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Left marginal mandibulectomy with split thickness skin grafting for the treatment of squamous cell carcinoma of left buccal mucosa - A case report.

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Abstract

Squamous cell carcinomas of the buccal mucosa are conventionally treated with resection of the lesion followed by removal of neck lymph nodes and reconstruction with distant or local flaps. However, treatment of such cancers is not restricted to use of flaps and can also be closed with grafts. Our technique uses a split thickness skin graft which is harvested from the right thigh using a Humby's knife and placed intra orally to reconstruct the soft tissue defect.

Keywords: Mandibulectomy – Grafts – Squamous cell carcinoma – Resection.

Introduction

Oral cavity cancer represents 30% of all head and neck cancers, with squamous cell carcinoma (SCC) com prising 90% of all oral malignancies. The remaining 10% consists of adenocarcinoma arising from minor salivary glands followed by rare malignancies including sarcoma, melanoma, extra-nodal lymphoma, and Odontogenic malignancies.[1]

Squamous cell carcinomas make up the vast majority of oral cavity cancers with salivary gland malignancies and other rare pathologies making up the remainder. Cancers of the oral cavity are generally treated with primary surgery with adjuvant radiotherapy for advanced stage tumors.

Major ablative surgery for oral cavity cancers result in loss of mucosa, submucosa, and muscle and in some cases bone and external skin. These tissue deficiencies may also translate into the loss of core functions depending on the size and location of the tumor.

The ideal reconstruction attempts to restore form and function and is dependent on several factors including the location and size of the defect, types of tissue resected, pre- or postoperative radiation/chemotherapy, and patient specific factors such as overall health and comorbidities.

If resections that involve the buccal mucosa of the oral cavity are not reconstructed, scar contracture can lead to severe trismus, a reduction in mouth opening. Smaller buccal defects can be managed with primary closure,

split-thickness skin graft, or pedicled soft tissue flaps such as the submental island artery flap. [2]

Case report

Profile

Figure 1:

A 70-year-old male presented to the Department of Oral and Maxillofacial Surgery, DAPM RV Dental College, Bangalore with a chief complaint of a non-healing ulcer on the left side of his cheek since 8 months. The patient had a history of hypertension and underwent prostectomy few years back. The patient had a profound habit history spanning 25 years of tobacco chewing, roughly 1 packet per day and had stopped the habit 6 months prior. On initial intra oral examination, mouth opening was found to be restricted to 20mm.

Figure 2:

On examination of the lesion (Figure 1), an ulcer measuring approximately 2 x 2.5 cm in greatest dimension was noted on the left buccal mucosa adjacent to the 36, 37 teeth region. The floor of the ulcer was erythematous, edges mildly raised and an indurated base was noted. No other associated or secondary factors present. A biopsy was done in a local dental clinic following which a diagnosis of Moderately.

Differentiated Squamous Cell Carcinoma of the left buccal mucosa was reached. The patient was taken under general anesthesia and was operated for the same. Wide local excision with marginal resection of the left mandible was done following which a split thickness graft was harvested from the right thigh region using a Humby's knife and placed intra orally.

Procedure

General anesthesia was achieved via right nasal intubation. Painting and draping was done following standard protocols. The patient was catheterized prior to start of the procedure. Local anesthesia with Vaso constrictor was administered to the proposed surgical site. Since the lesion was not extending to the commissure of the mouth, a midline lip split incision extending onto the submandibular region on the corresponding side was planned and marked with a surgical marker. (Figure 2).

Mc Gregor midline lip split incision was placed continuing onto the submandibular region as Risdon's incision. The incisions were placed through the skin and platysma muscle, subplatysmal dissection was done and the flap was raised superiorly to expose the mandible. Supra-omohyoid neck dissection was completed first which involved identification of the marginal mandibular branch of facial nerve and preserving it, identification and ligation of the facial artery, relieving the submandibular gland from it's deeper tissue bed and

resecting it's deep head. Finally, Level IA, IB lymph nodes were relieved from their tissue bed and resected out. Post this, intraoral incision was placed and sub periosteal dissection was performed to raise a complete cheek flap. Wide excision of the primary lesion was done with a 1cm border all around it to ensure negative margins (Figure 3).

Using saw system, marginal mandibulectomy performed from 34 to 37 teeth region.

The primary soft tissue defect intraorally was recon structed and the resected bony margins was covered using a split thickness skin graft which was harvested from the patient's right thigh with a Humby's knife. (Figure 4). Closed vacuum drain was placed in position and post primary closure, the drain was activated. (Figure 5). Prior to extubation, nasogastric tube was placed through the left nostril and the patient was shifted to post operative ICU uneventfully.

One unit of PRBC was transfused to make up for the intra-operative blood loss. The drain was removed at POD-3 once the drain collection reduced to < 25ml. The patient's one week stay in the hospital was uneventful. Post complete healing of the graft recipient and donor site, as well as the extraoral incision site the patient underwent 6 sessions of radiation therapy.

Figure 2: Incision line marked with a surgical marker.

Figure 3: Surgical incision marked, dissection performed, wide excision of the lesion done.

