Content available at: https://www.ipinnovative.com/open-access-journals

Journal of Oral Medicine, Oral Surgery, Oral Pathology and Oral Radiology

Journal homepage: www.joooo.org

Case Series

Mucormycosis of mandible – A rare case series

Kanchan M Shah[1], Tejal Sanjay Badhan[1,*], Jayant S Landge[1], Parul Goyal[1]

[1] *Dept. of Oral & Maxillofacial Surgery, Government Dental College and Hospital, Aurangabad, Maharashtra, India*

ARTICLE INFO

Article history:
Received 24-12-2022
Accepted 30-01-2023
Available online 10-03-2023

Keywords:
SARS- CoV -2 infection
Mucormycosis
Mandible
Diabetes mellitus
Posaconazole
Sequestrectomy

ABSTRACT

Background: Mucormycosis is a rare fungal infection with high morbidity and mortality rate as compare to its prognosis which is poor. Coronavirus disease 2019 (COVID-19) infection may be associated with a wide range of bacterial and fungal co-infections. We report the case of a patient with COVID-19 infection, which, during the course of the treatment, developed rhino-orbital mucormycosis. Very few cases of mucormycosis of mandible have been reported in literature. In this article, we present three cases of mucormycosis affecting mandible and the surgical management for it given in our institute.

1. Mucormycosis affecting the right side of mandible.
2. Mucormycosis affecting the entire mandible.

Methods: Extraction of all mobile teeth was done along with mechaincal curettage and sequestrectomy performed.
Results: Patients are kept in regular follow up and referred to Prosthodontics department for rehabilitation.
Conclusions: COVID-19 associated mucormycosis is aggressive and locally invasive, therefore early diagnosis and management is imperative to improve prognosis and help reduce morbidity. Mandible is not affected frequently by mucormycosis but is aggressive. Caution before attempting dental extraction which can worsen ongoing infection will ensure good outcomes, shorter hospital stay and better rehabilitation.

1. Introduction

COVID-19 is an infectious inflammatory condition that involves multiple organs. The chief aspects involved in its pathophysiology are (i) evidently elevated proinflammatory CD4 T cells and CD8 toxic granules, (ii) cytokine rush, (iii) hemoglobinopathy, (iv) hypercoagulable condition, (v) transformed iron metabolism and raised iron overload which results in hypoxia and multisystem failure in extreme cases.[1] The B.1.617.2 (Delta) type is believed to be accountable for the fatal second wave of SARS-CoV-2 in India. Several cases of mucormycosis through the second wave of COVID-19 have raised.

Insufficient data about mucormycosis of mandible is available in literature.

In this article, are presented three cases regarding mucormycosis affecting mandible and the surgical management for it given in our institute.

1. Mucormycosis affecting the right side of mandible.
2. Mucormycosis affecting the entire mandible.

* *Corresponding author.*
E-mail address: tejalbadhan@gmail.com (T. S. Badhan).

https://doi.org/10.18231/j.jooo.2023.010

2. Case Report

2.1. Case 1

A 57-year-old male patient came to the department with the chief complaint being exfoliation of lower teeth since 1 month. The patient was newly diagnosed with Diabetes Mellitus 2 months back. Random blood sugar level: - 242 mg/dl. Patient tested COVID-19 positive in the month of May 2021; admitted for 15 days; on 6L oxygen by Face mask for 4 days; on Tab Prednisolone for 5 days. On inspection, necrotic bone was seen from 34 to 45 region. 34 to 45 teeth started exfoliating gradually since 1 month. Incisional biopsy was done which was suggestive of Osteomyelitis with Mucormycosis. Bacterial culture was done to rule out any bacterial infection. Fungal culture was done which showed aseptate hyphae. The patient was diagnosed with Osteomyelitis with Mucormycosis on the basis of clinical, radiographical and histopathological basis. The patient was planned for sequestrectomy under local anesthesia. All required investigations i.e. Hemogram, Prothrombin time, INR, Fasting and Post prandial blood sugar were done and were under normal limits. Physician fitness was taken for diabetes mellitus and patient was kept on diabetic control. Under local anesthesia, under all aseptic precautions, extraction of all remaining teeth was done. Sequestrectomy was done. Mechanical curettage and saucerization was done. The wound was closed with non-resorbable 3-0 vicryl sutures. Procedure went uneventful. The patient was prescribed antifungal drug – Posaconazole post operatively with kidney function test monitoring.

Patient is kept on regular follow-up and referred to Prosthodontics department for the purpose of rehabilitation.

