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Nasolabial island flap in the Management of Oral Submucous Fibrosis - A Clinical Study

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ABSTRACT:

Objectives: To evaluate the efficacy of nasolabial island flap in the reconstruction of oral submucous fibrosis.

Patients and Methods: A total of patients with moderate to severe degree of oral submucous fibrosis were treated surgically and the reconstruction was done using bilateral nasolabial island flaps. Pre-operative, intraoperative and post-operative mouth openings were recorded and compared with the pre-operative mouth opening.

Results: Pre-operative openings ranged from 8mm to 15 mm, with mean of 11 mm. After six months of post-operative follow up, patients were able to maintain mouth openings ranging from 32mm to 37mm, with mean of 35mm.

Conclusion: The observations proved the versatility of nasolabial island flap and its distinct edge in maintaining the mouth opening over other treatment modalities.

Key words: ***Oral submucous fibrosis, Nasolabial flap, Coronoidectomy***

Introduction:

Oral submucous fibrosis (OSMF) is an insidious chronic disabling disease involving oral mucosa, oropharynx and rarely larynx characterized by juxta epithelial inflammatory reaction followed by progressive fibrosis of the lamina propria and deeper connective tissues with concomitant muscle degeneration.[1] It is an established precancerous condition with increased prevalence in South Asia and Indian sub-continent, with a chance of malignant transformation to be around 7.6-13%.[2] The cause of OSMF is believed to be multifactorial a like betel nut chewing, areca nut chewing, ingestion of chillies, genetic and immunologic processes, nutritional deficiencies, and others. As the pathogenesis of the disease is not well established, its treatment has largely been symptomatic. Various treatment modalities including removing the etiology, mouth opening exercises, steroid injections and various surgical modalities have been described in literature for treating OSMF but none has shown to be 100% effective.[3]

Patients and Methods:

A total of six patients, who presented to the oral and maxillofacial surgery department, diagnosed with OSMF, were included in the study. All the patients had moderate to severe degree of limited mouth

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opening and burning sensations. Before treatment, all the patients were counseled preoperatively to abandon their habits of consuming areca nut and other chronic irritant such as hot and spicy foods. All the patients were operated under general anesthesia with nasal intubation. Incisions were placed transversely from just behind the commissure of the oral cavity extending posteriorly depending upon the location of the fibrotic bands. After releasing fibrous bands and bilateral coronoidectomy, inter incisal opening was recorded (Figure 1). Nasolabial island flap from the tip of nasolabial fold to the inferior border of mandible were bilaterally raised in the plane of the superficial musculoaponeurotic system from both terminal points to the region of the central pedicle which was 1cm away from the corner of mouth (Figure 2). The flap was transposed intraorally through a transbuccal tunnel of approximately 1.5 cm, near the commissure of the mouth, with no tension. The flap was secured over the defect with simple interrupted sutures and a transbuccal stay suture. The donor site was closed layer wise after generous undermining to prevent any tension (Figure 3). All patients were advised vigorous physiotherapy exercises, starting on the 7th post-operative day when the flap has been taken up reasonably and the exercises could not cause ischemia and dehiscence of the flap. Patients were taught mouth opening exercises using wooden tongue blades which have a thickness of approximately 1 mm. The patients were instructed and motivated to continue the physiotherapy themselves for up to 6 months and followed for 1year.

Results:

Pre-operative openings ranged from 8mm to 15 mm, with mean of 11 mm. The mean increase in interincisal opening intraoperatively after release of the fibrous bands and bilateral coronoidectomy was 40 mm. After six months of post-operative follow up and vigorous physiotherapy exercises with the tongue blades patients were able to maintain mouth openings ranging from 32mm to 37mm, with mean of 35mm (Table1.). Apart from some minor complications such as widening of the oral commissure, unsightly extraoral scars and intraoral growth of hair, healing was excellent in all cases without any evidence of infection, dehiscence or necrosis.

