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(CASE REPORT)

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Lateral forehead flap in oral reconstruction: A case report

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Abstract

Introduction: Lateral Forehead flap is very versatile as it represents a good choice for reparation of different types of nose and oral cavity defects and provides an optimal, aesthetic, and functional outcome. In era of free transfer tissue, the use of loco-regional flaps, alone or in combination may prove to be the only practical solution in the absence of resources or other options.

Case presentation: A-65 years old male with multiple comorbidities underwent a wide resection with adequate margin of the lower lip and small segment of the upper lip due to a locally advanced squamous carcinoma. After long consideration, the last resort was the pedicled lateral forehead flap. Information was sourced from patient's case notes and operating theatre report.

Results: The donor defect was covered with a split-thickness skin graft harvested from the right thigh area. The flap survived and both functional and aesthetic outcome were satisfactory. The site of the donor defect result was also acceptable. No complications were noted in our case study beside a small tip necrosis and breakdown of the suture line.

Conclusion: Lateral forehead flap is a reliable flap with an acceptable outcome in cases with previous history of radiotherapy or surgery. Decision making of a particular reconstructive option should be done taking in consideration the available resources, surgical team expertise along with the patient's general condition. The pedicled forehead flap still useful when other options are inappropriate or have not been successful.

Keywords: Lateral Forehead Flap; Donor defect; Squamous carcinoma; Outcomes

1. Introduction

Complex orofacial defects have always posed a significant challenge for plastic surgeons. The ultimate goal of reconstruction is to achieve adequate, stable mucosal and skin coverage and maintain continuity of the oral cavity with minimal contour deformity. Sometimes these cases have been previously operated or irradiated which adds to the problems in decision making. Microsurgical tissue transfer is considered the first options in such cases, but these have inherent limitations such as paucity of donor vessels, long operative duration and intensive monitoring [1]. Moreover not every patient is an ideal candidate for a micro-vascular reconstructive procedure, and it is also not worth to say that every defect requires a free flap cover [2].

The use of lateral forehead flap is acknowledged as the ideal donor for mid face and oral cavity reconstruction due to its color, texture match, and robust vascularity. The wide arc of rotation usually does not compromise the blood supply, thus good vascularity is an additional benefit for wound healing [2]. we present a case where the lateral pedicled

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forehead flap was successfully performed on one patient with oral malignancy proving its reliability in oral defects reconstruction.

2. Case presentation

A 65-years old male with hypertension, type II diabetes presented with a large tumor-like lesion involving the whole lower lip, the angle of the lip and partially the upper lip progressing rapidly for last 8-9 months for which wide excision with adequate margin was done after cervical lymphadenectomy carried out by our ENT surgical team.

Figure 1 65 old years male with a large squamous carcinoma mass

Lateral forehead flap was considered for reconstruction. The latter was based on left superficial temporal artery and raised in standard procedure for skin covering. It comprised whole of forehead just below the hairline superiorly and above the eyebrow inferiorly, Tumescence with 2 % xylocaine is injected along the margins of flap and after a waiting period of 2-3 mins incision is commenced from lateral to base. The Flap was elevated above the peri cranial layer.

The donor site was covered with split-thickness skin graft. Primary dressing is done on fifth post-operative day, and final pedicle section and insetting of flap was done after 3 weeks. The flap was monitored clinically by assessing the color and capillary refill. The follow-up period was simple with no major complication and the patient was eating and swallowing soft diet comfortably .The patient was addressed for radiotherapy and further refinements of the flap were planned after that.

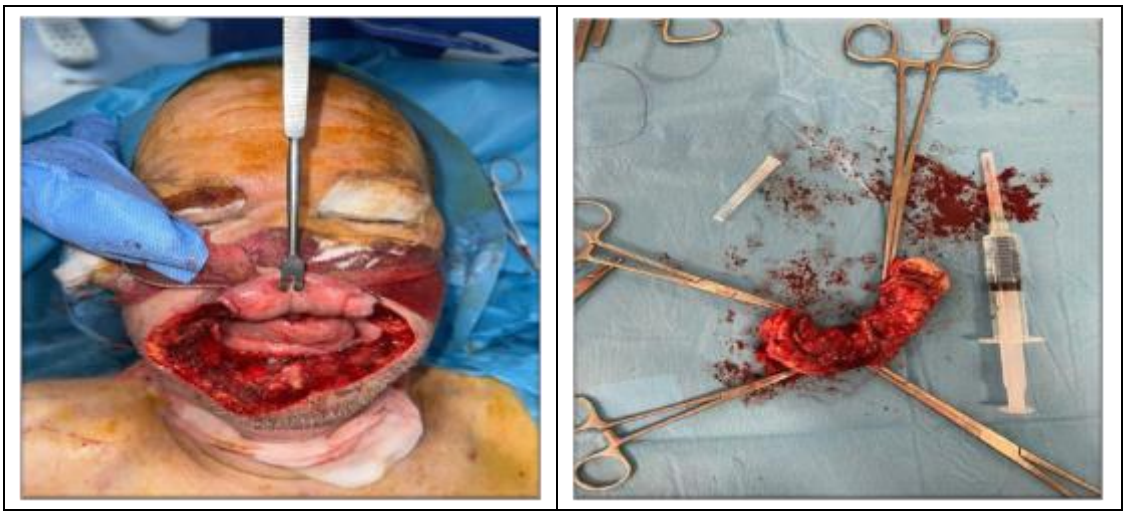

Figure 2 The process of the lateral forehead flap reconstruction across different stages

3. Discussion

Across the last decades , free flaps are seen nowadays as the flaps to consider firsthand with locoregional flaps as the second choice. On the other hand free flaps have some limited applications. Patients with recurrent head and neck cancer have compromised general physical status associated with comorbidities which makes long duration surgery a risky option. In previously operated or irradiated head and neck cases, the surgeon may encounter lack of vessels for micro vascular anastomosis [1]. Free flaps require vigorous post op monitoring and occasionally may require re exploration. Above all, free flaps are associated with four times greater risk of complications in case of previous history of radiation [3]. Advanced age is also often associated with flap loss, the same thing apply for patients with significant comorbidities such as cardiac disease due to low cardiac index [2].

Wang, Lu MD et al used the lateral forehead flap in 7 patients with 100 % results [4]. The color match of a local flap is better as compared to distant flap. Moreover they have the advantage of being with little risk of vascular compromise because they are based on reliable vascular supply which lowers the overall risk and are quicker to perform.

The most two common disadvantages with this flap is that it takes two stage operation,however the second stage procedure may be performed under local Anaesthesia. Secondly the donor site visibility, although many surgeons tend to harvest the whole of the forehead skin as single unit to reduce the cosmetic impact of the scar, which we had done in our case.

Many years prior to McGregor's 1963 publication on the extended forehead flap, Gillies and Millard stated in their book The Principles and Arts of Plastic Surgery, that "the tint of forehead skin so exactly matches that of the face and nose that it must be first choice. With some plastic juggling, the forehead defect can be camouflaged effectively."[2]

In the literature , several authors have described the use of lateral forehead flap for oral mucosal lining as well as for skin cover. Flap detachment and insetting is done after a gap of 3-4 weeks depending on the size of flap, area of contact and condition of tissues [1,5,6].

McGregor have described an approach in which the flap was introduced through a cheek incision. In our case the forehead flap was discarded after 4 weeks.

In our case the flap was raised above the pericranium, Nonetheless, other nuanced modifications have been reported such as a more superficial frontalis-saving plane [7].

Flap necrosis, infection and post-operative bleeding are the most frequent complications with this flap.

Finally, we should mention that other options must be taken in consideration when dealing with oral or lip defects, for instance direct closure is possible if sufficient soft tissue can be recruited or simply letting the defect to heal by secondary intention in case of small ones. Skin grafts are also classically reserved to small defects with the risk of considerable contracture which could compromise the function of mobile structures.

Figure 3 2 weeks post operative follow-up

Figure 4 4 months post operative follow-up (patient to be Scheduled for refinement)

4. Conclusion

To summarize our discussion this study emphasizes the beneficial role of the lateral forehead flap on the basis that this one may be practical, effective and a reliable solution especially in patients with history of orofacial cancer who have undergone previous surgery and/or radiotherapy which undermine the usefulness of free flaps.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Written Informed consent was obtained from the patient for publication of this case report and accompanying images.

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