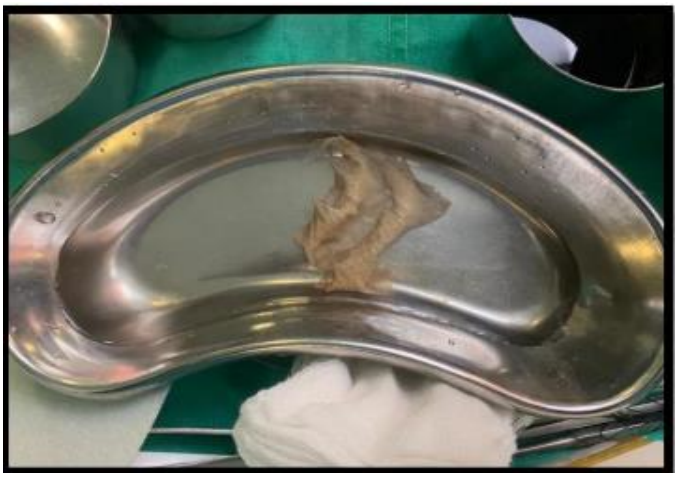

Figure 4: Split thickness skin graft obtained using Humby's knife.

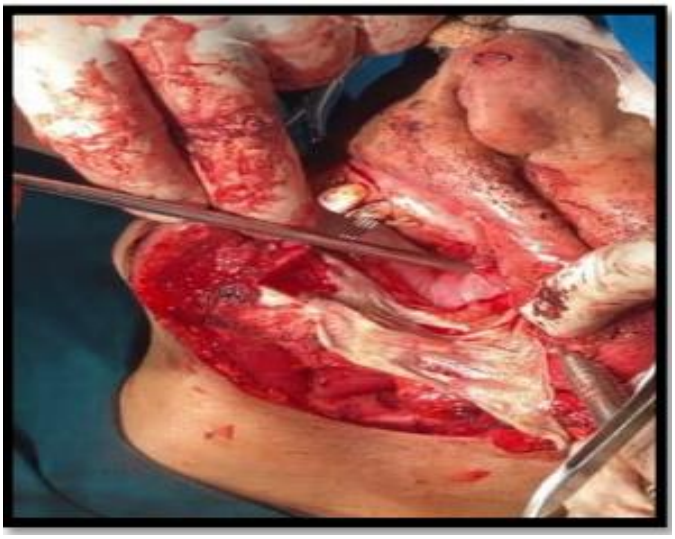

Figure 5: Graft placed intraorally in position and secured with sutures.

Figure 6: Specimen obtained post wide excision of the lesion.

Figure 7: Resected submandibular lymph node.

Figure 8: Post-op 8 months review revealing satisfactory healing both intraorally and extra orally.

Discussion

Conventionally, squamous cell carcinomas of the mouth are a leeway to multiple metastatic loci further away from any intervention from our side which poses a

massive threat and hence requires aggressive surgery to limit its potential. Treatment aspects although aggressive require good reconstruction in order to rehabilitate the patient to a subnormal life.

The anatomic variations are not very different for different ethnic groups, however, the personal habits exhibited by some vary drastically and hence a know ledge of both is imperative to good comprehensive care. Despite habitual damage, the human body portrays certain resilient features which provide defense against aggressive cancers.

Periosteum is a robust barrier to bone invasion. In alveolar lesions with intact dentition, the mandible is generally invaded via its occlusal surface. Hence a horizontal marginal mandibulectomy can be attempted in early gingivobuccal complex cancers lesions to include invasion at the occlusal surface. [2]

Barttelbort et al suggested a unified theory of tumor invasion of the mandible. The cancer initially invades the mandible in the portion superior to the mylohyoid muscle along a broad front, quickly affecting the inferior alveolar canal. However, only as a relatively late phenomenon can the tumor invade the inferior lingual plate and the inferior cortical edge. For that reason, marginal mandibulectomy has the potential of removing the tissues at risk over an adequate length without significantly disturbing mandibular form. [3]

Greer et al described in 1953 the marginal mandi bullectomy technique in a study of 21 patients, taking only part of the mandibular thickness for the treatment of intraoral cancer. [4]

Marginal mandibulectomy is indicated when tumor abuts mandible without gross invasion, or when there is only superficial bony invasion. Three types of marginal mandibulectomy are described i.e., horizontal, vertical and oblique. [2]

In the present case, horizontal marginal mandibulectomy was performed being mindful of the size and extent of the lesion. The decision was made post analysis of radiographs and CT scans of the mandible to rule out any extensive involvement of the bone. Reconstruction was performed using split thickness skin grafts, in view of the size of the resection, the resulting bony and soft tissue defects as well as the associated advantages of the procedure. The harvesting and placement is significantly easier and chances of failure is comparatively less. Also, split thickness grafts can be taken under less favourable condition.

Midline incisions are functionally better whereas lateral incision is better cosmetically. McGregor incision respects the mental facial unit, preserves the oral competence and provides reasonable cosmetic outcome.

Midline incision should be avoided when the excision of the tumor involves the angle of mouth as it can compromise the vascularity of the preserved lip between the midline incision and angle of the mouth. This is because the inferior labial artery is cut both at the angle of the mouth and the midline.[5]

Successful reconstruction after ablative surgery requires careful preoperative assessment and treatment plan. Important considerations include tumor stage and prognosis, patient age, sex and functional status, available reconstructive donor sites, and the psychosocial make-up of the patient.

Conclusion

Despite conventional treatment modalities for aggressive carcinomas, newer treatment modalities create room for simple and effective means of delivering quality care without the need for additional surgery, requirement of harvesting flaps or aggressive surgical procedures.

Reconstruction in itself doesn't require Brobdingnagian measures and can be achieved swiftly and as effectively

with grafts. The extra scars, healing and complications associated with harvesting flaps at the flap site in itself creates a probability of increased morbidity as well as an unaesthetic touch that most patients are not comfortable with. This modality concludes the need for a definite reconstruction as opposed to simple remaneuvering of parts to achieve the same goals and treatment objectives. We would like to conclude by saying that not all aggressive diseases require aggressive treatments and that aggressiveness of the mind over technique can prevent unnecessary injury to both the patient's mind and body.

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