Use of Nasolabial Flap in the Management of Oral Submucous Fibrosis – A Clinical Study

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Abstract:
Oral submucous fibrosis is a chronic debilitating disease associated with restricted mouth opening and poor oral hygiene. The treatment aims at good release of fibrosis and to provide long term results in terms of mouth opening. Various local grafts have been used to cover the buccal mucosal defects after the fibrotic bands are released in oral submucous fibrosis. Successful use of inferiorly based nasolabial flaps in the management of oral submucous fibrosis is projected.

A total of 10 histologically proven cases of oral submucous fibrosis having a mouth opening of less than 20 mm were surgically treated. The procedure involved (1) bilateral release of fibroband (2) measurement of intra-operative interincisal distance (greater than 35 mm achieved in all patients after release of bands) (3) covering the defects with inferiorly based nasolabial flap. All patients had post-operative physiotherapy, and were followed up regularly for one year. All flaps healed without evidence of infection, dehiscence, or necrosis. Results were assessed by comparing the pre-operative & post-operative maximum mouth opening.

The inferiorly based nasolabial “islanded” flaps provide reliable coverage of defects of the buccal mucosa and improves mouth opening.

Key Words: Oral submucous fibrosis (OSMF), Nasolabial flap, axial pattern flap.

Introduction:
Oral submucous fibrosis is characterized by blanching and stiffness of the oral mucosa, which causes progressive limitation of mouth opening and intolerance to hot and spicy food. It is more prevalent in Indian subcontinent and is identified as an important premalignant condition (Paissat, 1981, Gupta & Sharma, 1988). Its precancerous nature was first described by Paymaster in his study of 650 Indian patients and he found that one third of patients had onset of slowly growing squamous cell carcinoma (Paymaster, 1956). Medical treatment is indicated at an early stage but mostly patients present with moderate to severe form of disease (Lee et al, 2006). Surgical treatment is indicated at this late and irreversible stage. The procedure consists of release of fibrous bands followed by resurfacing the raw areas with skin graft, fresh amnion, collagen, or local flaps (Canniff et al,1986).

The nasolabial flap is typically classified as an axial pattern flap based on angular artery. It can be based superiorly or inferiorly. Surgical descriptions about nasolabial flap began as early as 1830 when Dieffenbach used superiorly based nasolabial flaps to reconstruct nasal alae. In 1864, Von Langenbeck used the nasolabial flap to reconstruct the nose (Schmidt & Dierks, 2003). Fifty-seven years later, Esser (1921) described the use of the inferiorly based nasolabial flap to close palatal fistulae (Esser, 1921). Inferiorly based nasolabial flap is a reliable, economical option for the management of oral submucous fibrosis (Borle et al, 2009).

Material and Methods:
A total of 10 patients of oral submucous fibrosis were admitted and surgically treated in our hospital with due permission of the ethical committee. All patients signed an informed consent form before surgery. All these patients had advanced oral submucous fibrosis with interincisal distance not more than 20 mm. Patient’s age, sex, etiology, history of gutkha/ tobacco chewing, and preoperative mouth opening were documented. All the cases were histopathologically proven. Patients were followed regularly for one year and maximum interincisal distance was measured.

Surgical Technique:
The operation was performed under general anesthesia with nasal intubation. After opening the mouth, the buccal mucosa was incised transversely from just behind the commissure of the oral cavity extending posteriorly depending upon the location of

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the fibrotic bands (Fig. I). Mouth opening was checked & intraoperative interincisal distance was more than 35 mm in all patients immediately after release of bands. The maxillary and mandibular third molars were extracted. Nasolabial flaps from the tip of nasolabial fold to corner of mouth were marked & bilaterally raised in the plane of the superficial musculoaponeurotic system (Fig. II & III).

Fig. I: Photograph showing release of fibrotic bands.

Fig. II: Photograph showing surgical marking of Nasolabial flap.

The flap was transposed intraorally through a small transbuccal tunnel near the commissure of the mouth, with no tension and the caudal base of the inferiorly based nasolabial flap was deepithelialized in a triangular fashion (Fig. IV). The area of deepithelialization is determined by the required length of the transbuccal tunnel. This maneuver is the key to a 1-stage procedure with inset of flap (Fig. V). The extraoral defect was closed primarily in layers after undermining skin in subcutaneous plane to prevent tension across the suture line. Physiotherapy was started from the 5th postoperative day & patients were instructed to continue the physiotherapy themselves for upto 6 months to prevent relapse. Patients were followed up at regular intervals.

Results:
Adequate mouth opening was achieved & maintained with minimum intraorally as well as extraorally scarring (Fig VI a & b) and Table I. Healing was excellent without evidence of infection, dehiscence or necrosis.

Discussion:
A mucosal graft is the best treatment for oral submucous fibrosis, as it is an ideal graft to cover the oral mucosa, but is limited by the quantity of oral mucosal available for grafting. Split-skin grafting has been tried but it has a high failure rate as fibrotic areas have less vascular supply. Skin is not suitable for grafting in elderly people due to atrophy and inelasticity (Kakar et al, 1985).
Tongue flaps are bulky and when used bilaterally cause disarticulation, dysphagia and increased chances of aspiration. In addition, the tongue is involved with the disease process in 38% cases (Ramadas et al, 2005). The use of bilateral, small, bipadded radial forearm flaps for reconstruction of bilateral buccal defects requires two flaps with two microsurgeries. The procedure is more time consuming and technically demanding. Island palatal flaps again have limitation that they fail to reach posteriorly (Lee, 2007). Buccal fat pad may also be used to cover the defects after excision of the fibrous bands. Harvesting of buccal pad fat is easy but the anterior reach of the flap is often inadequate and can not be used for larger defects (Paissat, 1981).

We used inferiorly based Nasolabial flaps for the reconstruction of mucosal defects after excision of fibrous bands. The advantages of nasolabial flap include its close proximity to defect, easy closure of donor site & a well camouflaged scar. The technique is easy to master and defects as large as 6 to 7 cm can be closed.

The postoperative extraoral scars are hidden in the nasolabial fold. Minor complications of the nasolabial flap include loss of the nasomaxillary crease and the creation of an edematous and bulky flap. A periosteal suture can be used to recreate the crease. By trimming all of the fat from the flap, the bulkiness can be reduced.

**Conclusion:**

Despite these reports of complications, the inferiorly based nasolabial flap has proven to be reliable for the reconstruction of oral defects. All flaps healed without evidence of infection, dehiscence, or necrosis and results were excellent.

**Bibliography:**


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**Table I:** Showing comparison of pre & post-operative interincisal opening

<table>
<thead>
<tr>
<th>Patient Nos.</th>
<th>Age in yrs</th>
<th>Sex</th>
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<th>Post-operative (1 year) Interincisal mouth opening</th>
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<td>F</td>
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<td>M</td>
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</table>

**Fig. VI :** Photograph showing adequate mouth opening and adaptation of nasolabial flap after 1 year.