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Case Report

An Interesting Case of Bi-Jaw Presentation of Mucormycosis: A Case Report

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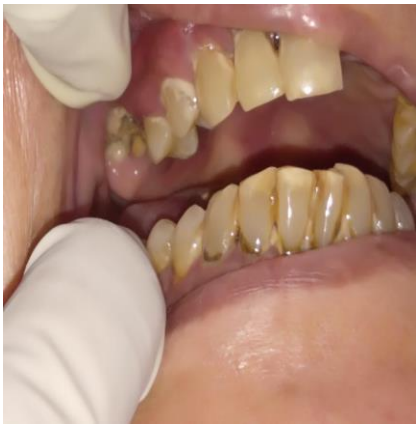
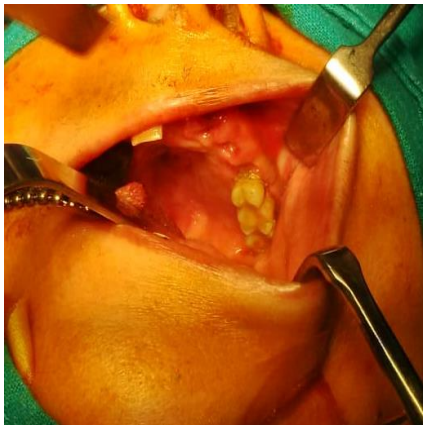
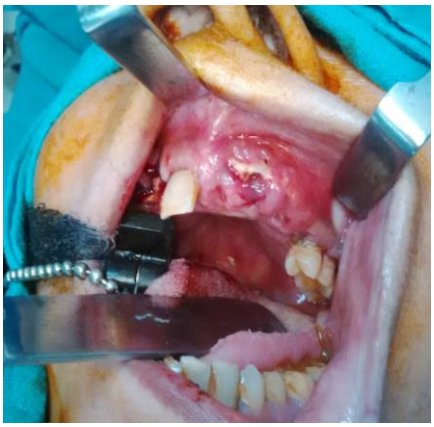
Abstract
Post-COVID-19 mucormycosis, also known as "black fungus," is a rare but serious fungal infection that has gained attention during the COVID-19 pandemic. We present an interesting case report of a patient who developed Bi-jaw Mucor mycosis following recovery from COVID-19. This case highlights the importance of early recognition, diagnosis, and treatment of this potentially fatal complication. We also review the literature on post-COVID-19 mucormycosis, its risk factors, clinical presentation, diagnosis, and management strategies.

Keywords: *Post-COVID-19 Mucor mycosis, black fungus, case report, COVID-19 complications.*

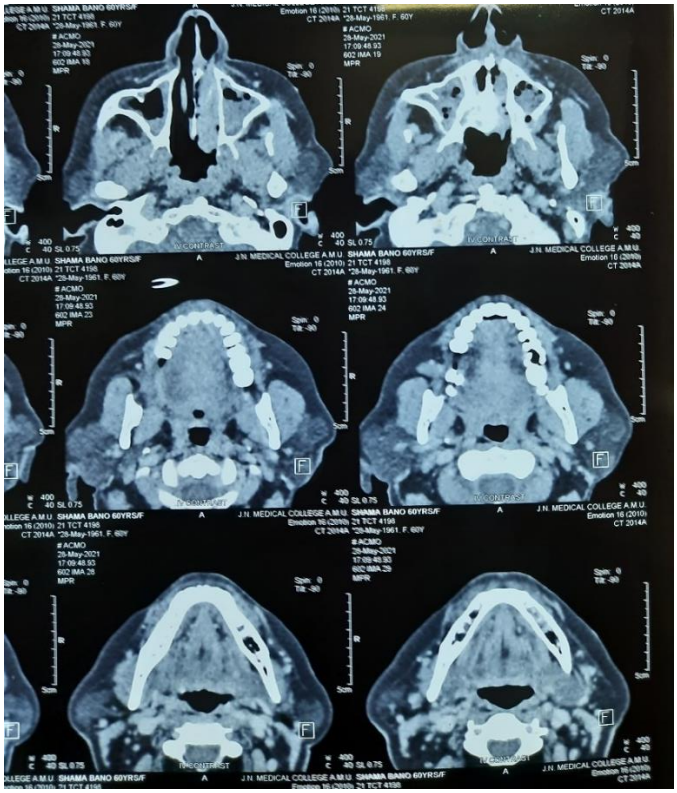
INTRODUCTION
The COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2 has resulted in millions of infections worldwide. While most COVID-19 cases are mild or moderate, severe cases can lead to complications, including secondary infections. One such complication is post-COVID-19 mucormycosis, a rare invasive fungal infection caused by organisms from the order Mucorales.

