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ORIGINAL ARTICLE **OPEN ACCESS**

A Case Report- Rehabilitation of Maxillary Arch Defect In Young Female With CRPD

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ABSTRACT
Maxillary necrosis can be caused by bacterial infections such as osteomyelitis, viral infections such as herpes zoster, or fungal infections such as mucor-mycosis, aspergillosis, and others. Mucor-mycosis is an opportunistic fungal infection that primarily affects immunocompromised patients. When the maxilla is involved, surgical resection and debridement of the necrosed areas can result in extensive maxillary defects. The clinician will face numerous challenges in order to replace not only missing teeth, but also lost soft tissues and bone structure, including the hard palate and alveolar ridges at various extents. The prosthesis (Obturator) lacks a bony base, and the lost structures of the posterior palatal seal area compromise prosthesis retention. Furthermore, the scarred and tense post-surgical soft tissues exert strong dislodging forces. This case study and with prosthetic rehabilitation describes the prosthetic rehabilitation of maxillary necrosis in a partially edentulous 37 y/o female patient caused by Mucor mycosis in post covid patient with history of hospitalisation.
KEYWORDS: *Mucor-Mycosis, Covid, Cast Partial Denture, Maxillary Arch Defect.*

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INTRODUCTION

Covid is a global spread pandemic that has emerged by the human to human transmission of novel coronavirus. For some it was very rewarding in terms of medicine business and hospital setup but for some it was permanent damage of life and vital part and studies are evident that patients even after recovering from covid has post covid symptom include fatigue, fever, respiratory symptoms including range of infections with opportunistic infection one of them was Mucor mycosis which effected upper (maxilla) arch [1]. Because of its high vascularity, the maxilla is rarely necrotic. Maxillary necrosis after a pandemic is caused by bacteria and viruses. Virus that cause viral infection are herpes and bacteria which cause infection are osteomellitus mucor mycosis is a infection that caused by fungus.

Mucormycosis is an infection that primarily affects individuals who immunecompromised. Inhalation of fungal spores causes infection ofnose and other sinuses around nose such as para- nasal sinuses. This infection can go in deeper structures such underlying orbit sometime it can invade till cranium and effect intracranial soft tissues as well hard tissues [2]. In severe cases, the fungus can enter into arteries, causing stoppage of blood supply and necrosis of tissues [3-4]. Although mucor-mycosisinduced maxillary osteomyelitis is not very common, it can occur in the presence of a number of risk factors, including malnutrition, immunosuppression, tumors, diabetes, kidney failure, drug abusers and steroid therapy [4-5]. When dealing with the maxilla, surgical treatment and debridement of damaged areas can result in extensive defect in the bone of maxilla. The flaw could manifest as a small opening that allows communication between the oral cavity and the maxillary sinus [6]. Prosthodontic rehabilitation can correct and close the defect at the site with improvement in function speech and aesthetics of patient.

SURGICAL RESECTION

Surgical resection was done in department of oral surgery in Sgt University till the extension of the defect and after resection immediate/ temporary surgical obturator/ stent fabricated by department of prosthodontics for better recovery after joint discussion from both the departments to aid in fast healing after resection (fig 1).

Figure 1. Showing Sutured Area after Resection.

POST- SURGICAL PHASE b(OBTURATOR PROSTHESIS)

The post-surgical impression cast was used to create the temporary obturator/stent without teeth only involving defect [7]. The patient was advised to wear a stent for two weeks due to avoid any soft tissue changes that occur within the defect during the organisation and healing period, decrease postsurgical bleeding, packing of skin graft in better position, prevent food lodgement into sutures, which will lead to a decrease in better infection or contamination control (fig 2).

Figure 2. The new lining material can be installed or replaced

AFTER HEALING

After a 6-month wait for prosthesis fabrication, the patient returned with complain , difficulties in eating, speech, as well as poor aesthetics because of missing front teeth [8]. An aesthetic set back occurred when the middle third of the face appeared to collapse (fig 3).

