Guidelines

for

Early Diagnosis

of

Post Covid 19

Mucormycosis

By

Dental Surgeons

ISSUED BY : HaryanaState Dental Council

Note* Mucormycosis is a notified disease by Haryana Goverment. Any suspected/confirmed case of mucormycosis must be reported to the local Civil Surgeon. The Proforma for reporting will be available at local civil surgeons office.

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Introduction

We as dental surgeons have seen an increase in incidence of fungal infections in oral cavity. It may be due to increasing frequency of patients on immunosuppressive drugs or diseases like diabetes, HIV etc. Now with the outbreak of COVID 19 pandemic, Mucormycosis (Black Fungus) has emerged as a new threat. We have seen an increase in number of COVID recovered patients presenting with symptoms of mucormycosis in the second peak. Haryana government has notified this disease which means that every case has to be reported to the Civil Surgeon.

Types: (https://www.cdc.gov/fungal/diseases/mucormycosis/definition.html)

I. Rhinocerebral (sinus and brain) Mucormycosis is an infection in the sinuses that can spread to the brain. This form of mucormycosis was most common in people with uncontrolled diabetes and in people who had a kidney transplant. This is now seen in COVID treated patients who had a considerable hospital stay.

2. Pulmonary (lung) mucormycosis is the most common type of mucormycosis in people with cancer and in people who have had an organ transplant or a stem cell transplant.

3. Gastrointestinal mucormycosis is more common among young children than adults, especially premature and low birth weight infants less than 1 month of age, who have had antibiotics, surgery, or medications that lower the body's ability to fight germs and sickness.

3. Cutaneous (skin) mucormycosis: occurs after the fungi enter the body through a break in the skin (for example, after surgery, a burn, or other type of skin trauma).

4. Disseminated mucormycosis occurs when the infection spreads through the bloodstream to affect another part of the body. The infection most commonly affects the brain, but also can affect other organs such as the spleen, heart, and skin.

As Rhinocerebral mucormycosis is the most common form affecting COVID recovered patients and it can have oral symptoms that can lead to early diagnosis by us. Early diagnosis means early treatment thereby reducing mortality.

Clinical Features

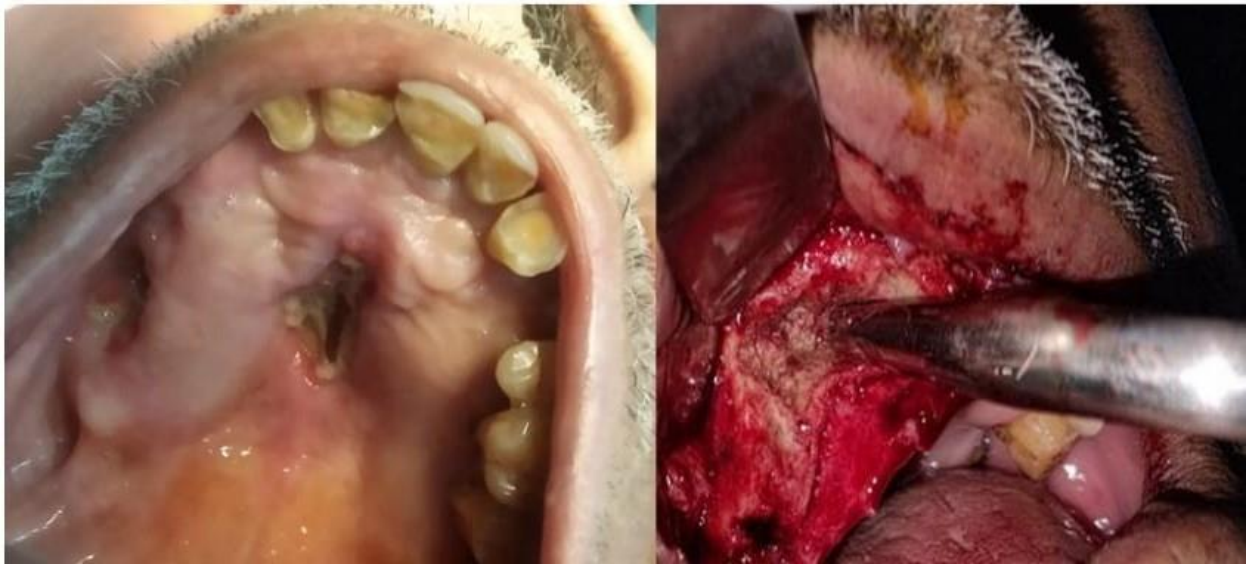
COVID recovered patients with history of prolonged stay in ICU (Mostly seen in diabetics with poor glycemic control due to high doses of steroids)

Extra Oral:

Periorbital cellulitis/edema/Echymosis
Ptosis
Diplopia
Orbital Pain
Para-sinusal pain
Nasal stuffiness / Erythematous nasal mucosa
Black purulent nasal discharge
Epistaxis

Intra Oral:

Halitosis
Generalized pain in upper teeth (one side only)
Mobile maxillary teeth in one quadrant
Palatal ulceration
Intraoral draining Sinuses