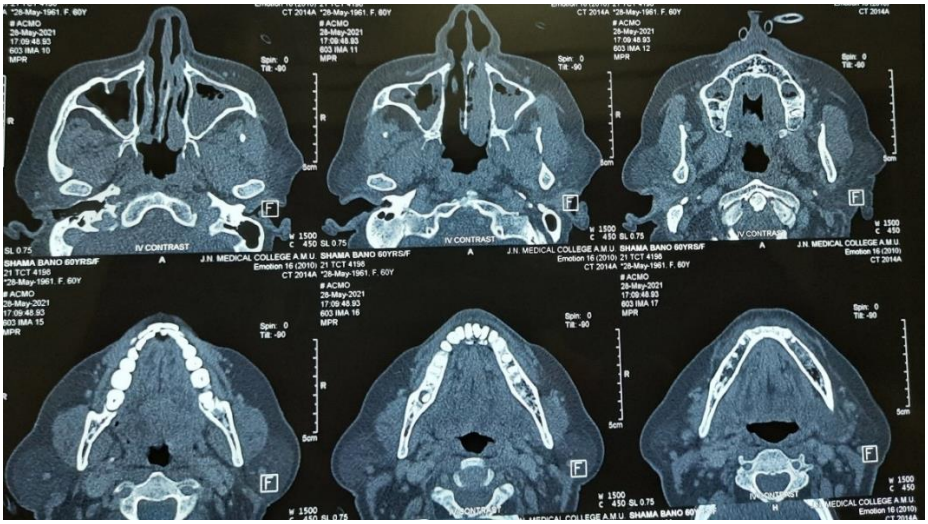
In this case report we present a rare case of bimaxillary involvement of fungal infection in a 60-year-old immunocompromised female patient with predisposing factors of covid and diabetes mellites. This case report aims to contribute to understanding this emerging issue by presenting a clinical case and reviewing the available literature.

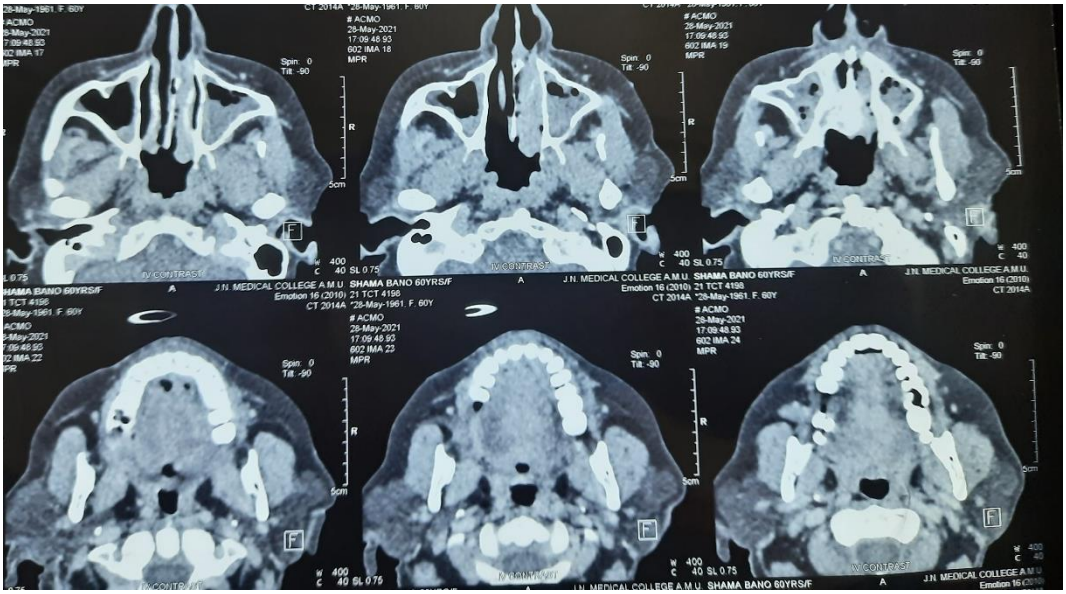
CASE REPORT
In this case report we present a rare case of bimaxillary involvement of fungal infection in a 60-year-old immunocompromised female patient with predisposing factors of covid and diabetes mellites. According to the patient, she was well 1 month back when she started having pain in the upper and lower jaw region pain was accompanied by swelling in the bilateral cheek region. The patient also complained of paraesthesia in the bilateral cheek region and mobile teeth. the patient then reported to the TBRD dept of JNMCH from there patient was referred to ENT and the Department of Oral and Maxillofacial Surgery, on the enquiring patient had a history of hospitalization 2 months back with covid 19 symptoms. The patient was under steroid and antibiotic therapy. The patient had a known medical history of Diabetes mellitus and Hypertension. On examination, swelling was present on the bilateral facial region and tenderness present over the maxillary sinus region. On intraoral examination mobility of teeth was present. Bone exposure was present on the left maxillary anterior alveolar region .21,22,23,24 teeth were missing. Incisional biopsy was done which was suggestive of fungal infection favouring Mucor mycosis. CT-scan of the patient was suggestive of mucoperiosteal thickening with soft tissue density collection and multiple air foci in left paranasal sinuses with obliteration of drainage pathways and focal bony erosion of palatine process of bilateral maxilla with multiple air foci in the alveolar process of maxilla and mandible. The patient underwent sequestrectomy with debridement and curettage. Posaconazole was administered for 30 days. The patient's blood glucose levels were regularly monitored and kept under control.

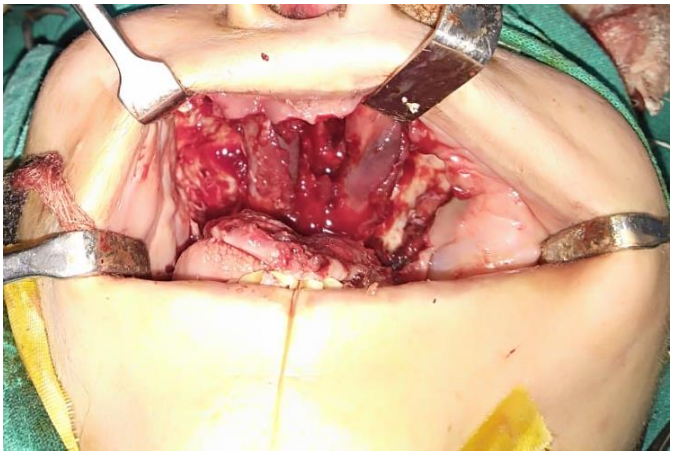
Pre-op photographs showing intraoral lesion

