Prosthetic rehabilitation of mucormycosis patients in the COVID-19 pandemic.

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Abstract

The COVID-19 pandemic has affected people worldwide, leading to psychological, financial, educational and economic distress. The world has been experiencing numerous post COVID-19 complications. In India the emergence of mucormycosis is being reported with an alarming rise in the number of cases. Often, mucormycosis requires surgical debridement of the infected tissues. Prosthetic rehabilitation is not only involved in pretreatment planning but also in the construction of temporary or permanent post treatment appliances which help the patient to live a normal life. The prosthetic rehabilitation of a patient affected by mucormycosis by means of a hollow bulb obturator supported by cast partial denture framework along with an extra coronal attachment.

Keywords: Mucormycosis, COVID-19 pandemic, Cast partial denture, Extra coronal attachment, Hollow bulb obturator.

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Description

The first case of COVID-19 was reported in Wuhan city, China. Since then the world has been suffering from this pandemic and by each passing day, post COVID-19 complications have raised in the society. The surfacing of mucormycosis is being reported globally, with a dreadful rise in the number of cases from developing countries [1]. The treatment includes four steps: earlydiagnosis, reversal of underlying predisposing risk factors, if possible, surgical debridement where applicable, prompt antifungal therapy, early post-surgical rehabilitation. The prosthodontics serves as a full member of the rehabilitation team and ordinarily is involved in pre-treatment planning as well as the construction of temporary or permanent post treatment appliances. Frequent observations in such patients include: altered bolus transport, drooling, altered nasal reflux and aspiration which may lead to more serious problems of pneumonia, weight loss and dehydration. Many recent developments in polymer research and in the fabrication of appliances have permitted the maxillofacial prosthodontics to rehabilitate these patients physically and psychologically. Thus, this case report describes the prosthetic rehabilitation of mucormycosis patient by means of cast partial denture with extra coronal attachment and a unique way to fabricate a hollow bulb obturator.

A 51-year-old female patient reported to the department of prosthodontics with a chief complaint of nasal discharge during eating, swallowing and unclear sound. The medical history revealed that the patient was diabetic and suffered from COVID-19 infection 6 months back. After 3 months patient was diagnosed with mucormycosis and debridement along with surgical resection was carried out. Intra oral examination revealed a large maxillary defect extending from the right alveolar bone till the tuberosity, along with missing base of maxilla and palatal bone which is categorized as aramany class IV defect [2]. Since the intra oral defect was very large and only three teeth were remaining, prosthetic rehabilitation became difficult because of the weight of the prosthesis and inadequate bone support. To overcome this extra coronal attachment was utilized for the retention of hollow bulb obdurate supported by cast partial denture framework. The Irreversible hydrocolloid was used to make diagnostic impression with sterile gauze packed into the defect.

The surveying of the diagnostic cast followed by proper designing of the prosthesis was carried out. Since only few teeth were remaining in the arch; additional retention was planned by fabricating splinted prosthetic crowns along with the extra coronal attachment. The Tooth preparation was done and impression was made with silicon impression material. The crown prosthesis trial was done, custom tray was fabricated and border moulding was carried out using head and neck movements, breathing and swallowing exercises and pick up impression of crown prosthesis with the female component of the attachment was done for the fabrication of cast partial denture. After the fabrication of cast partial denture, porcelain fused to metal crowns with extra coronal attachment was cemented intraorally. The cast partial denture framework trial was done. The face bow record with jaw relation was mounted on the semi adjustable articulator [3].

Since the defect was large an innovative method to make the obturator hollow was done with the help of thermoplastic bulb for the fabrication of hollow bulb, first a thermoplastic template was adapted on the master cast. The defect area was packed with gauze followed by adapting another template over it to seal the open end of the obdurate. A small part of the 2nd adapted template was cut and the packed gauze was removed

with the help of tweezers. The cut end than sealed with heated flame forming the lid of the bulb. This thermoplastic bulb was incorporated into the defect during packing which made the bulb light weighted and did not require sealing with self-cure acrylic which can be a potential site for micro leakage [4].

The final denture was inserted with intra oral lining of the defect area with soft tissue liner and the patient was recalled after 24 hrs to check for any discomfort caused by the bulb part of the prosthesis [5].

Conclusion

The treatment of mucormycosis comprises of a multidisciplinary approach which include proper diagnosis, treatment planning and post-surgical rehabilitation. Prosthodontic rehabilitation with an obturator along with cast partial denture accounts for complete rehabilitation of oral, physical, physiological and psychological wellbeing of the patient.

References

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