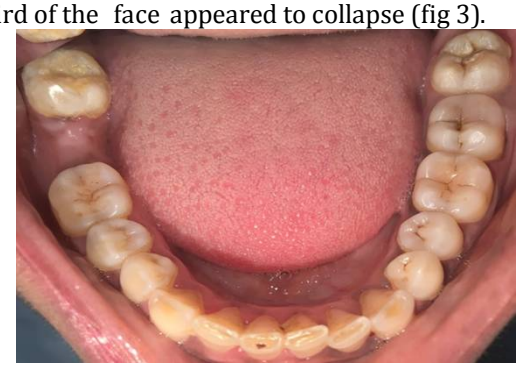

Figure 3. After healing

FINAL PROSTHETIC PHASE/ DEFINITIVEPROSTHESIS PHASE

Before planning any treatment both intra- oral as well extra oral examination was done. On intra oral examination of patient healed maxillary defect with outn any oro- antral communication was found. Teeth present were 26, 27, 12,13,14,15,16,17 with good periodontal support. In mandibular arch only 36 tooth was missing. Patient given option of implant supported fixed prosthesis and CAD/ CAM fabricated fixed as well removable prosthesis [9]. But patient opted for removable cast partial denture because of financial conditions and not willingness for further surgical treatment in oral cavity.

METHODOLOGY

Diagnostic impressions were made with irreversible hydrocolloid impression material of both maxillary and mandibular arches and diagnostic cast were poured for surveying and initial treatment planning was done (Fig 4).

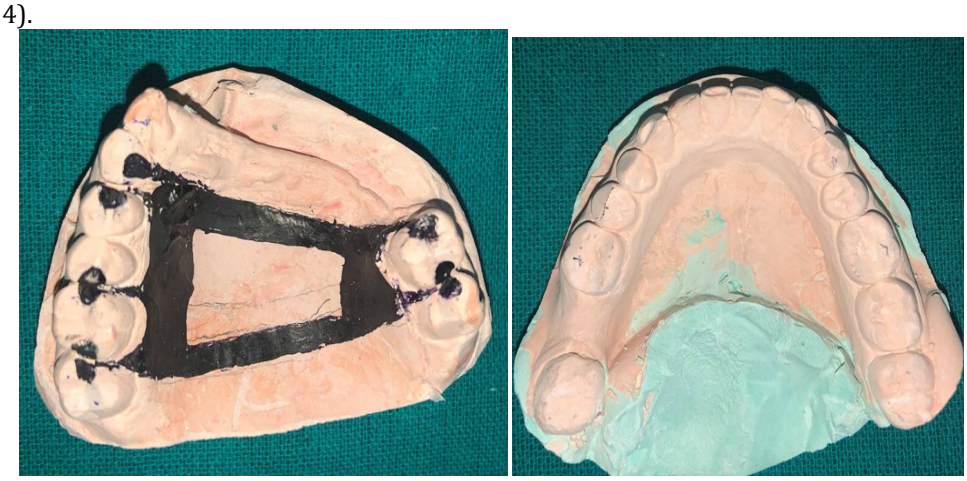

Figure 4. Impressionmaterial of both maxillary and mandibular arches

On intraoral examination well healed residual maxillary defect with oro-antral communication due to partial maxillectomy on right side was found. On right side 11, 12, 13, 14, 15, 16, 17, 18 and on left side 21 teeth and alveolar ridge were missing with obliteration of labial and buccal vestibule on same side. On panaromic radigraphic examination we observed missing maxillary teeth on the right side with a radiolucency extending into the maxillary sinus. On intraoral examination well healed residual maxillary defect with oro-antral communication due to partial maxillectomy on right side was found [10]. On right side 11, 12, 13, 14, 15, 16, 17, 18 and on left side 21 teeth and alveolar ridge were missing with oblitera-tion of labial and buccal vestibule on same side. On panaromic ra-digraphic examination we observed missing maxillary teeth on the right side with a radiolucency extending into the maxillary sinus. On intraoral examination well healed residual maxillary defect with oro-antral communication due to partial maxillectomy on right side was found. On right side 11, 12, 13, 14, 15, 16, 17, 18 and on left side 21 teeth and alveolar ridge were missing with oblitera-tion of labial and buccal vestibule on same side [12-14]. On panaromic radigraphic examination we observed missing maxillary teeth on the right side with a radiolucency extending into the maxillary [15].

