



## Case Report: A Case Of Rhino-Orbital Mucormycosis With Facial Nerve Palsy With Type 2 Diabetes Mellitus

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### Abstract

With increasing cases of COVID 19 and unchecked use of corticosteroids, the cases of mucormycosis have increased especially in patients with comorbidities. A case presented to us in OPD with rhino-orbital mucormycosis with Type 2 Diabetes Mellitus and history of SARS CoV2 infection. The patient presented with facial palsy as well with mucormycosis which is not commonly seen. The patient underwent right endoscopic debridement with right maxillary antrostomy. The patient was further managed medically with liposomal Amphotericin B and regular debridement in our hospital. The presence of facial palsy in cases of mucormycosis is a rare occurrence and presentation of such sequelae needs to be noted for better management of future patients.

**Keywords:** Facial Nerve Palsy, SARS-CoV2, Mucormycosis, Diabetes Mellitus

### Introduction

With the emergence of the recent pandemic of SARS CoV2, there has been a significant rise in the incidence of mucormycosis, especially in patients with associated comorbid conditions which adversely affect the immunity. Also, Unchecked use of steroids in the treatments has become common practice. This causes rise in cases of mucormycosis as steroids can affect immunity of patients as well. [1]

In recent years, the increase in cases of mucormycosis as co infection in COVID-19 patients is due to ideal conditions for spores to germinate including low oxygen (hypoxia), patients with diabetes or prolonged steroids causing hyperglycemia, acidic pH due to metabolic acidosis or DKA, high levels of Fe and decreased phagocytic activity along with prolonged Hospitalization [2]

In few cases of COVID-19 with mucormycosis, facial nerve palsy has been noted as presenting

symptom. The true cause of nerve involvement has not been identified and no significant pathology found.[3]

Similar case was admitted in our hospital and the case is elaborately discussed in the case report here.

### Case Report

A 60 years old Male was admitted in the Dept of Otorhinolaryngology with Right Sinonasal Mucormycosis with uncontrolled Diabetes and was SARS-CoV2 positive who underwent Right nasal endoscopic debridement with right maxillary antrostomy under GA outside the hospital. Patient was tested negative for SARS CoV2 and was not vaccinated. Patient was on oral hypoglycemic drugs including glimepride and metformin. Patient presented with diffuse swelling over his right

maxillary region and also complained of facial asymmetry.

**Fig 1: Angle of mouth deviation seen of patient and incomplete right eye closure**

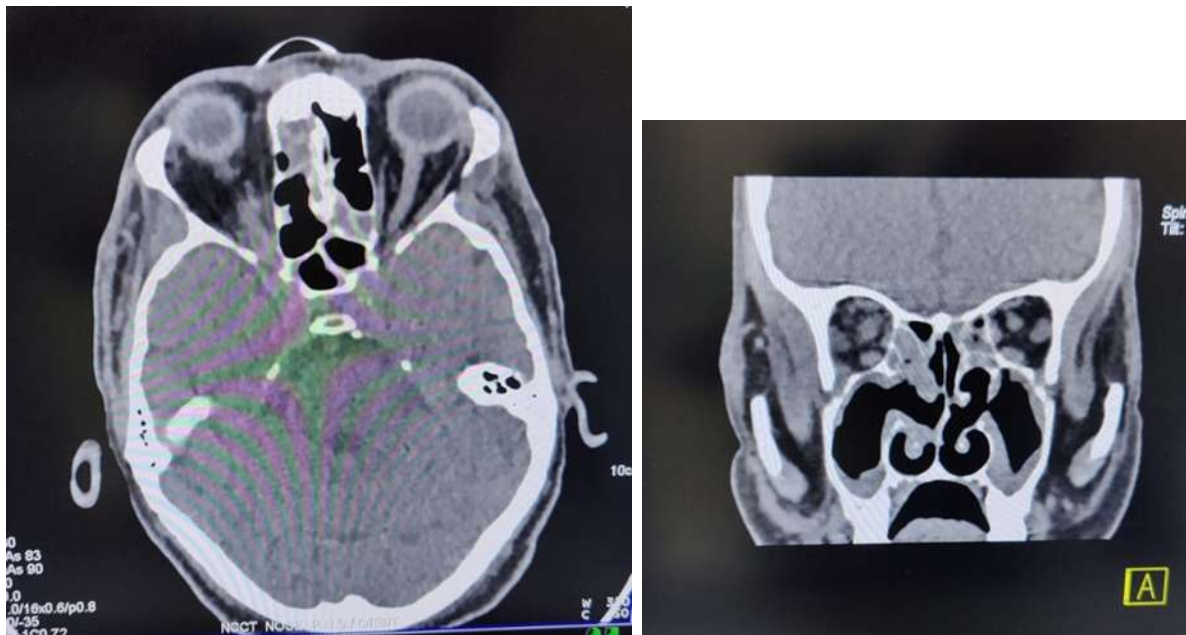


On examination, Patient was conscious and oriented to time place and person. Externally nose showed lateral rhinotomy incision which extended along the right nasal groove and curves around the margin of right ala. Suture were in situ at the incision site. On anterior rhinoscopy, the columella was absent, there were black crusts seen in right nasal cavity. Oral cavity examination showed no involvement of palate and no blackish discolouration of mucosa. Oropharynx, on examination, had no significant findings. Otoloscopic examination showed normal tympanic membrane bilateral. Bed side fistula test was negative.

