Oral Commissure Reconstruction with Zisser Flap, Vermilion Mucosal Advancement, and Pedicled Buccal Fat Pad Flap

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Introduction

Reconstruction of the oral commissure presents challenges given its functional and cosmetic importance. We describe a case utilizing a modified Zisser advancement flap for a patient with recurrent buccal squamous cell carcinoma. Preoperatively, the patient had poor oral competence with drooling due to scarring and damage to the facial nerve from a prior resection. Using the technique described here, the patient was able to regain mouth opening and oral competence with an excellent cosmetic outcome.

Case Presentation

A 73-year-old gentleman with history of T2N0 buccal SCC presented to clinic with chief complaint of pain at the right oral commissure. He had previously undergone resection of the right buccal mucosa with reconstruction using an acellular dermal matrix template overlying the mucosal defect with right suprahyoid neck dissection roughly 6 months prior to presentation. The initial oncologic resection did not involve any aspect of the lip. In addition to his complaint of pain, he was struggling to tolerate an oral diet, as he had poor oral competence on the right and would often have difficulty maintaining secretions from the corner of his mouth.

He presented to otolaryngology clinic with trismus and a 1.5 cm interincisor distance with tumor recurrence along the mucosal surface of the oral commissure extending to the vermillion. Office biopsy confirmed recurrent SCC.

Figure 1. Right buccal mucosa tumor extending to the right oral commissure. Patient with trismus to roughly 1.5cm given contracture of fibrosis in the buccal mucosa.

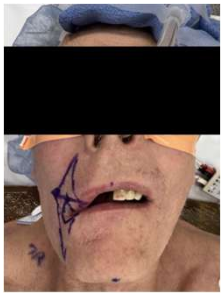

Figure 2. Preoperative image demonstrating ptosis of the right oral. Markings for Zisser flap drawn.

Methods

The malignant lesion was excised, resulting in a large buccal defect measuring 4x4 cm and a smaller cutaneous defect measuring 2x2 cm. The defect extended over the mandibular alveolus and involved the right upper and lower lip. The lingual gingiva and floor of mouth mucosa were advanced to cover the exposed bony area. A buccal fat pad pedicled flap was advanced to cover the intraoral defect. Superiorly and inferiorly based triangles were excised along the nasolabial and melolabial folds. A laterally oriented triangle and horizontal incision was made at the level of the new right oral commissure to create a new oral commissure. Due to lack of intraoral mucosa to reconstruct the new mucosal lip along the commissure, a vermilion mucosal advancement flap was performed on both the upper and lower lip.

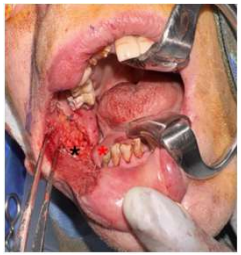

Figure 3. Extent of buccal resection extending to oral commissure on right. The mucosal incision extended medially onto the mandibular alveolus, resulting in bony exposure in this region. Lingual gingiva mucosa was advanced to cover the bony defect of the mandibular alveolus (red asterisk). Buccal fat advancement can be seen along the posterior aspect of the resection margin (black asterisk).

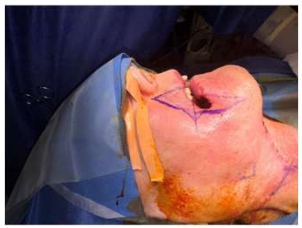

Figure 4. Planning of Zisser flap. Superior and inferior triangles planned to extend into nasolabial crease. A laterally oriented triangle is planned in the horizontal plan of the patient's dentition to prevent inferior malposition due to the inferior extent of resection.

Results

The patient did well postoperatively. The wound healed without complication, and the patient was tolerating a regular diet without drooling from the mouth. Figure 5 demonstrates the reconstruction in the operating room and Figure 6 shows the patient on postoperative day one.

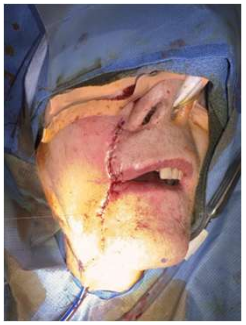

Figure 5: Nasolabial triangles advanced medially. Vermillion created from advancement of deepithelialized cheek and vermillion mucosal advancement of the superior and inferior lip.

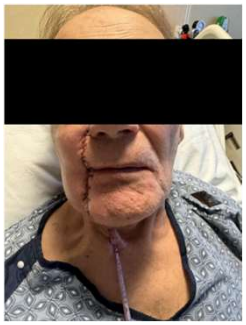

Figure 6: Postoperative day one, incisions healing well. Corrected drooping of lower lip without blunted commissure.

Discussion

Oral commissure reconstruction presents several challenges that were amplified in this patient due to prior surgical resection resulting in oral incompetence. The extent of buccal mucosa resection needed prohibited isolated oral commissure reconstructive options, such as an Estlander flap, due to inadequate coverage of the buccal defect. A Zisser flap was chosen to reconstruct the oral commissure given its low risk for microstomia and decreased commissure blunting. This technique also allowed for tightening of the lower lip, which was ptotic preoperatively due to denervation from prior resection resulting in oral incompetence. The large buccal mucosa defect was addressed via advancement of the buccal fat pad to prevent trismus. These combined techniques allowed for reconstruction of a complex defect without the need for more advanced reconstructive options such as free tissue transfer.

Conclusions

We present a patient with a full-thickness oral commissure defect extending posteriorly along the buccal mucosa and mandibular alveolus with oral incompetence. We demonstrate a Zisser flap in conjunction with vermilion mucosal advancement and a pedicled buccal fat pad flap is an effective method to functionally and aesthetically repair oral cavity defects involving the oral commissure. Our technique successfully elevated the oral commissure to correct his preoperative drooling and resulted in an excellent aesthetic outcome.

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