CASE REPORT

Maxillofacial prosthesis in a palliative care for terminally ill patient with squamous cell carcinoma

Satheesh B Haralur,¹ Farhan K Shah²

¹Department of Prosthodontics, College of Dentistry, King Khalid University, Abha, Assir, Saudi Arabia
²Anatomy Section, Integrative Medical Biology, Umea University, Umea, Sweden

Correspondence to
 Dr Satheesh B Haralur,
 hb_satheesh@yahoo.com

SUMMARY

It is the god given right of every human being to appear human. – Ernest L. DaBreo.

A 55-year-old man with combined surgical and radiation therapy for buccal mucosa required the prosthetic rehabilitation for full thickness facial cheek defect. Apart from the aesthetics concerns, he had several oral debilities like difficulty in speaking, eating and swallowing. Though the carcinoma is known for high rates of morbidity and mortality, it is an obligation of a prosthodontist to help the patient to have a dignified and normal social life for their remaining lifespan. Palliative dental care's main focus is to re-establish the quality of the remaining life, in addition to the alleviation of physical and psychological suffering of the far-advanced disease patients. This case report summarises the importance of maxillofacial prosthesis in a postoperative malignancy and palliative care.

BACKGROUND

Squamous cell carcinoma is the most common type of oral cancer, which accounts for approximately 90% of the oral malignancies.¹ Higher numbers of patients with squamous cell carcinoma are reported from India compared with European countries and USA. The factors attributed for this increased incidence of oral cancers are poor socioeconomic conditions, alcohol abuse and habits like consumption of tobacco, smoking, the use of lime with betel nuts.²⁻³ Primary treatment of squamous cell carcinoma is radiation therapy or surgery, or both combined. Squamous carcinoma of the buccal mucosa is characterised by its aggressive nature and a high rate of locoregional failure.⁴

The major goal of cancer therapy is to not only eradicate the disease but also restore patients to a reasonably normal quality of life. Delayed reporting and late-stage presentation of patients are extremely common phenomena in the developing world. Multiple factors like lack of awareness, financial restrictions, fear of surgery, inaccessible primary care and social belief plays a significant role in delayed reporting.⁵⁻⁶ Paucity of approach to the treatment leads to poorer prognostic scenario of the patient with large tumour and distant metastatic lesions. Extensive surgical resection of maxillofacial malignancies leads to severe disfigurement of face in addition to psychological trauma owing to negative self-perception and difficulties in social integration.⁷ Large facial defects compromise the vital functions like respiration, mastication, speech,

swallowing and aesthetics. Methodology of rehabilitation is influenced by size-location of the defect and the prognostic scenario of the patient. Ideally, these defects should be surgically reconstructed. However, when surgical reconstruction is contraindicated or failed prosthetic rehabilitation must be initiated. Palliative care for the patient in advance stages of malignancy with poor prognosis should focus on alleviating both the physical and psychological pain. A prosthetic reconstruction of the facial defects helps in restoring functional disabilities and aid in morale recovery of the patient and his family members.⁸ Prosthetic palliative rehabilitation of a postsurgical defect will help the patient live a better life, it is considered an essential part of end-of-life care in advanced oral malignancy patients.⁹

This clinical report describes the prosthetic rehabilitation of a patient undergone surgical and radiological treatment for squamous cell carcinoma of the buccal mucosa as a palliative therapy. This article helps in reinforcing the importance of interim maxillofacial prosthesis alternative for failing surgical reconstruction of the defect in palliative care of in the terminally ill patient.

CASE PRESENTATION

Prosthodontic help was sought to rehabilitate a 55-year-old male patient who had undergone a surgical resection of T4a squamous cell carcinoma of the oral cavity from the JN Medical Hospital, Aligarh, India. The patient had a history of combined surgical resection and radiation therapy followed by failing operative reconstruction for squamous cell carcinoma of the buccal mucosa. On examination, the patient showed a buccomandibular full thickness facial cheek defect with an exposure of tongue, floor of mouth on the left side. Hemi-mandibulectomy of the affected side was also executed because of tumour invasion to a mandibular bone. There was a partial failure of surgical reconstruction with partially healed wound and slightly inflamed borders.

The patient had multiple difficulties ranging from the inability to take oral food, difficulty in swallowing, unintelligible speech, mouth breathing and drooping of saliva. The patient demonstrated deep psychological trauma owing to extensive tumour surgery and poor prognosis of the disease. His family members were also under great distress owing to the patient's grave symptoms (figure 1).