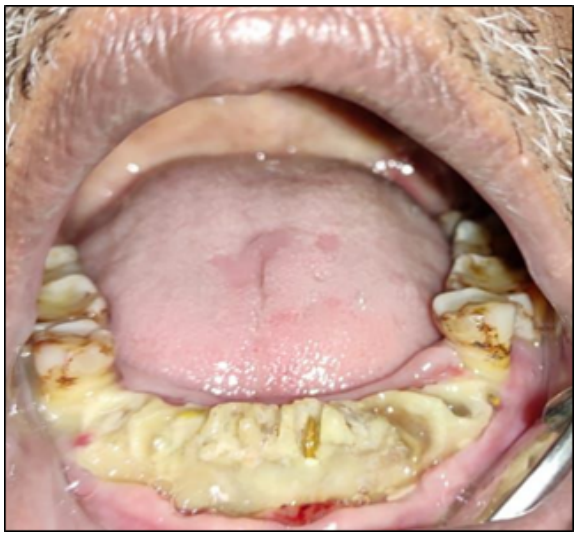

Fig. 1: Necrotic bone seen

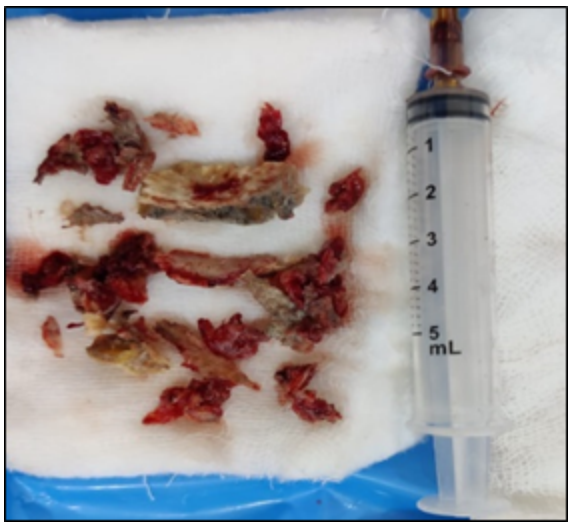

Fig. 2: Sequestrectomy done

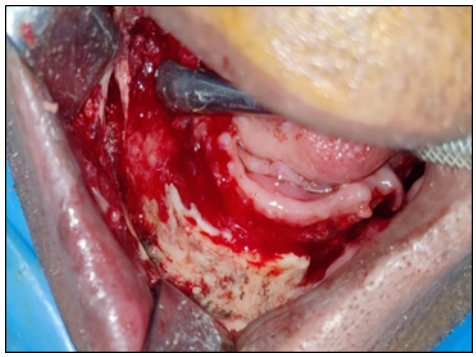

Fig. 3: Mechanical curettage and saucerization done

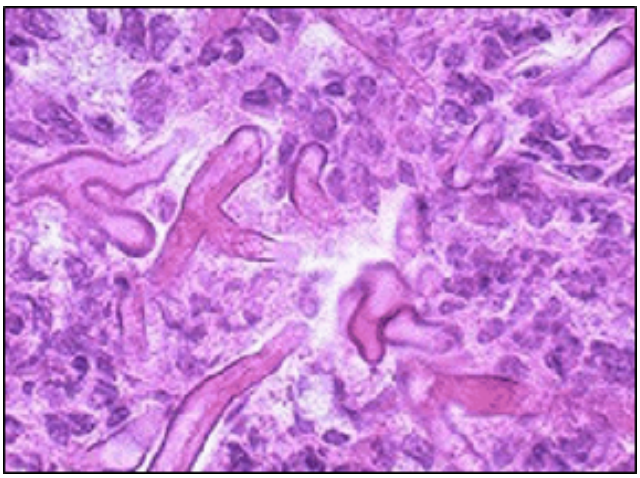

Fig. 4: Histopathological picture showing aseptate hyphae

2.2. Case 2

A 45-year-old male patient came to our department with the chief complaint being pain and pus discharge from right lower front and back gum region since 5 days. The patient had no relevant past medical history. Random blood sugar level: - 93 mg/dl. Patient tested COVID-19 positive in the month of May 2021; admitted for 10 days; on 4L oxygen by nasal prongs for 3 days; on Tab Prednisolone for 5 days. On inspection, draining sinus was noted in the region of 46, 47, and 48. Grade II mobility with respect to 44, 45, 46, 47, and 48. CBCT was done to locate the region. Axial section of CBCT showed lesion on right side of mandible. All investigations and management was done similar to the previous case.

