Reconstruction of Post-burn Microstomia: Our Experience

1Naveen Narayan, 2Prema Dhanraj, 3MS Mahesh

ABSTRACT
Reconstruction of the post-burn contracture is a complex task in plastic surgery. A burn patient treated traditionally only by dressings develops scar with contracture involving the burned region. The lip is a part of the face that is frequently affected by burn injury. Post-burn scar sequelae in this area often result in cosmetic disfigurement and psychological upset in patients. Microstomia poses difficulty in airway intubation during anesthesia and contracture of the neck if present confounds difficulty. Reconstruction of post-burn oral commissure aims to restore both symmetry of the lips (esthetic) and full oral competence (functional). Frequently treated in our department, we present a case series of post-burn contracture of neck with microstomia whose neck extension and mouth opening both were restricted giving less option but more challenge for both anesthesiologists and plastic surgeons.

Keywords: Commissuroplasty, Microstomia, Post-burn contracture.


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INTRODUCTION
The lips are an important structure of the face. Lips are a key element for conveying expressions, emotions, and enhancers of beauty, especially in females. Burn injury by electrical, thermal and chemical agents, lead to tissue damage and coagulative necrosis. Healing is associated with scar formation and contracture, which deteriorates the sphincter action of the orbicularis oris muscle. The end result is an undesirable narrowing of oral aperture which may interfere with eating, speech, maintenance of oral hygiene and airflow. And also there is predicament of drooling and have a displeasing appearance. The vertical excursion can also be limited due to scarring of the cheeks. Failure to address facial scar tissue in children can also impair the normal growth of the mandible and teeth, which can lead to bone deformity, dentition abnormalities and speech problems. Burned lips are rarely an isolated injury, and in most cases they constitute part of a burned face and neck. Perioral contracture after burn (microstomia) is a common consequence of facial burns.

The reconstruction of the oral commissure microstomia is one of the daunting tasks in plastic surgery and the most important issue to be considered, is to provide a good functional and acceptable esthetic result at the end. Although the treatment of commissure injuries has evolved so much, the controversy continues both in the initial management and subsequent reconstruction. Some advocate conservative management using mouth splints usually 10–14 days after injury before making any definitive surgical plans. Many still believe the use of splints will prevent the need for surgical intervention. However, splitting alone will neither replace the full-thickness skin loss and partial loss of the orbicularis oris, nor it will correct the subsequent deformities.

Only recently, the concept of early excision and resurfacing of the facial defect with skin graft has gained its importance in avoiding complications of post-burn scars but is practiced in only few centers. However, the lips are particularly vulnerable for number of deformities for several reasons. Firstly, there is difficulty in use of pressure garments around the mouth. Secondly, scars over moustache and the beard areas in men cause recurrent folliculitis. In children, the use of compression garments can cause growth retardation of mandibular area and can cause malocclusion.

METHODS
Our preferred technique: The three mucosal flap commissuroplasty are as follows:

Marking: The patient was marked in the sitting position (Fig. 1). In case of a unilateral commissure involvement, the distance from the midpoint of the Cupid’s bow to the normal contralateral commissure was used for reference. While in case of bilateral commissure involvement, the commissural marking is determined in relation of the ipsilateral medial limbus of cornea. Also, the lateral margin of oral commissure usually coincides with the lateral extent being the end of the nasolabial fold. A tad overcorrection may be needed in some cases (Fig. 2).
Operative technique: A triangular section of scar tissue was removed (Fig. 3), leaving the oral mucosa intact. The orbicularis muscle is mobilized adequately and retracted laterally (Fig. 4). A horizontal cut was made in intact mucosa which was then extended laterally into two limbs of Y creating two mucosal flaps, one above and one below separated by a triangular mucosal flap in-between (Fig. 5). The triangular mucosal flap was advanced forward to reconstruct the lateral margin of the commissure and the other two mucosal flaps to reconstruct vermilion of the upper and lower lip (Fig. 6).
Postoperative care and follow-up: Topical antibiotic applied to the suture line and left undressed. Postoperatively, mouth opening was adequate. Patients were started on liquid diet on postoperative day 1 and gradually resumed normal diet by 10 days. Intermittent graded ice cream sticks for exercising was used to maintain mouth opening (Fig. 7) and regular massage with application of moisturizing cream over suture line was advised. Repetitive stretching of the vermilion flaps through speech, feeding and manual massage allowed a quick rehabilitation in all cases. No drooling of food or saliva was noticed in any of the cases at follow-up. Patients were instructed on the use of progressive physical exercises (smiling, active mouth opening, stretching of the corners of the mouth with finger pressure) (Fig. 8).

DISCUSSION

The oral commissure is a notoriously difficult area to reconstruct. The goals of reconstruction are not only restoration of oral competence with adequate sphincteric function for speech and food retention, but also appropriate esthetics with contralateral symmetry. Re-establishment of this functional integrity, because of its complexity, is a difficult task.

Ganzer 4 while describing his vermilion advancement flap noted that the mucosa in the angle of the mouth can be sufficiently mobilized and it may be possible to remove an epithelial triangle at the appropriate site and advance the entire commissure laterally. The trilobe mucosa advancement flap described by Convers, 5 which is widely used today, is composed of complete excision of scar at commissure down to mucosa sparing the orbicularis. A trilobe flap can then be created from the mucosa that is advanced over the defect and sutured in place.

CONCLUSION

Burn involving oral commissure is not only an esthetic problem but also functional. The oral mucosa flaps are reliable tools for reconstruction of commissure microstomia. The flaps provide good functional and esthetic results with reduced necessity for prolonged splinting and secondary procedure and minimal donor site morbidity. It is a one-stage reconstruction, operating time is short, reliable technique because of use of local tissues without any aggressive undermining and without adding any additional scars and obviates the need for occlusive dressings.

REFERENCES