To cite: Haralur SB, Shah FK. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-009120

Figure 1 Photograph showing maxillofacial defect.

TREATMENT

There was an immediate need of a prosthesis to alleviate the patient's physical and psychological suffering. The restoration of the facial defects was imperative to help the patient to thrive in whatever precious time left. Fabrication of the silicone cheek prosthesis was planned as an interim prosthesis to restore the defect. The patient was explained about the fabrication procedures, limitation and maintenance of the prosthesis.

The patient was made to sit in the supine position; petroleum jelly was applied onto the adjacent unaffected area. The defect

Figure 3 Working cast for the defect.

boundary was outlined on the face, rolled modelling wax was adapted along the defect boundary to confine the impression material. Impressions of the defect and surrounding areas were made with irreversible hydrocolloid (Zelgan, Dentsply India Ltd, India) impression material (figure 2). The impression was reinforced by overlaying it with gauze and dental plaster. The impression was poured with type III gypsum plaster (Kala Stone, Kala Bhai Pvt Ltd, Mumbai, India) to prepare a working cast (figure 3). Defect borders were delineated on the cast and modelling wax was added on to the defective side. Wax was sculpted up to the normal surface contour taking contralateral side as a guide and borders were refined to get continuity with the adjoining defect margin. Sculpted wax pattern try in was completed over the patient face with emphasis to have proper surface contour and margin continuity (figure 4). His skin texture was re-established by carving lines and pressing wet gauze on the softened wax pattern. Wax pattern was sealed to the cast, and freestanding stone moulds (figure 5) were prepared

Figure 2 Impression making with irreversible hydrocolloid.

Figure 4 Wax pattern try in.

Figure 5 Freestanding stone moulds for processing.

for the de-waxing procedure. After the de-waxing procedure, mould surface was characterised, catalysed silicone (A-2009 Platinum Silicone Elastomer; Factor II, Lakeside, Arizona, USA) was packed and polymerised according to the manufacturer's instruction. The residual flush after polymerisation was trimmed, finished with scalpel and abrasive stone. The prosthesis was tried on the patient's face for fit, contour, skin texture and margin adaptation (figure 6). Medical skin adhesive (Adhere Medical Adhesive, Factor II) applied to the prosthesis margin to reduce the fluid leakage. Retention of the prosthesis was further enhanced by attaching plaster adhesive on the anterior side.

OUTCOME AND FOLLOW-UP

Owing to the lack of anatomical undercuts, the prosthesis retention was compromised, and it was entirely dependent on the tissue adhesives. The draping of the surgical defects by the prosthesis was helpful in the alleviation of physical and

Figure 6 Final prosthesis over the defect.

psychological difficulties to a great extent. Instructions regarding the postinsertion care of the prosthesis and tissues were given to the patient. Recall appointments were scheduled for prosthesis follow-up. There was a plan to re-attempt the surgical reconstruction of the defect from the surgical team in future depending on the recovery of the patient.

DISCUSSION

Squamous cell carcinoma of the oral cavity is the most common malignancy and well-known for its high rate of morbidity and mortality worldwide. Its reported incidence rate in India is on the rise owing to socioeconomic condition, tobacco abuse and alcohol consumption. Oral cancer induces severe debilitating effects on the patients with intense pain at the primary site and compromised speech, swallowing and masticatory functions. The main objective of the interim prosthesis in this patient was to alleviate various distressing symptoms. Interim prosthesis was helpful in camouflaging the extent of the defect by restoring the aesthetics to a large extent. It is well known that stress plays a very important role in delaying wound healing. Just draping a wound improves the morale of the patient and tends to reduce the pain.^{10 11}

Integrity of oral cavity enclosure is important for speech, swallowing and in preventing salivary drooping. Long-term enteral feeding complication should be avoided by early resumption to adequate oral food intake.¹² Conditioning of inhaled air by re-establishing nasal breathing is also critical for general health of the patient. Silicone prosthesis fabricated was helpful in re-establishing of nasal breathing and initiation of soft oral food intake. Intelligible speech production was established, which is critical for empathetic communication.