Discussion:

OSMF is a chronic, progressive precancerous condition of oral mucosa, predominantly seen in the Indian subcontinent.[1] A progressive inability to open the mouth fully is an important feature in oral sub mucous fibrous due to the formation of fibrous bands especially in the buccal mucosa, posterior palate and lips.[4] The basic aim of any treatment modality of OSMF has been relieving the symptoms that includes, burning sensation in the mouth, ulceration and stiffness of the oral mucosa and progressive limitations in mouth opening there by tampering the functions like deglutition and speech.[5,6]

Conservative treatment involves mouth opening exercises, vitamin and iron supplements, intralesional injections of hyaluronidase, placental extract, intralesional injections of steroids and lycopene therapy. Submucosal injections may produce temporary symptomatic relief but can also lead to aggravated fibrosis, pronounced trismus and increased morbidity due to mechanical injury secondary to injection trauma and chemical irritation from the drug.[7,8] Reliving trismus in OSMF patients presents a difficult surgical problem. Following surgical therapy the oral mucosa should regain and retain its normalcy and there should be a reduction in the risk for oral cancer. However literature contain few references to the successful management of OSMF.[9]

Surgical treatment is required in all advanced cases. The aim of surgical treatment is to release fibrotic bands and provide adequate mouth opening. Excision of the fibrous bands and propping the mouth open to allow secondary epithelialisation causes rebound fibrosis during healing. Various materials like skin graft collagen membrane, single layer of fresh amnion, buccal fat pad graft, tongue flap, palatal falp and forearm free flaps were used to repair resultant defect. The limitation of split thickness skin graft shrinkage and the morbidity

associated with donor site.[10] Use of island palatal flap has limitations, such as its involvement with fibrosis and second molar tooth extraction is required for flap cover without tension.[11] The bilateral tongue flaps cause severe dysphagia, disarticulation, and carry the risk of postoperative aspiration.[12] The quantity of buccal fat varies among individuals; severe atrophy of buccal fat pads was seen in patients with chronic disease. The defect covered by buccal fat pad heal by secondary intention and subsequently fibroses, leading to gradual relapse.[5] Bilateral radial forearm free flaps are not hair-free, 40% of patients require debulking procedures and the facilities for the procedure are not universally available.[13]

Nasolabial flap is an axial pattern flap based on the angular artery which is a branch of facial artery. It can be based inferiorly or superiorly. It is raised in subcutaneous plane without disturbing the oro-facial musculature and can be easily tunnelled to reconstruct various intra-oral defects like oral submucous fibrosis, carcinoma of buccal mucosa or floor of the mouth etc.[14] Modification of nasolabial flap provides greater availability of hairless skin for intraoral reconstruction. Being an island flap it has a longer pedicle, single stage procedure and is therefore of greater versatility.[15]

Our experience with nasolabial island flaps is satisfactory. The disadvantages of this flap include hair growth which can be managed by trimming and epilation and an extraoral scar, which can be reduced by meticulous suturing (Figure 4). The postoperative extraoral scars were hidden in the nasolabial fold and more acceptable in older patients who had prominent nasolabial folds and laxity of the skin as compared to the younger patients.

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TABLE -1. Interincisal mouth opening (mm).

Patients	Preoperative	Intraoperative	Postoperative (1 week)	Postoperative (6 months)
1	8	32	21	32
2	15	42	25	37
3	12	38	23	34
4	11	40	22	36
5	10	38	26	36
6	10	42	23	35
Mean	11	39.6	23.3	35

Figure 1. Intra operative mouth opening after releasing fibrous bands and bilateral coronoidectomy.

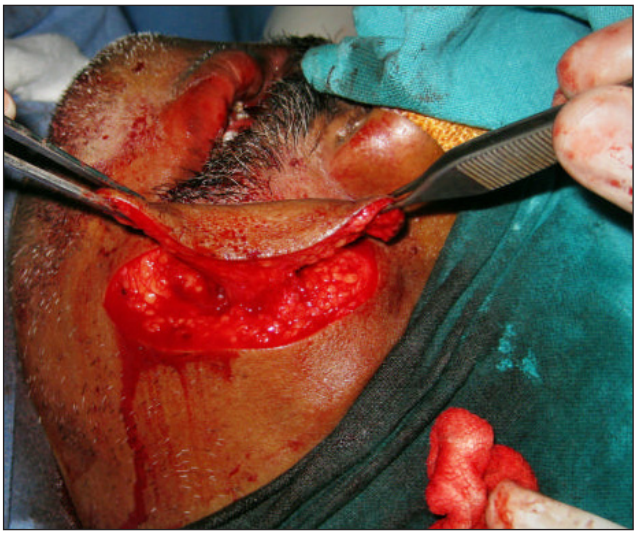

Figure 2. Harvesting of nasolabial flap.

Figure 3. Suturing of donor site

Figure 4. Postoperative photograph showing acceptable extraoral scar