Fig. 5: Draining sinus in the region of 46, 47, 48

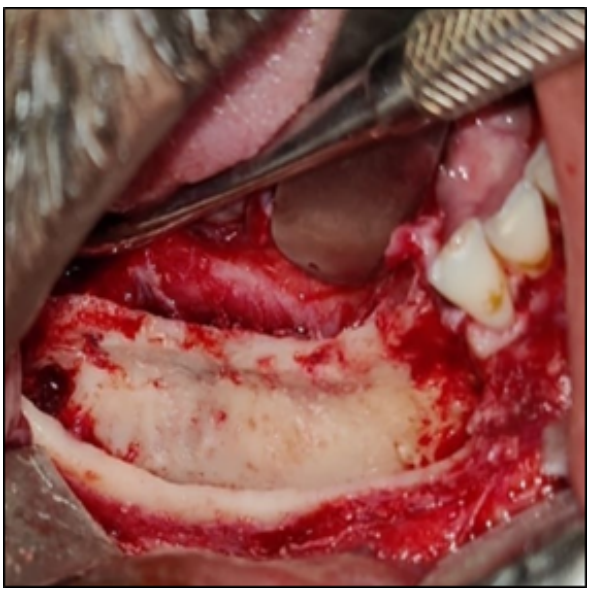

Fig. 6: Mechanical curettage and sequestrectomy was done

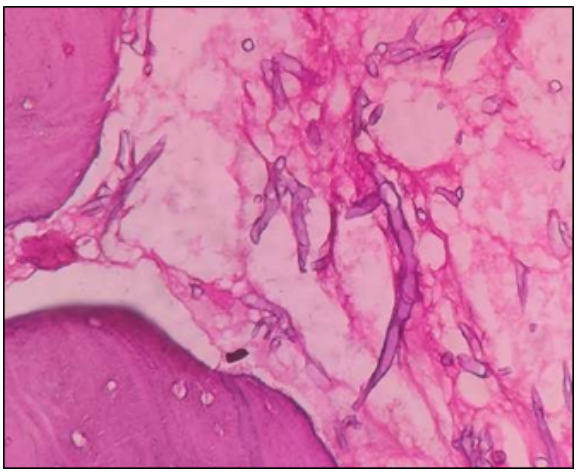

Fig. 7: Histopathological picture showing aseptate hyphae

2.3. Case 3

A 65-year-old male patient came to our department with the chief complaint being pain and teeth mobility on left lower back teeth region since 12 days. The patient had no relevant past medical history. Random blood sugar level: - 181 mg/dl. Patient tested COVID-19 positive in the month of April 2021; admitted for 12 days; on 2L oxygen by nasal prongs for 2 days; on Tab Prednisolone for 5 days. On inspection, draining sinus was noted with respect to 33, 34, 35, 36, 37, and 38 and grade II mobility with the same. CBCT was done to locate the region. Axial section of CBCT showed lesion on left side of mandible. All investigations and management was done similar to the previous case.

After 1 month, the patient again came back to the department with complaint being pain and teeth mobility with respect to right lower back teeth region. Draining sinus was noted with respect to 44, 45, 46, 47, and 48. CBCT was done to locate the region. Axial section of CBCT showed lesion on right side of mandible. The patient was again managed by sequestrectomy under local anesthesia.

