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Case Report

Rhino maxillary mucormycosis in a HBsAg positive patient with OSMF

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ABSTRACT:
Mucormycosis is an angioinvasive opportunistic fungal infection casued by fungi of the phylum Glomeromycota, subphylum Mucormycotina it is most commonly affects patients with diabetic, immunocompromised, haematological malignancies, chronic steroid use and intravenous drug abusers[1]. The most common clinical presentations of mucormycosis are rhino-orbito-cerebral, pulmonary, cutaneous, and disseminated[2]. Recently there has been an increasing in number of cases of mucormycosis in post covid 19 subjects. The thromboembolism associated with unhygienic oxygen administration, change in cardio pulmonary dynamics, unjustified steroid and antibiotic usage in covid 19 patients can be the etiological factors. Here we present a 56 year old hepatitis B positive patient with grade 3 Oral submucosal fibrosis who recovered from sarscov 2 infection came with a complaint of swelling around left periorbital region and diagnosed with rhinomaxillary mucormycosis. The current report highlights the management of such patients and difficulties encountered during the surgical intervention. Usually patient with Hepatitis are prone to develop different infection Treatment is difficult due to underlying coagulopathy and hepatic dysfunction.

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INTRODUCTION

The Covid 19 pandemic has become a major burden in human life and their health since past 2 years. Coronavirus disease (COVID-19), caused by a novel betacoronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has rapidly developed into a pandemic since it was first reported in December 2019 Wuhan China[3] there is no definitive treatment the best options are vaccination, prevention by maintaining social distance and symptomatic treatment. The global pandemic of coronavirus disease 2019 (COVID-19) has infected >18 million people internationally and over 4 million in the United States alone. Caused by coronavirus-2 (SARS-CoV-2), the disease may progress to acute respiratory distress syndrome (ARDS), a condition that increases the susceptibility of pulmonary fungal coinfections[4]. Corticosteroids such as methylpredisolone, dexamethasone and budesonide are commonly used drugs to minimize inflammation mediated lung injury in patients affected with SARS COV 2 and respiratory illness.As these drugs also present with secondary infections, immune suppression, dizziness, weight gain, and etc. The incidence of mucormycosis in India population is 0.14 per 1000 which is 80 times higher than the world (0.005 to 1.7 per million population) and the mortality ranges from 40% to 80 depending on the intracranial or orbital involvement and the immune status of the patient.

Hepatitis B virus (HBV) infection is one of the most severe infections and constitutes a major risk factor for mortality from cirrhosis and liver cancer. patients with HBV infection are at higher risk of developing DM when compared with patients without HBV infection[5] The main risk factors include diabetic patient, long term steroid usage, unjustified antibiotics, patients on desfurroxime, lymphoma and leukaemia patients, and recently post covid 19 patients. The main stay of treatment are surgical debridement and anti fungal such as amphotericin B

and posoconazole. Here we present a challenging Rhino-orbital mucormycosis case of 56 year old type 2 diabetic patient with Oral submucosal fibrosis and HBsAg positive management and surgical intervention.

PRESENTATION OF CASE

A 56 year old male patient admitted in Karnataka institute of medical sciences, Hubli. A tertiary care centre in Hubli, Karnataka. He came with a chief complaint of peri orbital swelling since one week, left unilaterally nasal bleed and loose teeth in left upper jaw since 1day. The patient was previously admitted in secondary care centre for covid 19 infection on 9th may 2021 and was a in patient for 10days. He was on supplemental oxygen for 5 days and corticosteroids (Methyl prednisolone 8mg OD) for 12 days. Past medical history includes type 2 diabetic sine 2-years and on oral hypoglycemic medication. On general examination the patient is moderately built, well oriented to time, place and person. The local examination includes left periorbital swelling and left cheek swelling which was diffused. chemosis, proptosis noted w.r.t left eye. The nasal septum deviated towards right and the left nasal cavity is blood stained. On intraoral examination the mouth opening is restricted to 10. There are palpable fibrous in bilateral buccal mucosa and a 2CM*2CM palatial erosion noted son clinical presentation the surgical team came to a provisional diagnosis of rhino orbital mucormycosis. The rearranged blood parameters include HBsAg positive, random blood sugar of 352, blood urea 47, C-reactive protein -90, ferritin – 386, lactate dehydrogenase – 563 and D dimmer – 374.

