TONGUE FLAP IN ORAL SUBMUCOUS FIBROSIS:
A PROMISING TECHNIQUE

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ABSTRACT

Oral Submucous Fibrosis (OSF) is a chronic, insidious debilitating condition of obscure etiology. In our center a young female patient presented with Oral submucous fibrosis without known causative factor. Patient was suspected of having genetic susceptibility as another sibling of her had the same disease. Due to severe limitation in mouth opening, surgical option of laterally based posterior tongue flap was used after releasing fibrous bands. Post operatively mouth opening was improved considerably with transient dysarthria and dysphagia which improved with the passage of time.

Key Words: Oral Submucous Fibrosis , Tongue flap, Dysarthria, Dysphagia.

INTRODUCTION

OSF is a chronic disease of unknown etiology mainly affecting the oral cavity. Sometimes extending to the larynx and pharynx as well. It is considered to be a premalignant condition. This disease is predominantly found in India. Global estimates from 1996 show 2.5 million people to be affected by this disease while a survey conducted in 2002 reveals more than 5 million people in India to be victims of this disease. Male:female, as reported in Indian community is 0.2-2.3% to 1.2-4.57%. Among the common signs and symptoms are limited mouth opening of varying extent, stomatitis, burning sensation in the oral mucosa, palpable fibrous bands in the soft palate, tongue, buccal mucosa and sometimes lips, eustachian tube narrowing, dysphagia and hoarseness of voice are also reported. Betel nut chewing habit, capsaicin hypsensitivity, areca nut chewing, copper consumption are main etiological factors. Role of the certain genes is also implicated in the genesis of OSF but is very rare. OSF is either treated by medical or surgical therapies with varying results. Among surgical therapies, Tongue flap is not routinely used for OSF in many centers and no published data about its use in OSF has been present in Pakistani literature till date. The objective of this case report was to discuss the technique, merits and demerits of tongue flap in Oral Submucous fibrosis.

CASE REPORT

A 25 year old female patient reported to outpatient department of our institute with the complaint of limited mouth opening for the last 12 years. Patient was in her usual state of health when her mouth opening gradually started decreasing. Patients medical, dental and social history was unremarkable. She revealed no history of any habit. Patients younger brother who is 16 years old is also suffering from the same condition for the last two years. On systemic examination no associated findings were observed. Extraoral exam showed slight sinking of the cheeks. Intra oral examination revealed limited mouth opening, approximately three mm, blanched oral mucosa with no associated ulceration. On palpation stiff fibrous bands were observed on bilateral buccal mucosa extending from corner of mouth to faucal pillars. Soft palate and Tongue were spared. Tongue does not show depapillation, stiffening or loss of taste sensation. Our provisional diagnosis was OSF Grade IV. Considering severity of condition and patients young age, excision of fibrous bands followed by reconstruction with Tongue flap to avoid extraoral scar was planned. The patient was operated under general anaesthesia given through a nasoendotraechal tube using a fiber optic bronchoscope. Incisions were placed bilaterally on the buccal mucosa using an electrosurgical knife. They extended from corner of mouth to the soft palate at the level of the linea alba and avoiding injury to the Stenson's ducts. After fibrous bands have been released, the inter incisal opening was recorded to be 41 mm. Bilateral myomucosal lateral tongue flaps, based on lingual arteries, were raised from the posterior one third.
Tongue flap in oral submucous fibrosis

Fig 1: Pre-op limited mouth opening

Fig 2: Post-op adequate mouth opening

Fig 3: Per op raising of the posteriorly based Lateral Tongue Flap

Fig 4: Per op suturing of the tongue flap at raw fibrotomy site

Fig 5: Per op suturing of the tongue flap in raw fibrotomy site

of the tongue and sutured in the buccal mucosa’s raw area left after fibrotomy. Tongue raw area was sutured primarily using 3.0 vicryl. Lower occlusal splint was placed to create a gap and prevent flap tearing. Patients recovery was uneventful. For first twenty four hours, nasogastric tube was placed to assist in feeding. Later, patient was encouraged to take liquid intake orally. Antibiotics and analgesics were prescribed. Flap was remodeled on 21st day and mouth opening exercises instituted. Patient was regularly followed up without any complaints. At six months follow up, passive mouth opening was 39 mm.

