Reconstruction of Maxillary defect using Masseter muscle flap: A case report

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Abstract:

Despite the remarkable progress made in the field of oral and maxillofacial surgery, defects arising as a result of surgical removal of small and medium-sized tumors of the palate, retromolar trigon, posterior part of the floor of the mouth and the adjoining area, continue to present a challenge. Masseter muscle flap, a local regional flap offers a reliable method of reconstruction in selected defects without the disadvantages of cosmetic and functional loss. The use of masseter crossover flap permits a reliable closure without any significant complications and with early return of function. Here we present a case of mucoepidermoid carcinoma of the palate reconstructed with superiorly based masseter muscle flap after partial maxillectomy.

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Introduction:

The reconstruction of oral defects following surgical extirpation of oral cavity carcinoma presents a significant surgical challenge[1]. Once complete resection of the primary and regional metastases has been undertaken, subsequent functional recovery and aesthetics are extremely important when reconstruction is considered, the quality of life after intra oral tumour ablative surgery depends not only on the size of the tumour related defects but also on the type of reconstruction and the location of defects. The oral defect may be confined only to the mucosa or involve the overlying skin as well. Unrepaired mucosal defects following cancer ablation are considered unsatisfactory because of contraction and trismus. The retromolar trigone is a common site of involvement of squamous cell carcinoma in the oral cavity[1,2]. Primary closure of such a defect is fraught with the risk of breakdown, with consequent contamination of the oral cavity. A myocutaneous flap is unsuitable because of its bulk and the risk of consequent necrosis[3]. Rammohan Tiwari presented a new technique of oral and oropharyngeal closure using masseter muscle flap in 1987[3].

Case report:

Mrs. Shahanara Begum, a 60 years aged, unfortunate female from a remote area of Bangladesh, Hatia, Noakhali, presented with the complain of unhealing ulcer for five months. The lesion located in the right palate extending from right first premolar to right first molar area antero-posteriorly and medially extended to mid palatine suture area (Fig. 1). The lesion approximately measured 2cm × 1 cm. There was an ipsilateral, palpable, single, mobile tender submandibular lymph node found to be inconclusive by

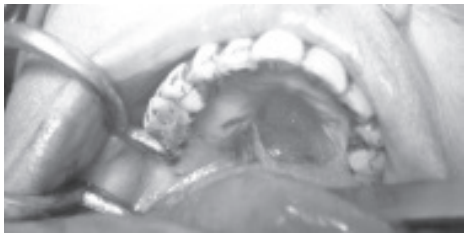

Fig.-1: *Showing extension of the lesion*

ultrasound investigation. Radiological investigation revealed destructtion of alveolar bone, hard palate and right nasal floor pushed away (Fig: 2a and 2b).

Initial histopathological suspicious conclusion, squamous cell papilloma, lead to second biopsy and this time histopathology reveals mucoepidermoid carcinoma. The patient then underwent surgical excision of the lesion in the form of partial maxillectomy of the rt. Side of the maxilla with ipsilateral selective neck dissection level 1- 3. The surgical defect then reconstructed with superiorly based masseter muscle flap. The patient then got adjuvant EBRT.

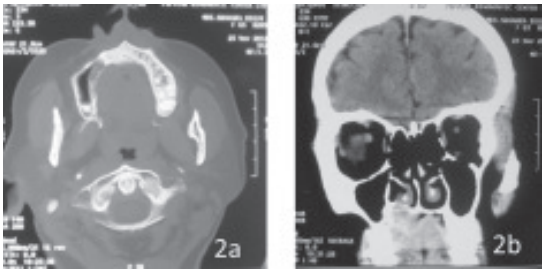

Fig: 2a and 2b: *CT scan showing extension of the lesion, 2a (axial section) and 2b (coronal section).*

