



REHABILITATION OF POST COVID MUCORMYCOSIS MAXILLECTOMY DEFECT

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Abstract;

Mucormycosis is an opportunistic fungal infection. It is a serious but rare fungal infection caused by mucormycetes. It mainly affects patients already having other health problems. If it invades maxilla, surgical resection and debridement of the affected areas results in maxillary defects. This article presents a case of prosthetic rehabilitation of hemi maxillectomy defects due to post COVID mucormycosis with cast partial denture.

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Introduction;

Mucormycosis is a serious but rare fungal infection caused by mucormycetes. Post COVID mucormycosis has had a devastating effects on the patients mainly who have health problems or take medicines that lower body’s ability to fight germs and sickness. Mucormycosis is an opportunistic fungal infection. [1]

The infection begins in the nose and paranasal sinuses due to inhalation of fungal spores. [1,2] By direct invasion or through the blood vessels, it can spread to orbital and intracranial structures and invades arteries, leading to thrombosis that subsequently causes necrosis of hard and soft tissue. [1-3] If it involves maxilla, surgical resection and debridement of the affected areas results in extensive maxillary defects. The defect may be in the form of a small opening resulting in communication from the oral cavity into the maxillary sinus, or it may include portion of the hard and soft palate, alveolar ridge, and the floor of the nasal cavity. Facial disfigurement, hypernasal speech, masticatory difficulties, fluid leakage through the nose, acute and chronic episodes of sinusitis may be seen.

This article presents a case of prosthetic rehabilitation of hemi maxillectomy defects due to post COVID mucormycosis with cast partial denture.

Case report

A 65 year-old male patient reported to the clinic with a chief complaint of difficulty in consumption, mastication of food and unintelligible speech. Intraoral examination revealed small maxillary defect on the right side with oroantral communication and partially edentulous arch.

The patient underwent maxillectomy for post Covid-19 necrosis of maxilla due to mucormycosis 2 years back. The treatment plan was to fabricate cast partial metal framework. Treatment Design for a Class-II defect was selected for this case according to design principles described by Aramany in 1978. The remaining teeth were 21,22,23,24,25,26,27 and 28.

Figure 1



Figure 2



Figure 3



Figure 1,2,3- Intraoral effects

Figure 4



Figure 5



Figure 4 and 5 CBCT investigations

Figure 6



Figure 6 Secondary impression

Figure 7



Figure 7 Occlusal rim with framework

Figure 8



Figure 8 Teeth arrangement and Try in



Figure 9 Final Prosthesis and Insertion

Figure 10



Figure 10 Insertion

- A preliminary impression of the defect was made with putty impression material (GC Flexceed) wrapped in a gauze piece and picked

up with irreversible hydrocolloid impression material (Tropicalgin, Zhermack) using a stock tray. After obtaining the primary cast, a special tray was fabricated with self-cure acrylic resin (DPI RR Cold Cure).

- Border moulding was done with greenstick material (DPI Pinnacle tracing sticks) and the full extent of the defect was recorded using putty impression (GC Flexceed) and a light body wash impression was made to record the undercuts which aid in anatomic retention. Figure 6
- The master cast was obtained with Die stone (type IV dental stone),(Kalstone; Kalabhai).
- The cast partial denture framework was fabricated and a heat cure temporary denture base was attached to it.
- A modelling wax occlusal rim was made to record bite registration and framework trial was done. Figure 7
- Teeth arrangement and try-in were done. . Figure 8
- Occlusion, aesthetics, and phonetics were evaluated and found to be acceptable by the patient. The position of teeth was verified with phonetic tests that made the patient to pronounce /s/, /f/, /v/, and /th/ sounds.
- The position of maxillary posterior teeth was guided by the position of mandibular posterior teeth.
- The cast partial framework had the following design: Cingulum rest seat on,23; Mesial rest seat on 25 and 27; Distal rest seat on 24 and 26 and a C-clasp on 11. I bar on 21.
- Final processed prosthesis was delivered to the patient .Occlusal adjustments were done to prevent dislodgement during excursions. The extensions of the prosthesis were checked and adjusted to eliminate any soft tissue impingement in the area of the defect. The patient was trained regarding the removal and insertion of prosthesis and post insertion and maintenance instructions were given Figure 9. 10. The patient was satisfied with the prosthesis upon follow-ups and was able to maintain speech and mastication.

Discussion

There are several treatment options for the rehabilitation of partial edentulism. Depending on several given diagnostic factors and a patient's perspective, best treatment plan should be selected for the patient.

The aim of above documented case was to rehabilitate prosthesis which not only provides adequate functions of chewing, swallowing, and speech . The fabrication of a cast partial denture in

patients with maxillary defects can provide retention and stability .

There are numerous other techniques available for taking support for prosthetic rehabilitation by placement of zygomatic and pterygoid implants. it must be used with a thorough knowledge and understanding of prosthodontic principles. The development of a stress-directing attachment design as well as the proper distribution of forces between the residual ridge and abutment teeth should be goals for successful treatment. [6,7] In extensive maxillary defects the aim was to eliminate the communication of the oral and nasal cavity by giving an obturator prosthesis which not only provides adequate functions of chewing, swallowing, and speech but is also light in weight and gives an acceptable esthetic appearance. Extension of the hollow bulb into the maxillary defect helps in providing resonance during the speech. The fabrication of a hollow bulb obturator in patients with severe maxillary defects can provide retention and stability by decreasing the weight which otherwise is difficult to achieve. [8,9] Owing to great psychological and financial impact maxillary resections and long Covid symptoms had on these patients, cast partial denture agreed upon as they had shorter treatment duration, were relatively inexpensive and provided a sense of immediate relief to the patient in terms of phonetics and mastication.

Conclusion

Fabrication of cast partial denture is an easy and inexpensive method of prosthetic rehabilitation following maxillary resection due to post Covid Mucormycosis. This provides satisfactory esthetics, phonation and function and improves the patient's quality of life and confidence.

References;

1. R Soman A Sunavala Post COVID-19 Mucormycosis - from the Frying Pan into the Fire J Assoc Physicians India 2021;69:1134
2. LY Hsu P Ying Chia J Fy Lim The Novel Coronavirus (SARS-CoV-2) Epidemic Ann Acad Med Singap 49:1051-1057
3. C Leitner J Hoffmann M Zerfowski S Reinert Necrotizing soft tissue lesion of the face J Oral Maxillofac Surg 2003;61:44-49
4. M A Pogrel C E Miller A case of maxillary necrosis J Oral Maxillofac Surg 2003;61:44-49
5. FD Gennaro D Pizzol C Marotta M Antunes V Racialbuto N Veronese Coronavirus diseases (COVID-19) current status and future

6. Elliot Feinberg, Edward M. Feinberg. Attachment retained partial denture. Nys Dental Journal march 1984; 3:161- 164.
7. Burns DK, Ward JE. A review of attachments for removable partial denture design: Part 2. Treatment planning and attachment selection. Int J Prosthodont 1990; 3:169-174.
8. U M Mani K Mohamed A Krishna Kumar A Inbarajan A modified technique to fabricate a complete hollow obturator for bilateral maxillectomy in a patient with mucormycosis-A technical case report Special Care Dent 2019;39:661-616.
9. M Gowda M P Shashidhar P Prakash N K Sahoo Rehabilitation of a defect secondary to sino-orbital mucormycosis-A prosthodontic challenge I P Ann Prosthodont Restor Dent 2021;71:415.