MRI brain & orbit was done showing an ill-defined heterogenous soft tissue signal intensity (hypointense on T1W-imaging), polyploidal mucosal thickening involving bilateral frontal, maxillary and ethmoid sinuses was seen and infiltration into left turbinate, retroantral, masticator and infra temporal space and left pre auricular abcess

FESS was done for bilateral maxillary sinus and ethmoid sinus. The sinuses were debrided and the specimen obtained was sent for culture sensitivity and histopathology. Inj.pipzo 4.5 g-8hourly, Inj.Metronidazole400 mg-8hourly, inj paracetamol 100ml 12 hourly, injrantadine 50 mg and inj ondansetron 4mg S-O-S started postoperatively. The KOH mount was negative for fungal elements but On histopathology examination, aseptate broad based hyphae and gram positive bacilli were seen and hence Mucormycosis suspected. The medical regime changed to Inj. Amphotericin B 300 mg/day, tab posaconazole. The left orbital decompression done under local anaesthesia and multiple retrobulbar AmphotericinB injections were given. Elective tracheostomy was done due to difficulty intubation and underall aseptic precuation lateral rhinotomy incision was placed due to restricted mouth opening. Left hemimaxillectomy plus right partial maxillectomy along with palatotomy was done and cotton bolts was placed in the resented defect. The pre existing regime was continued after the surgical procedure. The resected specimen was sent to histopathology and KOH mounting.

On postoperative day 7 the chemosis and periorbital swelling are reduced along with overall improvement in general examination. Intraorall healing was satisfactory and review MRI showed and histopathology showed histopathology shows pseudostratified ciliated columnar epithelium with mixed inflammatory infiltrate comprising of neutrophils, lymphocytes and plasma cells. Also seen are areas of necrosis. Amidst this broad aseptate right angle branching fungal hyphae are seen.

Fig 1. Preoperative profile picture showing diffuse swelling measuring approximately 4*4cm noted over Left infra orbital region, No paraesthesia, obliteration of Nasolabial Fold, skin over swelling is taunt with draining sinus / fistula

Fig2.MRI showing mucosal thickening involving bilateral maxillary and Ethmoid sinus invoving turbrinates of nose and erosion of left maxillary sinus

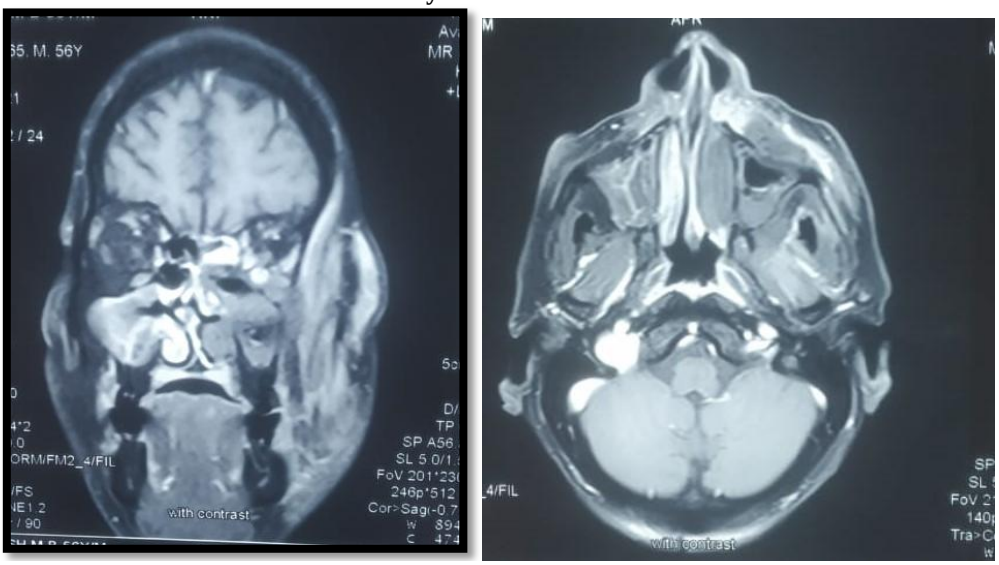
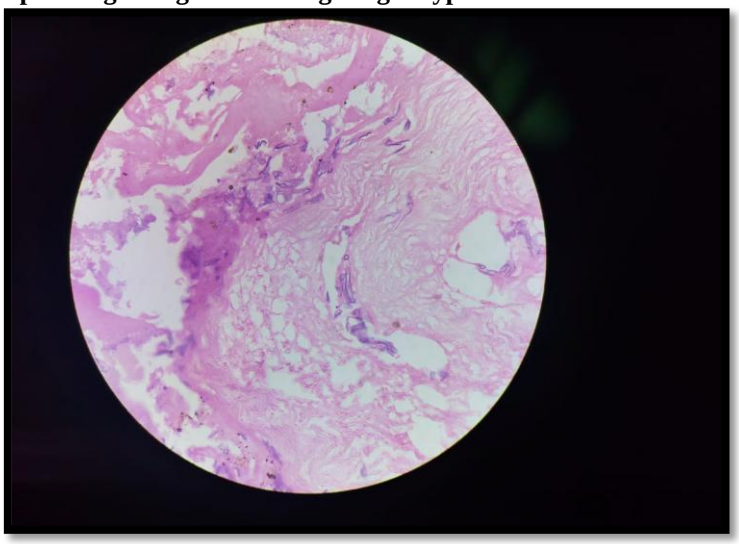