Maxillofacial prosthesis for totally resected cheek is very rare and challenging too. Buccal mucosa is surrounded by tissues with muscle attachments; retention of the prosthesis is difficult owing to presence of fluids and lack of anatomical undercuts. Prosthesis mainly retained with medical grade skin adhesives. Water-based adhesives were avoided to prevent the loss of retention with saliva, fluids and skin perspiration.

Tissue margins in the patient were fragile and inflamed owing to failed surgical reconstruction and radiotherapy. Chin margins adaption was not perfect owing to inflammation and progressive changes of tissues. Soft silicone dressing is considered advantageous over film, foam, hydrocolloid and hydrogel, since they are reported to induce pain and tissue damage during dressing

Learning points

- ▶ Prosthetic rehabilitation is a viable alternative to be considered in a situation of failed surgical reconstruction of a defect.
- ▶ Delayed reporting of patient results in poor prognosis scenario. Remaining lifespan is not a great relevance, the prosthesis main objective is to improve the quality of life for remaining lifespan.
- ▶ Postoperative prosthesis in terminally ill patients will help the patient in both physiological and psychological rehabilitation. This will further the morale of the patient and his family members.
- ▶ Prosthesis rehabilitation for the patient should be complemented with treatment of other physical, psychosocial and spiritual concerns.

change.^{13 14} The patient was advised to take plenty of oral fluids, use antifungal mouthwash to avoid mucositis or stomatitis. Continuous observation through the recovery period was scheduled to implement the needed correction of the prosthesis. Palliative care will not end by managing physical symptoms alone; it should be complemented with psychological, spiritual and social aspect of care as well. Palliative care allows the patient to lead a dignified life for remaining precious life.

Contributors SBH is a lead member in maxillo-facial prosthesis fabrication and has been involved in writing the manuscript. FKS is a member in maxillo-facial prosthesis fabrication.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Chen JK, Katz RV, Krutchkoff DJ. Intraoral squamous cell carcinoma. Epidemiologic patterns in connecticut from 1935 to 1985. *Cancer* 1990;66:1288–96.
- 2 Sankaranarayanan R, Masuyer E, Swaminathan R, et al. Head and neck cancer: a global perspective on epidemiology and prognosis. *Anticancer Res* 1998;18 (6B):4779–86.
- 3 Pelucchi C, Gallus S, Garavello W, et al. Alcohol and tobacco use, and cancer risk for upper aerodigestive tract and liver. *Eur J Cancer Prev* 2008;17:340–4.
- 4 Bachar G, Goldstein DP, Barker E, et al. Squamous cell carcinoma of the buccal mucosa: outcomes of treatment in the modern era. *Laryngoscope* 2012;122:1552–7.
- 5 Scott S, McGurk M, Grunfeld E. Patient delay for potentially malignant oral symptoms. *Eur J Oral Sci* 2008;116:141–7.
- 6 Lee SC, Tang IP, Avatar SP, et al. Head and neck cancer: possible causes for delay in diagnosis and treatment. *Med J Malaysia* 2011;66:101–4.
- 7 Barocas R, Karoly P. Effects of physical appearance on social responsiveness. *Psychol Rep* 1972;31:495–500.
- 8 Vickery LE, Latchford G, Hewison J, et al. The impact of head and neck cancer and facial disfigurement on the quality of life of patients and their partners. *Head Neck* 2003;25:289–96.
- 9 Carl W. Preoperative and immediate postoperative obturators. *J Prosthet Dent* 1976;36:298–305.
- 10 Solowiej K, Mason V, Upton D. Psychological stress and pain in wound care, Part 3: management. *J Wound Care* 2010;19:153–5.
- 11 Richardson C, Upton D. A discussion of the potential mechanisms for wound dressings' apparent analgesic effects. *J Wound Care* 2010;19:424, 426–30.
- 12 Bastow MD. Complications of enteral nutrition. *Gut* 1986;27(Suppl 1):51–5.
- 13 Hollinworth H, Collier M. Nurses' views about pain and trauma at dressing changes: results of a national survey. *J Wound Care* 2000;9:369–73.
- 14 Rodrigues S, Shenoy VK, Shenoy K. Prosthetic rehabilitation of a patient after partial rhinectomy: a clinical report. *J Prosthet Dent* 2005;93:125–8.

Copyright 2013 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- Submit as many cases as you like
- Enjoy fast sympathetic peer review and rapid publication of accepted articles
- Access all the published articles
- Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow