

*Case Report***Prosthetic Rehabilitation of a Patient with Limited Mouth Opening
Consequent to Partial Maxillectomy: A Clinical Report**Shabir A Shah^{1*}, Talib Amin Naqash^{1**@}, Sabzar Abdullah^{1**}, Nazia Majeed Zargar^{1***}, Sunil Jangral²

* Associate Professor, ** Resident, *** Registrar

¹Department of Prosthodontics, Government Dental College, Srinagar, J&K²Government Dental College, Srinagar, J&K

@Correspondence Email: go4talib@yahoo.com

*Received: 13/01/2013**Revised: 20/02/2013**Accepted: 26/02/2013***ABSTRACT**

Squamous cell carcinoma of maxillary alveolar process and palate accounts for 1-5% of all the neoplasm's of the oral cavity. This clinical report describes a method for prosthetic rehabilitation of a patient with squamous cell carcinoma of maxilla following partial maxillectomy and orbital exenteration with a prosthetic obturator.

Keywords: Oral cavity, Obturator prosthesis, Squamous cell carcinoma, Maxillectomy, Hard and Soft palate, Prosthodontic rehabilitation.

INTRODUCTION

A considerable number of people each year acquire oral defects as a result of malignant disease, trauma and congenital deformity. Malignant tumors of the upper gum and hard palate account for 1-5% of malignant neoplasms of the oral cavity; two thirds of the lesions which involve these areas are squamous cell carcinomas. ⁽¹⁾ Most of these carcinomas are diagnosed late, when they invade the underlying bone.

Treatment options include surgery, radiation therapy, and chemotherapy. ⁽²⁾ 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. ⁽³⁾ However, most of these methods result in unwanted or incapacitating defects requiring immediate

short- or long-term management and rehabilitation procedures.

The term maxillectomy refers to partial or total removal of maxilla in a patient suffering from benign or malignant neoplasm. ⁽⁴⁾ The resultant surgical defect often includes part of hard and soft palate, which results in an or-antral and/or oro-nasal communication. ⁽³⁾

Rehabilitation can be accomplished either surgically (free flap transfer) or prosthetically (obturator). ⁽⁵⁾ 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.

Maxillary obturator prosthesis is more frequent treatment modality than surgical

reconstruction due to ease of fabrication and maintenance. ⁽⁶⁻⁹⁾ The prosthesis recreates a partition between oro and naso-pharynx and facilitates improvement in mastication, deglutition and speech intelligibility. ^(6,10)

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. ⁽¹¹⁾

Many different materials have been used for the fabrication of the 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. ⁽¹²⁾ Visible light-polymerized resin ⁽¹³⁾ 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. ⁽¹⁴⁾

CASE REPORT

A 60 year old man was surgically operated for the squamous cell carcinoma of a



Figure 1 Preoperative view of patient

Treatment

Impression making was difficult as there was limited mouth opening and the tissues on the operated side were taught and lacked normal

right maxilla infiltrating right orbital wall and right nasal cavity in SKIMS Soura, Srinagar (Figure 1). He was referred to the Department of Prosthodontics, Government Dental College Srinagar, India. Medical and dental history revealed surgical resection of the anterior and right posterior maxilla and corresponding alveolar bone and inferior wall of orbit due to T3N2M0 squamous cell carcinoma 4 months ago. Intraoral examination revealed well healed surgical defect in the maxillary right buccal vestibule creating an oro-antral communication (Figure 2). All the three anterior left maxillary teeth and complete mandibular dentition were examined clinically as well as radio graphically (panoramic) and found to be caries-free with no significant gingival/periodontal problems. Masticatory, phonetics and esthetics of the patient were severely affected due to missing maxillary structures. The patient was diagnostically classified as 'Class IV (severely compromised) clinical situation' according to the Prosthodontic Diagnostic Index (PDI) described by McGarry et al. ⁽¹⁵⁾ Various modalities of prosthetic reconstruction were discussed with the patient and the patient indicated a desire for an economical solution. Hence, heat-polymerizing resin prosthesis was planned, and the expectations of this prosthesis were explained to the patient.

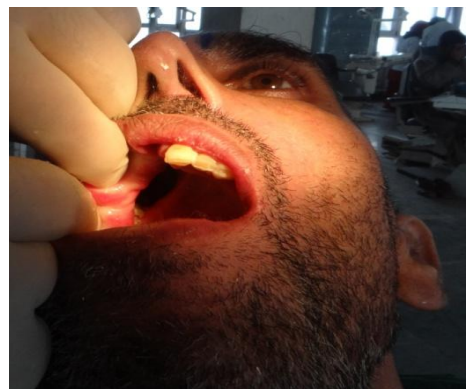


Figure 2 Intra oral view of defect

flexibility. There was difficulty in inserting the tray. The stock metal tray was modified with modeling wax for support of the impression material (Figure 2). After repeated softening of

wax and insertion of tray impression of the defect was obtained (Figure 3). The removal of the tray along with impression of whole defect area was challenging and technique sensitive. The impression was poured in Type III dental stone (Figure 4). Undercuts were blocked using modeling wax (Figure 5). After fabrication of temporary denture base and occlusal rim, Maxillomandibular jaw relations (Figure 7) were obtained. The wax prosthesis was verified at the trial insertion appointment (Figure 8). The wax prosthesis was processed and the wax was eliminated (Figure 9). Mold was prepared and packed using heat-polymerizing resin. The prosthesis was fabricated with bulb of obturator being hollow and inserted into the defect and the

patient was instructed on home care and prosthesis maintenance (Figures 9-12). To sanitize the wound, the patient was instructed to gently remove any exudates with a wet cotton tip soaked with a 5% Betadine solution and to clean the intaglio (impression) 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.



Figure 3 Modified stock metal tray

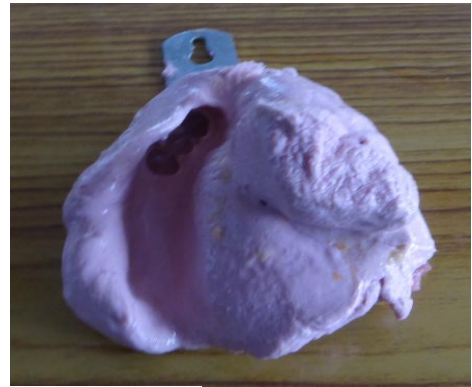


Figure 4 Impression



Figure 5 Master cast



Figure 6 Blocked undercuts of master cast



Figure 7 Maxillomandibular relationship



Figure 8 Trial insertion



Figure 9 Processing of obturator prosthesis.



Figure 10 Extra oral view of prosthesis



Figure 11 Intra oral view of prosthesis



Figure 12 Prosthesis in situ.

CONCLUSION

Malignant tumors of the upper gum and hard palate account for 1-5% of malignant neoplasms of the oral cavity; two thirds of the lesions which involve these areas are squamous cell carcinomas. This clinical report describes a method for prosthetic rehabilitation of a patient with squamous cell carcinoma of the maxilla following partial maxillectomy with an obturator. Rehabilitation restored the separation between the oral and nasal cavities, enabled the patient to swallow, maintained or provided mastication, supported the soft facial tissues, re-established speech and restored an aesthetically pleasing smile.

REFERENCES

1. Muller S, Waldron CA. Primary intra osseous squamous carcinoma. *Int J Oral Maxillofac Surg.* 1991; 20:362–5.
2. Thawley SE, Batsakis JG, Lindberg RD, Panje WR, Donley S, editors. 2nd ed. St. Louis: Elsevier; 1998. Comprehensive management of head and neck tumors; pp. 526–7.
3. Jacobs C, editor. Boston: Kluwer Academic Publishers; 1990. Carcinomas of the head and neck; pp. 83–113. (235-7).
4. Spiro RH, Strong EW, Shah JP. Maxillectomy and its classification. *Head Neck.* 1997; 19:309–314.
5. Thawley SE, Batsakis JG, Lindberg RD, Panje WR, Donley S, editors. 2nd ed. St. Louis: Elsevier; 1998. Comprehensive

- management of head and neck tumors; pp. 526–7.
6. Rieger J, Wolfaardt J, Seikaly H, Jha N. Speech outcomes in patients rehabilitated with maxillary obturator prostheses after maxillectomy: a prospective study. *Int J Prosthodont.* 2002; 15:139–144.
7. Mukohyama H, Haraguchi M, Sumita YI, Iida H, Hata Y, Kishimoto S, Taniguchi H. Rehabilitation of a bilateral maxillectomy patient with a free fibula osteocutaneous flap. *J Oral Rehabil.* 2005; 32:541–544.
8. Pigno MA. Conventional prosthetic rehabilitation after free flap reconstruction of a maxillectomy defect: a clinical report. *J Prosthet Dent.* 2001; 86:578–581.
9. Genden EM, Okay D, Stepp MT, Rezaee RP, Mojica JS, Buchbinder D, Urken ML. Comparison of functional and quality-of-life outcomes in patients with and without palatomaxillary reconstruction: a preliminary report. *Arch Otolaryngol Head Neck Surg.* 2003; 129:775–780.
10. Kornblith AB, Zlotolow IM, Goen J, Huryn JM, Lerner T, Strong EW, Shah JP, Spiro RH, Holland JC. Quality of life of maxillectomy patients using obturator prosthesis. *Head Neck.* 1996; 18:323–334.
11. 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. pp. 225–84.
12. 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.
13. Benington IC. Light-cured hollow obturators. *J Prosthet Dent.* 1989; 62:322–5.

14. Brown KE. Clinical considerations improving obturator treatment. J Prosthet Dent. 1970; 24:461–6.
15. McGarry TJ, Nimmo A, Skiba JF, Ahlstrom RH, Smith CR, Koumjian JH,

Arbree NS. Classification system for partial edentulism. J Prosthodont. 2002; 11:181–193.

How to cite this article: Shah SA, Naqash TA, Abdullah S et. al. Prosthetic rehabilitation of a patient with limited mouth opening consequent to partial maxillectomy: A clinical report. Int J Health Sci Res. 2013;3(2):82-87.
