Clinical Report

Rehabilitation of a compromised maxillectomy defect with a definitive hollow bulb obturator

Kulashekar N. Reddy, I. N. Aparna, Veena Hegde
Department of Prosthodontics, MCODS, Manipal, India

For correspondence
Dr. N. Kulashekar Reddy, PG Department of Prosthodontics, MCODS, Manipal University, Manipal, Udupi District, Karnataka - 576 104, India. E-mail: shekarblues@gmail.com

INTRODUCTION

The partially edentulous maxillofacial patient, in whom there is extensive loss of supporting bone, usually has had extensive surgery for a tumor or traumatic jaw injury. In many instances, the patient has such a gross jaw defect that a complete denture would be unmanageable, but a prosthesis stabilized by the remaining teeth would be functionally adequate. However, the problems of obtaining satisfactory denture support are greatly magnified.[1] In all partial denture treatment, we strive to preserve the health of the remaining teeth by not subjecting them to stress exceeding their physiologic limit. This is a greater problem in maxillofacial patients in whom the ridge tissue is more resilient and displaceable than that of even a badly resorbed ridge. The appliances must replace much lost tissue, and sometimes also support an obturator or stent. Thus the appliance itself, which may be both bulky and heavy, places considerable stress on the abutment teeth.

In the present case report a compromised Aramany[2] class II maxillectomy defect was treated with a definitive hollow bulb obturator.

CASE REPORT

A 33-year-old female patient reported to the Department of Prosthodontics with a chief complaint of loose maxillary prosthesis and pain in her upper left posterior teeth. Her past medical history revealed that she underwent right inferior partial maxillectomy (from 2nd premolar to 3rd molar) followed by radiotherapy (60 GY/30 # /6 weeks) as a treatment for mucoepidermoid carcinoma of the right palate and antrum, 12 years back. Five months later, a definitive obturator had been delivered replacing teeth 15, 16 and 17. Teeth 14, 24, 25, 26 and 27 were used as abutments.

Teeth 25 and 26 were extracted and resin teeth were added to the obturator. On examination she had gross decay of teeth 27 and 28 with grade III mobility, which was confirmed radiographically [Figure 1]. Their prognosis was confirmed to be hopeless. Teeth 14 and 24 had cervical caries underneath the cast circumferential clasps. The defect was seen crossing the midline. Soft palate motion was satisfactory. Salivation was adequate. Speech was defective and hyper nasal. There was deviation of the mandible to the right on opening.

The defect was Aramany class II but was compromised by the absence of posterior teeth and by the presence of a long edentulous span on the non-defect side. The defect crossed the midline, the antero-posterior length of the prosthesis was greater, and only a few teeth were present to serve as abutments.

Treatment plan included:

- Extraction of hopeless teeth 27 and 28
- Metal ceramic restorations on teeth 14 and 24
- Definitive two-piece hollow bulb obturator replacing teeth 15, 16, 17, 25, 26 and 27

Treatment

- U/L alginate impressions were made taking care to
Resin teeth were placed onto the sectional denture base which would also double as a lid for the obturator [Figure 7].
• Flashing and curing was done separately for the lid and obturator portion.
• Two sections were joined using autopolymerizing acrylic resin.
• Finishing and polishing was done and the denture was delivered after occlusal adjustment [Figure 8].
• The patient’s speech showed remarkable improvement.
• Satisfactory fit and retention was obtained by securing the wrought wire clasps.
• Her jaw movement had also improved as the cheek support had been restored.
• The patient was referred to the speech therapist for further habilitation.
• Post insertion check-up was done at one week, one-month and three-month intervals and the patient has been functioning normally.

DISCUSSION

Aramany class II defect generally provides a favorable situation for prosthesis construction when sound remaining teeth are present. The defect is unilateral and anterior teeth are left intact sometimes up to the second premolar. Esthetics is not greatly compromised. The defect does not cross the midline in classical resections.

Tripodal removable prosthetic design can be planned and cross arch stabilization achieved. The prognosis improves with increase in the number of teeth, and satisfactory retention, stability and support can be expected with minimized prosthesis movement.

In the present case, classical tripodal design was not possible as there was a long span posterior edentulous space on the non-defect side. The leverage forces falling on the abutment teeth were thus magnified. A few remaining abutment teeth were present. A full palatal major connector design was used along with the use of multiple guide planes and definitive rest seats on the canine and abutment teeth. Wrought wire circumferential clasps were incorporated to minimize the horizontal forces acting on the abutments.[1,3] The defect was aggressively engaged to obtain retention and support. The two-piece hollow bulb design was modified with resin teeth on the defect side of the lid. This further reduced the weight of the prosthesis while promoting a favorable palatal contour.

CONCLUSION

Maxillofacial defects are highly individual and require the clinician to call upon all his knowledge and experience to fabricate a functional prosthesis.
Figure 1: Pre operative intraoral view

Figure 2: Final impression

Figure 3: Crowns on abutment teeth

Figure 4: Waxing up the framework on refractory cast

Figure 5: Metal try in

Figure 6: Altered cast

Figure 7: Sectional denture base with teeth

Figure 8: Finished prosthesis
Without a definitive prosthesis, patients are not afforded the opportunity for complete rehabilitation. There are many individual presentations and varying challenges when providing patients with prostheses for acquired palatal deficiency and the restorative dentist has to be imaginative and innovative. As with any other successful treatment, the important feature is to be aware of the principles and to stick to them.\textsuperscript{[4]}

REFERENCES


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