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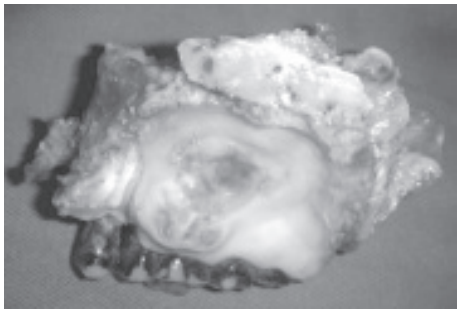

Fig.-3: *Resected surgical specimen.*

Technique: Adequate exposure for this intricate procedure necessitates the use of a fully opened side mouth gag placed on the contralateral side, while an assistant retracts the cheek laterally and the tongue medially. The opportunistic incision is used here rt. submandibular incision which is used originally for selective neck dissection. Although an intraoral incision can also be made on the anterolateral face of the mandible from the area of the ascending ramus to a point just posterior to the mental foramen.[4,5] The masseter muscle is first freed medially by raising the muscle off the mandible with the large, broad tipped periosteal elevator, sweeping the dissection to the level of the coronoid process superiorly and to the edge of the mandible inferiorly. The anterior and medial portion of the masseter muscle is thus exposed and is then stabilized with a forceps, while a lateral tunnel is sharply and bluntly raised with a scissors in a plane just above the masseteric fascia and medial to the soft tissues of the face. Having freed the muscle medially and laterally, it now must be detached from its insertion at the infero-lateral edge of the mandible[6]. Considerable bleeding can occur during this part of the procedure, it is, therefore, advised to clamp the inferior edge of the muscle before incising[7].

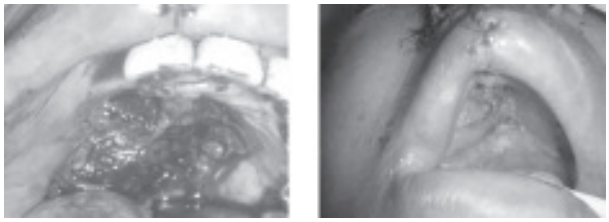

Fig: 4a *(per-operative) and* **4b** *(Third post-operative day), showing intraoral picture of reconstructed site.*

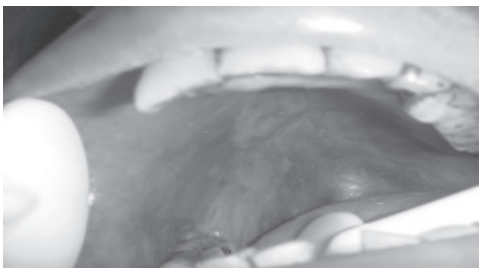

Fig.-5: *Reconstructed site after adjuvant radiotherapy showing excellent taking.*

A tunnel is constructed medially through the buccinators muscle and mucosa. The inferior end of the dissected muscle is the transferred to the surgical defect area through the prepared tunnel. Then the muscle is fixed with 3/0 vicryl. The patient is fed nothing by mouth for five days and can be fed through nasogastric tube or peripheral IV alimentation. The maintenance of oral hygiene is crucial here.

Conclusion:

The choice of the reconstructive procedure for intra oral tumors is governed by the status of the original tumour and the condition of the patient. Primary closure of the mucosa is invariably under some tension. Without lack of a second muscular layer this closure is fraught with the risk of leakage and contamination[8]. The ideal reconstruction mimics the tissues damaged or removed, it should strive to imitate the form, geometry and quality of the ablate structures. On analyzing the versatility of the masseter muscle flap for reconstruction of retro mandibular defects following post ablative cancer surgery in a series of four patients we would like to put across with our little expertise that the masseter flap is a locally available flap which is bulkier enough to reconstruct the retro mandibular regions with no significant complication, cosmetic deformity and functional disability. It is difficult to design a flap that is 100% successful at accomplishing all tasks simultaneously.

Trismus has not been a problem so long as physiotherapy is carried out immediately after reconstruction. The healing was excellent within 3 weeks. One case had delayed healing otherwise all had excellent healing. Epithelialization was spontaneous with no breakdown of the suture margins. There were no problems with speech and deglutition. There was no associated post- operative pain in the reconstructed site.

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