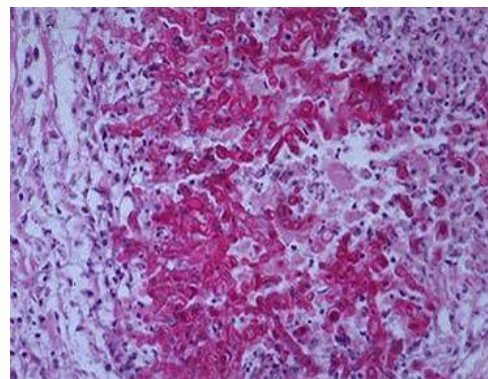


Fig 4: Photomicrograph showing P.A.S. positive fungal hyphae with granulomatous reaction (PAS X 40)



### References

1. Maj. J. Lewis Romett, Lt. Col. Richard K. Newman. Aspergillosis of the nose and paranasal sinuses. *Laryngoscope* 92: July 1982; 764 – 766
2. Tarun Taneja, Susmita Saxena, Pooja Aggarwal, Vandana Reddy. Fungal Infections involving maxillary sinus – A difficult diagnostic task. *Journal Section: Oral Medicine and Pathology Publication Types: Case Report J Clin. Exp., Dent.* 2011;3(2):e172-e176
3. Dayananda B. C., Vandana R., Rekha K. ,G.S. Kumar. Aspergillosis of the Maxillary Antrum – A Case Report, *Journal Of Oral and Maxillofacial Pathology*,Jan-Jun2002,Vol 1,issue1;26-29
4. Jerome B. Taxy. Upper Respiratory Tract Chapter 48. In: *Anderson's Pathology 10<sup>th</sup> Edition Vol.1* edited by Ivan Damjanov, M.D. Ph.d, James Linder, M.D.;2009 1451(1446 – 1469)
5. Shih-Jie Jhuo, Wei-Sheng and Jen-Yuan Kuo. Successful Treatment of Aspergillus Sinusitis with Oral Voriconazole: A Case Report,*Mackay Memorial Hospital,Tapei,Taiwan,ROC*, 2011 : 22 : 63 – 68
6. S. Agrwal, A. Kanga, V. Sharma, Dr. Sharma, ML Sharma Invasive Aspergillosis involving multiple paranasal sinuses – A Case report 2005; Vol. 23 : 3 : 195-197