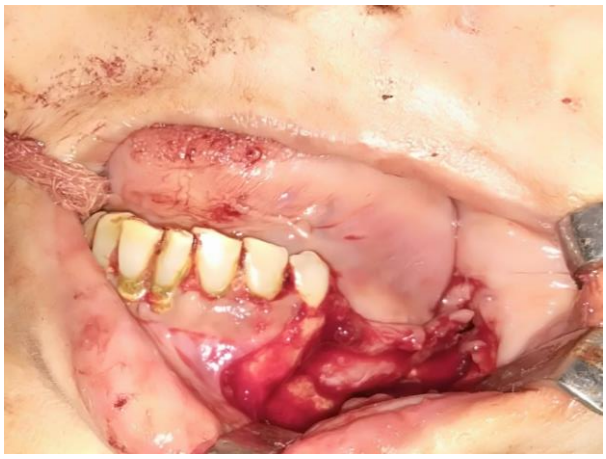


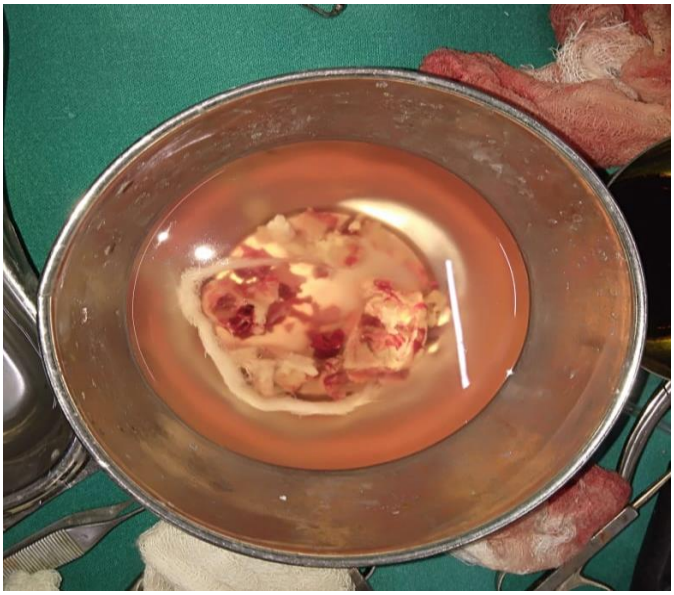


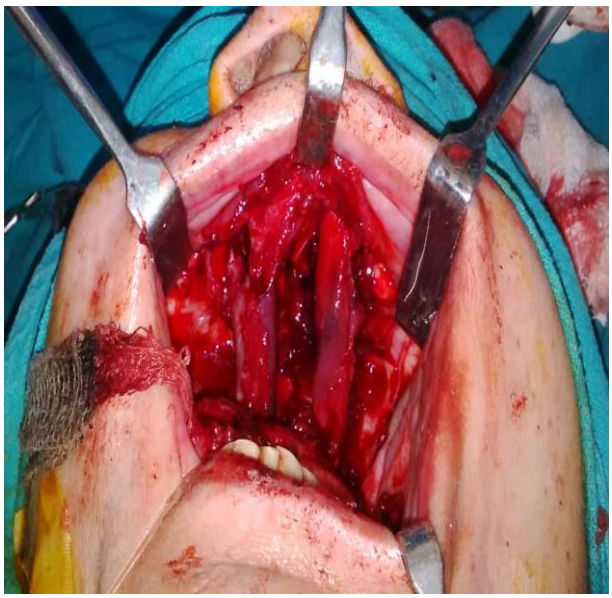


Pre op CT scan sections









Intra op photographs

DISCUSSION

Mucormycosis, a rare but aggressive fungal infection, has garnered significant attention in the wake of the COVID-19 pandemic, particularly due to its association with patients who have recovered from or are concurrently battling COVID-19. The case of bi-jaw mucormycosis post-COVID-19 presents a rare, unique and challenging clinical scenario, highlighting the intricate interplay between a viral infection and subsequent opportunistic infections.