On facial nerve examination, there was obvious deviation of angle of mouth to left and uprolling of

right eye with incomplete closure when patient was asked to close his eyes. Frowning was also missing on right frontal region. This signifies presence of lower motor neuron palsy. Grading was done according to House and Brackmann Grading system and patient was classified as Grade IV. Regular monitoring of facial nerve was done to assess the improvement in function of nerve.

Patient underwent NCCT Nose and PNS to identify residual disease. Cavity visualised with widened Osteomeatal complex and mucosal thickening. There is a small breach in the right lamina papyracea seen as well but no extension seen in the orbit.

**Fig 2: Axial and Coronal Sections of NCCT Nose and PNS for the patient**

Patient was started on liposomal Amphotericin B 10 mg/kg/day slow iv over 4-6 hours after routine investigations were done including renal function test. Pre-treatment was given with multi vitamin slow infusion in 100 mL Normal Saline and Inj PCM and Inj Pheniramine stat. Post treatment 1000mL normal saline was rushed. Daily renal function, serum electrolytes and CBC were sent before administering liposomal Amphotericin B. Serum  $Ca^{2+}$  and Serum  $Mg^{2+}$  were checked every third day. Daily monitoring and charting were done of the total amount of liposomal Amphotericin B administered to the patient via central line. Regular monitoring of blood glucose was done and started to IV regular insulin. Daily douching was done and crusts removed which were sent for KOH mount during admission. KOH mount confirmed aseptate non branching hyphae.

On post admission day 2, patient complained of blurring of vision in right eye. On examination along with ophthalmology department, right lateral rectus movement was restricted, proptosis present of right eye, corneal edema present. CEMRI showed extension of disease in retroconal space of right orbit, encasing the optic nerve. Post admission day 4, right

endoscopic nasal debridement was done. 1 unit of PRBC was transfused since Hb was 7.6g/dL. Patient was given liposomal amphotericin B and course was completed over 7 days and was discharged on Tablet Posaconazole.

### Discussion

Phycomycosis or zygomycosis, first described by Paltauf in 1885, was later termed mucormycosis by Baker in 1957. It is but a rare disease, usually affecting patients who are immunocompromised. [4] The few fungi species causing mucormycosis include *Rhizopus*, *Mucor*, *Rhizomucor*, *Cunninghamella* and *Absidia* (Order- Mucorales) [5] Most common organism is *Rhizopus oryzae* ~ 70% of cases [6]

Since Mucormycosis is an angioinvasive, it will cause tissue necrosis and subsequent thrombus formation. It majorly presents in 6 clinical forms: 1) Rhinocerebral, 2) cutaneous, 3) Gastrointestinal, 4) Pulmonary, 5) disseminated and 6) uncommon presentation [6]. Most commonly mucormycosis presents in sinuses (39%), lungs (24%) and skin (19%). [7] Most common being Rhinocerebral type and has a characteristic method of spread.[8]

Incidence of Rhino-cerebral mucormycosis in diabetic patients is 60% - 81%. Diabetic patients with mucormycosis are less likely to improve completely. Also, recurrence of facial palsy is common in diabetic patients.[9]

Treatment for Mucormycosis has three modalities: rapid reversal of underlying predisposing factors, antifungal therapy and surgical intervention [8]. Liposomal amphotericin B can be given up to 10 mg/kg/day as it is less nephrotoxic than plain Amphotericin B. [9] For antifungal treatment commonly Amphotericin B is used which target sterols in cell membranes of fungal cells as well as human cells. [10]

Facial nerve palsy commonly present to an ENT surgeon with characteristic features depending on unilateral or bilateral palsy including incomplete closure of eyes, angle of mouth deviation to unaffected side, absence of nasolabial groove on affected side and absence of frowning on affected side in LMN palsy [11]

Aetiopathogenesis of facial nerve palsy includes infective pathology (viral, bacterial), trauma, neoplasms causing compression of nerve, congenital and idiopathic (also called Bell's palsy). [11].

Post Treatment, the patient continued to have grade VI facial palsy but reported mild improvement in closure of involved eye. Crust formation in the nasal cavity reduced post endoscopic debridement done at the hospital.

## Conclusion

A case of Post COVID mucormycosis with facial nerve palsy with Diabetes Mellitus presented to us in ENT OPD. The patient developed right sinonasal mucormycosis when he was COVID positive which further involved the orbit as well (rhino-orbital mucormycosis) and had associated right facial nerve palsy. Discussion of the case facilitates awareness of physicians of atypical presentation of mucormycosis.

## Summary

The article discussed a case with covid associated mucormycosis which presented with facial palsy which still is an atypical presentation. Main stay treatment of mucormycosis is Amphotericin B and Posaconazole in cases where Amphotericin B cannot be given.

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