RESULT AND DISCUSSION

DOUBLE WAX SPACER was adapted on maxillary diagnostic cast for custom tray fabrication for definitive impression (fig 5). Mouth preparations were done and Final impressions were made with putty and light body in custom tray [16] (fig 6). Definitive cast poured from impression and block out on cast was done (fig 7). After duplication of definitive cast with refractory material wax pattern fabrication was done (fig 8). Casting done and trial was done in patient mouth to check fir of the CRPD (fig 9-10). Female patient complained of having trouble swallowing, eating, and having an unsightly appearance to the prosthodontics department in Sgt Dental College and Hospital. She received treatment for the same partial + maxillectomy due to a history of mucormycosis. On oral examination, only 36 teeth were gone from the mandibular arch while teeth 12, 13, 14, 15, 16, 17, 26, 27 were present in the upper arch. Removable cast partial dentures were used to rehab patients [17-19]. On the patient, the prosthesis' border+extensions, functionality, aesthetics, and occlusion were assessed. In terms of retention, stability, support, and patient satisfaction, the final prosthesis performed satisfactorily [20]. Instructions were provided for maintaining dental hygiene and prosthetics. After three months and six months, the patient was summoned back for a routine visit to assess the state of the abutment teeth as well as their general and oral health [21-23]. The abutment teeth show no evidence of secondary caries, and no other pertinent symptoms or indicators were noticed. The patient was wholly happy with the prosthesis (fig 11).

Figure 5. Double wax spacer

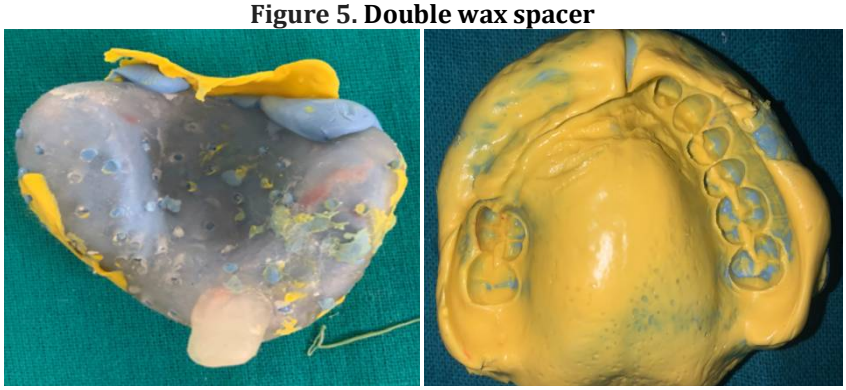

Figure 6. Final impression with putty and light body

Figure 7. Definitive cast

Figure 8. Wax pattern fabrication

Figure 9. casting and trial in patient mouth

Figure 10. Curing and final insertion

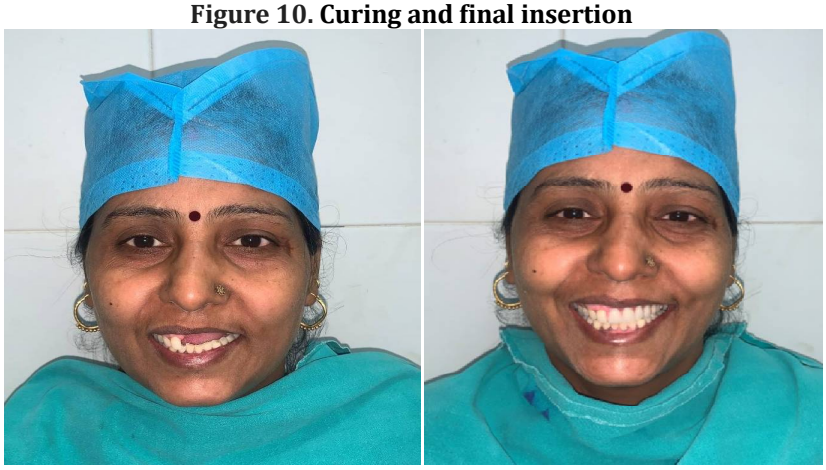

Figure 11. Final Photographs after definitive prosthesis

CONCLUSION

Definitive prosthodontic treatment, which aims to repair all anatomical and functional abnormalities, is one of the final procedures used. This clinical report details the prosthetic rehabilitation of the patient who underwent a partial+maxillectomy due to mucormycotic osteonecrosis. The patient took to her prosthesis well. The advantages of these prostheses were that the technique used was non-invasive, affordable, tissue tolerant, pleasing to the patient, pleasant to use, simple to build, and easy to clean. It was also stated that improvements in speech and mastication occurred as a result of its use.

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