Prosthetic rehabilitation of a patient after partial maxillectomy: A clinical report

SHOBA J. RODRIGUES, SHARON SALDANHA

Abstract

Malignant melanoma of the oral cavity is very rare. This clinical report describes a method for prosthetic rehabilitation of a patient with malignant melanoma of the palate following partial maxillectomy with a closed hollow interim obturator.

Keywords: Melanoma, obturator prosthesis, rehabilitation

Introduction

A considerable number of people each year acquire oral defects as a result of malignant disease, trauma, and congenital deformity. Malignant melanoma of the oral cavity is very rare, accounting for 0.2–8% of all malignant melanomas. While these lesions are easy to diagnose clinically on account of their pigmentation, they are usually asymptomatic and may be detected only when there is ulceration of the overlying epithelium or hemorrhage. This delayed detection may be the reason for the poor prognosis of oral malignant melanoma, with the 5-year survival rate being between 15 and 38%. Treatment options include surgery, radiation therapy, and chemotherapy.[1-5]

In recent years, newer treatment options such as cryotherapy, immunotherapy, cytotoxic treatment, photodynamic treatment, and hypothermal treatment have been used in conjunction with conventional treatment methods for head and neck cancers.[6] However, most of these methods result in unwanted or incapacitating defects requiring immediate short- or long-term management and rehabilitation procedures.

Rehabilitation can be accomplished either surgically or prosthetically.[2,5,7] The choice of rehabilitation depends upon the site, size, etiology, severity, age, and the patient’s wishes. However, age, general medical condition of the patient, radiation therapy, anatomic complexity, possibility of recurrence, appearance of the area to be rehabilitated, complexity of the surgical procedure, and the patient’s refusal to undergo further surgery may contraindicate surgical reconstruction,[4,7] resulting in a major defect. Prosthetic rehabilitation of such patients then has considerable advantages, in that prosthesis offers the clinician and the patient the means to observe the healing wound for recurrence of the disease, esthetic improvement, technical simplicity, and inexpensive care.

The traditional treatment sequence for a patient requiring a maxillectomy is the initial insertion of an immediate surgical obturator at the time of surgery or soon thereafter, an interim obturator used after initial healing until the tissues are stabilized (approximately 3 months), and a definitive obturator prepared after the tissues have stabilized, with few appreciable changes.[8,9]

Interim obturator prosthesis is normally placed 7–10 days after surgery.[8-13] As healing progresses, an interim obturator used after initial healing until the tissues are stabilized (approximately 3 months), and a definitive obturator prepared after the tissues have stabilized, with few appreciable changes.[8,9]

There are numerous references in the literature that describe various methods for fabricating open and closed hollow obturator prostheses. Both types of obturators allow for the fabrication of a lightweight prosthesis that is readily cleanable, these types of prostheses often collect moisture and require frequent cleaning or placement of a vent to eliminate the collection of moisture in the hollow section. Removable lids can also be placed in the open hollow portion to prevent this accumulation.[11] Closed obturators have the advantage of eliminating the pooling of moisture while extending superiorly into the defect and reducing air space.[11] Often, patients present with the need for an extraoral prosthesis in addition to an
intraoral prosthesis. The closed hollow obturator benefits these patients by allowing the attachment of intraoral and extraoral prostheses to each other, thus providing additional retention and stability.

Many different materials have been used for the fabrication of the hollow obturator. Silicone rubber, although advantageous in certain clinical situations, is porous in nature and has poor long-term durability, requiring replacement on a routine basis. Visible light-polymerized resin has also been used; however, maximal strength and long-term durability of these obturators have not been assessed. Heat-processed acrylic resin has been proven to be one of the most durable, tissue-compatible materials to date for the fabrication of this prosthesis.

The need for a lightweight, watertight obturator fabricated from a strong, durable material is quite evident. A previously described method uses a plaster index for the fabrication of the hollow section of the obturator while simultaneously fabricating a heat-processed denture base used for establishing maxillomandibular records before final waxing and complete processing of the obturator. Mahdy also presented a double flask technique that allows for the complete fabrication of the obturator from the wax try-in stage to completion of the prosthesis. However, this method requires several additional laboratory steps that involve heat processing the obturator and tooth portion with two separate denture flasks before heat processing these sections together. Acrylic resin may also seep into the hollow portion during the final processing stage.

This clinical report describes a method for prosthetic rehabilitation of a patient with malignant melanoma of the palate following partial maxillectomy with a closed hollow interim obturator on the lines of a described article.

This procedure is carried to completion on clinical verification of the wax trial denture with three sections of a denture flask with due consideration given to esthetics. Ease of fabrication while controlling the thickness of the hollow portion and eliminating leakage and discoloration are several advantages of this technique, while minimizing laboratory and clinical appointment time.

Case Report

A 69-year-old man, diagnosed with malignant melanoma of the maxilla [Figure 1], had undergone a partial maxillectomy [Figure 2] and was referred to the Department of Prosthodontics, Manipal College of Dental Sciences, Mangalore, India. Immediate surgical reconstruction was not recommended due to the need for further treatment with radiation therapy. The patient received postoperative external beam radiation therapy by anterior direct beam on a telecobalt machine with a total dose of 60 Gy in 30 fractions over a period of 6 weeks. The patient tolerated the radiation well and was subsequently referred for possible prosthetic restoration of the oral defect after radiation therapy. On examination of the defect, it was noted that the partial maxillectomy was done on the right side. Various modalities of prosthetic reconstruction were discussed with the patient and the patient indicated a desire for an economical solution. Hence, a heat-polymerizing interim acrylic resin prosthesis was planned, and the expectations of this prosthesis were explained to the patient.