Fig3.Histopathology shows pseudostratified ciliated columnar epithelium with mixed inflammatory infiltrate comprising of neutrophils, lymphocytes and plasma cells. Also seen are areas of necrosis. Amidst this broad aseptate right angle branching fungal hyphae are seen.



DISCUSSION

There are more than 900 cases of mucormycosis reported in the literature Diabetes is the most common risk factor but it has been described with hematological malignancy, solid tumors, bone marrow and solid organ transplantation and recipients of deferoxamine therapy[6]

Mucormycosis is a potentially devastating fungal infection caused by Mucor, Rhizopus, and Absidia. Infection by this type of ubiquitous fungi is acquired by spores inhalation Rhinocerebral infection is the most common form[7] Hepatitis B virus infection is a major public health problem though out the world roughly around 30% of the world's population show serological evidence of current or past infection. Globally 30% of cirrhosis is attributed to hepatitis B virus (HBV) infection[8]. Hepatitis B virus is a partly double-stranded DNA virus with several serological markers: HBsAg and anti-HBs, HBeAg and anti-HBe, and anti-HBc IgM and IgG. It is transmitted through contact with infected blood and semen. The Mucormycosis begins as acute sinusitis. The spread of infection to contiguous structures, such as the orbits and brain, occurs quickly. Infarction of the cranial nerves may cause blindness, ophthalmoplegia, and facial numbness. Spread from the sphenoid sinuses to the adjacent cavernous sinus can result in thrombosis of the sinus itself and occlusion of the carotid artery. Radiologically, multiple (≥10) nodules and pleural effusion are reportedly associated with pulmonary mucormycosis[9]. Management of rhino-orbital cerebral mucormycosis is a medical as well as surgical emergency. Reaching an early definite diagnosis is pragmatically challenging, whereas the delay in initiating the treatment will further aggravate the morbidity and mortality. Early antifungal

administration and extensive surgical debridement are carried out empirically whenever the possibility of rhino-orbital cerebral mucormycosis is suspected based on risk factors, clinical features, and/or radiologic findings. A three-pronged approach of reversal of immunosuppressive state, administration of IV antifungals, and extensive surgical debridement is usually undertaken[10].In our case there was difficulty in intubation due to restricted mouth opening caused by oral submucous fibrosis lateral Rhinotomy is made to gain access to the lesion then the maxillectomy is performed Immediate surgical intervention, antifungal drug therapy, and control of predisposing factors are the critical components of treatment.

CONCLUSION

Mucormycosis is rare fungal disease with high mortality rate early diagnosis and proper medical and surgical treatement can be life saviour

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