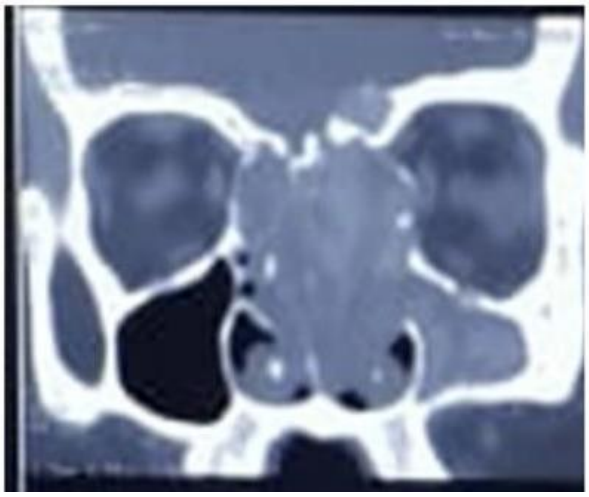


Palatal Ulceration **Sand like Bone**

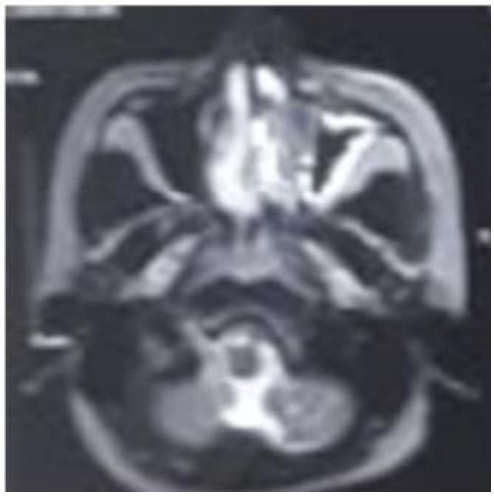
IMAGING

Routine radiographs have a little role in diagnosing mucormycosis as radiographic changes can be detected very late. Sometimes a PNS (occipitomental) radiograph can show sinusitis in late stages.

The gold standard imaging modality is Gadolinium Enhanced MRI as mucosal thickening appears early. A contrast enhanced high resolution CT PNS can also detect early bony changes. If contrast enhanced is not possible due to underlying medical conditions, plain CT and MRI are also helpful.



Plain CT PNS



MRI PNS

Lab Investigations

Deep Nasal Swab for KOH smear is gold standard and

fastFungal Culture (nasal swab/ sinus scrapings)

Histopathology for confirmation (half tissue for biopsy and half for fungal culture)

Negative Galatomannan and Beta-Glucan Test (to exclude aspergilosis)

Prevention

Key to reduce mortality is prevention and/or early diagnosis

- Use of distilled water and regular cleaning of oxygen humidifiers.
- Regularly change the tubings
- Regular evaluation of patients under treatment of COVID and on highdoses of steroids especially from day 7 till discharge.
- Deep nasal swab for fungal culture to be taken even in cases of littlesuspicion
- Application of 0.5% Betadine / Amphotericin B gel intranasal for high risk patients
- Maintenance of Oral hygiene i.e. tooth brushing along with use of 2% povidone Iodine Gargles.
- At discharge patient / attendants should be told about possible risk and educated about early warning sings
- Strict Glycemic control post discharge
- Non-emergency surgical dental procedures to be delayed for 3 months
- Proper balanced Diet to be taken

For Home Isolation Patients:

- Regular cleaning of humidifiers, use of distilled water in humidifier.
- When using oxygen concentrator at least weekly clean the filter with soap and water.
- Patient should avoid areas with dust.
- Both the patient and the caregiver should be taught the importance of proper hand hygiene before and after handling any respiratory therapy equipment. Nasal canulas and masks should not be kept on potentially contaminated surfaces like floor.

Treatment

- Team approach is the key
- Early diagnosis leads to early treatment
- Failure of prompt medical and surgical intervention may lead to cerebral spread, cavernous sinus thrombosis, septicemia and multiple organ failure leading to high morbidity and mortality.
- Combined team of an ENT Surgeon, Maxillofacial Surgeon/Dental Surgeon, Ophthalmologist, Neuro Surgeon & Physician is required in most cases.
- Early medical Management followed by aggressive surgical treatment reduces chances of mortality.

For medical management Injection Liposomal Amphotericin B - 5 to 10 mg/kg/day diluted in 5% dextrose for 3 to 6 weeks (closely monitor renal function and potassium levels)

Followed by consolidation therapy using Tablet Isavuconazole 200mg thrice a day for day one and two then 200mg daily or Tablet Posaconazole 300mg twice a day for day one followed by 300mg daily for 3 to 6 months

Summary:

Proper history taking before starting any dental treatment

If there is history of hospitalization for COVID 19, then properly examine patientfor early signs (especially in diabetic patients)

Intra oral pus discharge in these patients should be immediately investigated (KOH mount and fungal culture)

Extractions of these patients should be done cautiously

No prophylactic anti-fungal therapy is required as per ICMR guidelines

As team approach and early diagnosis is the key, take opinion of OMFS/ENT surgeon in slightest of doubt.

Disclaimer : This document is a compilation from the available data published in trusted sources. Treatment of mucormycosis is evolving with emerging evidences. Treatment should be based on guidelines issued by MoHFW(GoI)/ICMR/Haryana Government and are amended from time to time.