The impression of the defect was obtained with irreversible hydrocolloid (Imprint; Dental Products of India Ltd, Mumbai, India). The impression was removed and poured in Type III dental stone (Dentstone; Pankaj Industries, Mumbai, India) [Figure 4]. Maxillomandibular jaw relations were obtained and prosthesis was waxed to form. On completion, the wax prosthesis was verified at the trial insertion appointment. The wax prosthesis was invested and the wax was eliminated. A mold was prepared and packed using three sections of a denture flask [Figures 5 and 6]. The prosthesis was inserted into the defect and the patient was instructed on home care and prosthesis maintenance [Figures 7–10]. To sanitize the wound, the patient was instructed to gently remove any exudates with a wet cotton
tip soaked with a 5% Betadine solution (Win-Medicare, New Delhi, India) and to clean the intaglio surface of the prosthesis once a day. The patient was scheduled for the first post-insertion adjustment 3 days after the insertion. At the first post-insertion appointment, the surgical wound was observed to ensure health of the tissues, to relieve the prosthesis for pressure areas on the tissues, to compensate for processing changes, and to emphasize hygiene and home care. The patient was placed on a 3-month recall for evaluation and observation of any recurrence.

**Conclusion**

Malignant melanoma of the oral cavity is very rare, accounting
for 0.2–8% of all malignant melanomas. This clinical report describes a method for prosthetic rehabilitation of a patient with malignant melanoma of the palate following partial maxillectomy with a closed hollow interim obturator. Ease of fabrication while controlling the thickness of the hollow portion and eliminating leakage and discoloration are several advantages of this technique, while minimizing laboratory and clinical appointment time, giving due considerations to esthetics.

Acknowledgment

Mr. Sunil, Laboratory Technician, is gratefully acknowledged.

References

1. Fradis M, Podoshin L, Gertner R, Sabo E. Squamous cell carcinoma of the nasal septum mucosa. Ear Nose Throat J 1993;72:217-21.
2. Fornelli RA, Fedok FG, Wilson EP, Rodman SM. Squamous cell carcinoma of the anterior nasal cavity: A dual institution review. Otolaryngol Head Neck Surg 2000;123:207-10.
3. DiLeo MD, Miller RH, Rice JC, Butcher RB. Nasal septal squamous cell carcinoma: A chart review and meta-analysis. Laryngoscope 1996;106:1218-22.
4. Comprehensive management of head and neck tumors, 2nd ed. In: Thawley SE, Batsakis JG, Lindberg RD, Panje WR, Donley S, editors. St. Louis: Elsevier; 1998. p. 526-7.
5. McGuirt WF, Thompson JN. Surgical approaches to malignant tumors of the nasal septum. Laryngoscope 1984;94:1045-9.
6. Carcinomas of the head and neck. In: Jacobs C, editor. Boston: Kluwer Academic Publishers; 1990. p. 83-113, 235-7.
7. Harrison DF. Total rhinectomy: A worthwhile operation?. J Laryngol Otol 1982;96:1113-23.
8. Curtis TA, Beumer J 3rd. Restoration of acquired hard palate defects: Etiology, disability, and rehabilitation. In: Beumer J, Curtis TA, Marunick MT, editors. Maxillofacial rehabilitation: prosthodontic and surgical considerations. St. Louis: Ishiyaku Euro America; 1996. p. 225-84.
9. Frame RT, King GE. A surgical interim prosthesis. J Prosthet Dent 1981;45:108-10.
10. Kouyoundjian JH, Chalian VA. An interim obturator prosthesis with duplicated teeth and palate. J Prosthet Dent 1984;52:560-2.
11. Wolfardt JF. Modifying a surgical obturator prosthesis into an interim obturator prosthesis: A clinical report. J Prosthet Dent 1989;62:619-21.
12. DaBreo EL, Chalian VA, Lingeman R, Reisbick MH. Prosthetic and surgical management of osteogenic sarcoma of the maxilla. J Prosthet Dent 1990;63:316-20.
13. Kaplan P. Stabilization of an interim obturator prosthesis using a denture duplicator. J Prosthet Dent 1992;67:377-9.
14. Brown KE. Clinical considerations improving obturator treatment. J Prosthet Dent 1970;24:461-6.
15. Taicher S, Rosen AG, Arbree NS, Bergen SF, Levy M, Lepley JB. A technique for fabrication of polydimethylsiloxane-acrylic resin obturators. J Prosthet Dent 1983;50:65-8.
16. Benington IC. Light-cured hollow obturators. J Prosthet Dent 1989;62:322-5.
17. Polyzois GL. Light-cured combination obturator prosthesis. J Prosthet Dent 1992;68:345-7.
18. Minsley GE, Nelson DR, Rothenberger SL. An alternative method for fabrication of a closed hollow obturator. J Prosthet Dent 1986;55:485-90.
19. EI Mahdy AS. Processing a hollow obturator. J Prosthet Dent 1969;22:682-6.
20. McAndrew KS, Rothenberger S, Minsley GE. An innovative investment method fabrication of a closed hollow obturator prosthesis. J Prosthet Dent 1998;80:129-32.

How to cite this article: Rodrigues SJ, Saldanha S. Prosthetic rehabilitation of a patient after partial maxillectomy: A clinical report. Contemp Clin Dent 2011;2:355-8.

Source of Support: Nil. Conflict of Interest: None declared.