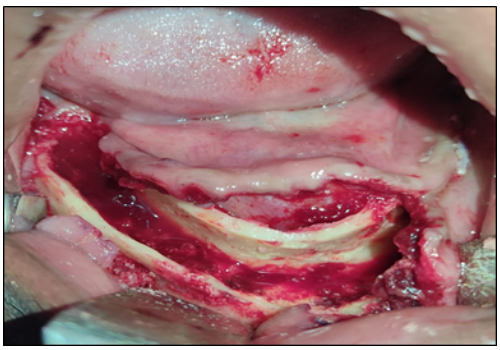

Fig. 8: Extraction of all mobile teeth with sequestrectomy done

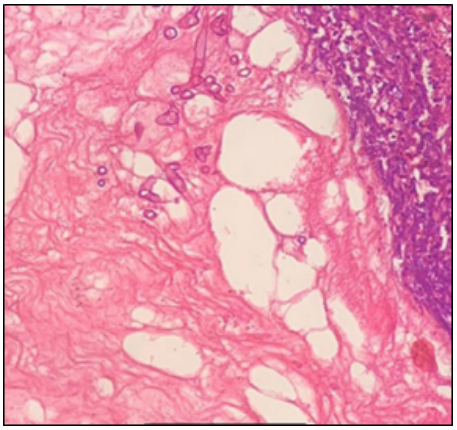

Fig. 9: Histopathological picture showing aseptate hyphae

3. Discussion

Mucormycosis is a rare but fatal infection that rarely overcomes in conditions in people with better host immunity. Patients who report with a triad of factors such as diabetes mellitus, steroid therapy and SARS-CoV-2 are at an increased risk of developing this infection.[2] The six known clinical types of mucormycosis are as follows- (1) Rhino cerebral mucormycosis, (2) Gastrointestinal mucormycosis, (3) Pulmonary and disseminated mucormycosis, (4) Burn wound mucormycosis, (5) CNS mucormycosis, (6) Endocarditis and vascular mucormycosis.[3]

The typical signs and symptoms of Rhino cerebral mucormycosis include: soft peri-nasal or peri-orbital swelling with discoloration and induration, ptosis of the eyeball and ophthalmoplegia, black necrotic turbinates, blood-tinged nasal discharge and ipsilateral facial pain, and multiple cranial nerve palsies.

Diagnosis of mucormycosis and is achieved based on the clinical features, radiological, histopathological and microbiological investigations. Other cutting-edge aids include Immunohistochemistry, In-situ hybridization, Polymerase chain reaction (PCR).[4] The final diagnosis of mucormycosis is attained only after a histologic examination. The prognosis of the infection is poor.[5]

The management of mucormycosis includes the early start of treatment, the surgical debridement, antifungal medication, and dealing with the primary disease. Amphotericin B (AmB) is the first-line drug; later, Posaconazole and Isavuconazole are recommended.[6] Surgical debridement or radical resection decreases advancement of fungal infection which increases survival rate.[1]

4. Conclusion

Mandible was rarely affected in all the Post-COVID mucormycosis patients. In mandible, the posterior region was more commonly affected. Mucormycosis is frequently a life-threatening infection. Early diagnosis, aggressive surgical debridement, long term antifungal drug therapy, rehabilitation and restoring the patient's immunity are the key.

5. Informed Consent

Informed consent of the patients whose clinical pictures are used in this article is taken.

6. Source of Funding

None.

7. Conflict of Interest

None.

8. Acknowledgement

I would like to thank everyone in my department for all the support and encouragement.

References

1. Jose A, Singh S, Roychoudhury A, Kholakiya Y, Arya S, Roychoudhury S. Current understanding in the pathophysiology of SARS-CoV-2-associated rhino-orbito-cerebral mucormycosis: A comprehensive review. *J Maxillofac Oral Surg*. 2021;20(3):373–80.
2. Ambereen A, Rahman SA, Rehman S, Zaidi K, Arif SH. Mandibular mucormycosis following SARS-CoV-2 infection - A case report and review of literature. *Clin Infect Pract*. 2021;12:100099.
3. Oswal NP, Gadre PK, Sathe P, Gadre KS. Mucormycosis of mandible with unfavorable outcome. *Case Rep Dent*. 2012;2012:2012. doi:10.1155/2012/257940.
4. Chugh A, Pandey AK, Goyal A, Soni K, Jain V, Thirunavukkarasu B. Atypical presentations of fungal osteomyelitis during post COVID-19 outbreak - Case series. *J Oral Maxillofac Surg Med Pathol*. 2022;34(5):622–7.
5. Moorthy A, Gaikwad R, Krishna S, Hegde R, Tripathi KK, Kale PG, et al. SARS-CoV-2, uncontrolled diabetes and corticosteroids-an unholy Trinity in invasive fungal infections of the maxillofacial region? A retrospective, multi-centric analysis. *J Maxillofac Oral Surg [Internet]*. 2021;20(3):418–25.
6. Prakash H, Chakrabarti A. Epidemiology of mucormycosis in India. *Microorganisms*. 2021;9(3):523.

Author biography

Kanchan M Shah, Head of Department

Tejal Sanjay Badhan, PG Student https://orcid.org/0000-0003-3647-4964

Jayant S Landge, Associate Professor

Parul Goyal, PG Resident

Cite this article: Shah KM, Badhan TS, Landge JS, Goyal P. Mucormycosis of mandible – A rare case series. *J Oral Med, Oral Surg, Oral Pathol, Oral Radiol* 2023;9(1):47-50.