Mucormycosis is caused by fungi of the order Mucorales, with Rhizopus species being the most commonly implicated. The pathogenesis of mucormycosis involves the inhalation of spores, which then invade the paranasal sinuses and can extend into the orbit, brain, and other structures, including the jaws. The condition is particularly aggressive in immunocompromised individuals, such as those with uncontrolled diabetes mellitus, hematologic malignancies, or those undergoing immunosuppressive therapy.

COVID-19 itself, particularly in severe cases, can predispose patients to secondary infections due to multiple factors. The virus causes an immunosuppressive state, characterized by lymphopenia and a decrease in CD4+ and CD8+ T cells, which impairs the body's ability to fight off opportunistic infections. Additionally, the widespread use of corticosteroids and other immunomodulatory drugs in the management of COVID-19, while life-saving in many cases, can further suppress the immune response, increasing the risk of infections such as mucormycosis. The hyperglycaemic state often observed in COVID-19 patients, whether due to pre-existing diabetes or steroid-induced hyperglycaemia, creates a favourable environment for the growth of mucormycosis. Hyperglycaemia reduces the phagocytic activity of neutrophils and promotes fungal proliferation. The presence of acidosis, often seen in diabetic ketoacidosis, further exacerbates the situation by increasing the availability of free iron, which is essential for the growth of the fungus. The case of bi-jaw mucormycosis is particularly concerning due to the extensive involvement of both the maxilla and mandible, which is uncommon in typical cases of mucormycosis. This extensive involvement may suggest a delay in diagnosis or a particularly aggressive form of the disease. Patients typically present with symptoms such as facial pain, swelling, loosening of teeth, and intraoral or extraoral fistulas. In advanced cases, necrosis of the jawbones may be evident.

The diagnosis of mucormycosis can be challenging, particularly in the early stages, as the symptoms may mimic other more common conditions such as bacterial osteomyelitis or malignancies. Imaging studies such as contrast-enhanced MRI or CT scans are essential for assessing the extent of the disease, but definitive diagnosis requires histopathological examination and fungal culture. The presence of broad, non-septate hyphae in tissue samples is characteristic of mucormycosis.

The management of bi-jaw mucormycosis is complex and requires a multidisciplinary approach. The cornerstone of treatment is the prompt initiation of antifungal therapy, with liposomal amphotericin B being the drug of choice due to its efficacy and favourable side-effect profile compared to other formulations. Isavuconazole and posaconazole are alternative antifungal agents that may be used, particularly in cases where there is intolerance or contraindication to amphotericin B.

In addition to antifungal therapy, surgical debridement is often necessary to remove necrotic tissue and reduce the fungal load. In cases of extensive involvement, as seen in bi-jaw mucormycosis, radical surgical resection may be required, which can have significant functional and aesthetic implications for the patient. The extent of surgery should be carefully balanced with the patient’s overall prognosis and quality of life considerations.

Hyperbaric oxygen therapy (HBOT) has been suggested as an adjunctive treatment in mucormycosis, as it may enhance the effectiveness of antifungal therapy and promote wound healing. However, its use is still controversial and should be considered on a case-by-case basis.

The prognosis of bi-jaw mucormycosis remains guarded, given the aggressive nature of the infection and the extensive surgical interventions often required. Early diagnosis and prompt, aggressive treatment are critical for improving outcomes. However, even with appropriate management, the mortality rate associated with mucormycosis remains high, particularly in patients with underlying conditions such as diabetes or those who are immunocompromised.

Long-term follow-up is essential for monitoring the recurrence of infection, assessing the healing of surgical sites, and managing the potential complications of treatment, including the need for reconstructive surgery.

Conclusion

The case emphasizes the need for heightened awareness among healthcare professionals regarding the increased risk of mucormycosis in post-COVID-19 patients, particularly those with diabetes and a history of corticosteroid therapy. Early diagnosis, aggressive management, and interdisciplinary collaboration are crucial to improving outcomes in these challenging cases.

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CITATION

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