DISCUSSION

OSF, a disease due to an insidious and chronic change in fibroelasticity, is characterized by stiffening and blanching of the oral mucosa, oropharynx and sometimes larynx\(^4,5\) which causes progressive limitation of mouth opening and intolerance to hot and spicy foods.
Many factors have been described in the etiopathogenesis of the disease but still exact cause is not certain.\textsuperscript{10} Causes described in the literature are hypersensitivity to capsaicin secondary to chronic Iron and vitamin B complex deficiencies, habit of chewing are canuts, genetic polymorphisms, role of the collagen related genes as discussed by W.M. Tilakaratne et al.\textsuperscript{6} In our study, contrary to other studies, a genetic predisposition has been the major etiological factor. HLA Antigen A10, DR3, DR7 and probably B7 along with heplphytic pairs A10/DR3, B8/DR3 and A10/88 have been described in some previous studies.\textsuperscript{3} Various treatment modalities like medical and surgical have been described in the literature with inconsistent results.\textsuperscript{27} Medical treatment revolves around administration of vitamin B complex, buphomedial hydrochloride and topical application of triamcinolone acetonide 0.1%, submucosal injections of dexamethasone and hyaluronidase or a combination of both, lycopene, pentoxyfylline and IFN-gamma.\textsuperscript{10} Surgical treatment involves excision of fibrotic tissues followed by covering of the defect with split thickness skin grafting, fresh amnion, or BPF grafts, tongue flap, bilateral forearm free flaps, nasolabial flap.\textsuperscript{3} Temporalis myotomy with coronoidectomy has also been suggested. Medical management has shown good results in case of less severe OSF and giving symptomatic relief. Surgical modalities show more promising outcome in more severe OSF. Nasolabial flaps leave facial scars and at times are hair bearing but are used very successfully especially in old age patients with lax skin. Khanna and Andrade reported the incidence of shrinkage, contraction and rejection in 12 cases of skin grafts.\textsuperscript{9} Borle and Borle also reported disappointing results with skin grafting to cover the raw area, so used tongue flap instead.\textsuperscript{8} Lateral tongue flaps can be raised either anteriorly or posteriorly. After excision of the fibrous bands bilaterally, raw area is left behind. Posteriorly based myomucosal lateral tongue flaps are raised from anterior to posterior direction, based on lingual arteries. 2 to 3 mm of muscle thickness is included to allow for adequate vascularization.\textsuperscript{12} After mobilization of the lingual flap, the donor site is sutured with 4-0 resorbable interrupted sutures. Flap is sutured in the raw fibrocutaneous sites. Flap length is raised according to raw fibrotomy site, taking care not to extend the flap to circumvallate papilla posteriorly and sparing the tip of tongue anteriorly. Approximately 1/3rd of the width of the tongue can be raised.\textsuperscript{1} After three weeks, pedicles are divided and flap remodeling performed. Most advantageous attribute of tongue flap for reconstruction of intraoral defects is its highly vascularity, good mobility, localization, texture match, and low donor area morbidity.\textsuperscript{11} Besides this, according to previous literature, as tongue flap is viable and resistant to OSF, it has high success rate in case of take and in relieving as well as improving trismus.\textsuperscript{3} Some disadvantages of tongue flap like bulk, two stage surgery, requires good patient cooperation as transient dysphagia, disarticulation and risk of postoperative aspiration are reported.\textsuperscript{7,11} According to some studies, tongue is involved by OSF in 38% of patients. So tongue flap is not a better option in case of OSF. Posteriorly based tongue flap also has a technical difficulty in flap elevation and suturing, twisting and avascular necrosis.\textsuperscript{1} Our patient has transient discomfort and swallowing difficulty which improved gradually.

**CONCLUSION**

Tongue flap is an excellent option for relieving severe trismus in young OSF patients and especially of female gender. It can improve aspects like nutritional intake, oral hygiene maintenance and psychological well being of the patient with avoidance of any extroral scar mark.

**REFERENCES**


**CONTRIBUTIONS BY AUTHORS**

1. **Zainab Akbar:** Substantial contributions to conception & design, or acquisition of data, or analysis & interpretation of data
2. **Eman Zafar:** Drafting the article or revising it critically for important intellectual content
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