Random Cheek Skin Flap: a Simple Alternative for Intraoral Defects

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Abstract Oral cavity squamous cell carcinoma is one of the common cancers in India. The lesion usually presents as an ulcer and sometimes as a nodule. A variety of premalignant lesions and submucous fibrosis are common. The mucosal defect after resection needs to be covered. We present a new and simpler way of reconstruction of the oral cavity lining by using extra cheek skin.

Keywords Newer technique · Intraoral reconstruction · Random cheek flap · Simple alternative for intraoral defects · Head and neck flaps

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Oral cavity squamous cell carcinoma makes up a large number of patients in our oncology out-patient department. Most of our patients present as a small ulcer or a nodule in the buccal mucosa which is suspicious and requires excision biopsy or the patient presents with trismus due to submucous fibrosis. All such problems revolve around resurfacing of the mucous membrane loss which is traditionally left to granulate or skin

grafted which results in scar contracture and further fibrosis. Nasolabial flap is one alternative available to these patients after releasing these bands of submucous fibrosis and covering small mucosal defects especially around maxilla and mandible. Nasolabial flap is a very versatile flap with good reach within the ipsilateral oral cavity; however, in some cases, the nasolabial flap pedicle may not be available due to previous surgery or the surgeon may not be comfortable using this flap. We encountered a few patients in whom we were unable to use nasolabial flap, and we, while looking for other simpler alternative in these patients, whose defects were very small for pedicled or free-flap reconstruction or the neck was not accessible for passage of pedicle or microvascular anastomosis, devised a rotation cheek skin flap which was used in three of our patients with good results.

Technique

We use this flap for patients in whom the lesion is located in anterior half of the buccal mucosa. In one of the patients, the lesion was involving angle of mouth and required full thickness excision. The operation begins as in any head and neck surgery with positioning and nasal intubation. The lesion is usually predominantly on buccal aspect and is excised with desired margins on mucosal and deeper aspect, which is either a partial thickness or full thickness cheek excision. The resultant defect is in the anterior half of the oral cavity and does not involve the mandibular and maxillary alveolar ridge; we do not use this flap for defects close to maxillary or mandibular alveolar ridge as we anticipate difficulty in mobilizing the flap to this portion of oral cavity (Fig. 1).

After measuring the defect on mucosal aspect and making an outline of the shape of the defect, the shape is marked on cheek skin taking care that at least about two thirds of the skin

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Fig. 1 Lesion excised and flap marked

outlined for the flap is supported by underlying subcutaneous tissues and buccal pad of fat adjacent to mucosal margins of resection. It is preferable to coincide one of the margins of the flap to the curve of nasolabial fold so that future scar mark will be running in natural nasolabial crease. A full-thickness skin incision is made so that the skin island is divided all around but the base remains attached to the buccal pad of fat and subcutaneous tissues; we deliberately divide nasolabial vessels if greater mobility is required. The skin all around is undermined to give sufficient mobility to the base of the flap so that this random blood supply-based skin island is rotated inside the oral cavity and sutured to the edges of the mucosal defect using absorbable suture (Fig. 2).

The skin of the cheek is primarily closed, which is easy owing to natural redundancy of cheek skin; larger cheek skin defects can be closed using rotational cheek flaps. We use synthetic monofilament interrupted 3-0 suture for the skin. The postoperative period is smooth, and we allow sips from day 2 of surgery and rest as nasogastric tube feed. The scar in nasolabial fold is well concealed (Fig. 3).

The nature elasticity of skin in elderly makes it easier to rotate the cheek skin. Difficulty in reconstruction may be anticipated in post scar setting, post radiation cases with fibrosis. This flap may be useful in severe trismus where full thickness

Fig. 2 Flap rotated inside

Fig. 3 Post donor site closure

skin incision on cheek donor site makes it easy to rotate the skin island and suture the same to buccal mucosa margins through the defect. The intraoral skin usually sets in very well to cover the mucosal defect.

Discussion

In all our patients, this flap retained good blood supply and healed well. Cheek skin in the patients was closed primarily, one with the larger flap requiring a small random cheek skin rotation flap for relieving tension on the suture line. The cosmetic outcome at the donor site was acceptable with the scar being concealed by the nasolabial fold and the postoperative mouth opening at 1, 3, and 6 months was practically unchanged; however, the effect of radiation and physiotherapy is difficult to estimate at present. To the best of our knowledge, this type of flap is not described in literature. Different authors have described various methods and available flaps for intraoral reconstruction, and these included facial artery musculomucosal and platysma flap [1]. The problem with buccal pad of fat is that it is friable and not able to cover anterior defects. There is retraction in the reconstructed area post-operatively [2]. Mouth opening is also inferior in split skin graft and buccal pad of fat graft when compared to radial artery forearm free flap [3]. Facial artery musculomucosal flap depends on facial artery for its blood supply which is usually divided in patients requiring neck dissection for malignancy. However, the cheek rotation flap is a random flap and was successful despite neck dissection in all our patients. The submental flap is another versatile option [4]. Pectoralis major myocutaneous flap continues to be the most universal major flap in the head and neck reconstruction [5]. However, bulk limits its utility. We recommend our flap in patients in whom the defect is located in the anterior half of buccal mucosa with relative preservation of cheek skin; however, skin involvement by itself is not a contraindication, and

the size of defect which may be covered by this flap is easily estimated preoperatively by pinching the excess cheek skin which will be rotated inside. We suggest avoiding this flap very close to gingivobuccal sulcus due to anticipated difficulty in rotating the flap. While free tissue transfer and age old pectoralis major myocutaneous flap are important reconstructive options, nasolabial and buccal fat pad flap may be useful for small intraoral defects. In suitable patients, cheek skin rotation flap is another easy and effective option.

Conflict of Interest The authors declare that they have no competing interests.

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