ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 06 | June - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

EXTENDED NASOLABIAL FLAP FOR ORAL SUBMUCOUS FIBROSIS: CASE-BASED EXPLORATIONS AND OUTCOMES

Maxillofacial Surgery

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ABSTRACT

Introduction: Oral submucous fibrosis (OSF) is a chronic, debilitating condition primarily found in Southeast Asia, caused by habitual areca nut consumption. It leads to pallor and rigidity of the oral mucosa, restricted mouth opening, and increased sensitivity to hot and spicy food. Histologically, OSF involves an inflammatory response followed by fibroelastic changes, resulting in epithelial atrophy and trismus. **Materials And Methods:** This study included five patients with advanced OSF and an interincisal distance of less than 15 mm. Patients underwent surgical intervention after providing informed consent. Preoperative data on age, gender, etiological factors, and mouth opening were recorded. OSF was confirmed histopathologically. Patients were followed up for one year, with the primary metric being maximum interincisal distance. **Results:** All patients achieved and maintained adequate mouth opening without flap loss or infections. No complications such as flap discoloration or vascular issues occurred. Minor issues like ecchymosis and hypertrophic scars were successfully managed. The mean forced intraoperative mouth opening was 42 mm, and at one year, it was 32 mm. Aesthetic outcomes were satisfactory, with effective mastication and relief from burning sensations by the sixth week postoperatively. **Conclusion:** The extended nasolabial flap is a versatile and effective solution for reconstructing post-fibrotomy defects in OSF cases, offering dependable vascularity, minimal functional impact, and satisfactory cosmetic outcomes.

KEYWORDS

Oral Submucous fibrosis , Extended Nasolabial flap, Pre-malignant condition, Trismus

INTRODUCTION

Oral submucous fibrosis (OSF) is a debilitating ailment that impacts the entire oral cavity, occasionally extending its reach to the pharynx and, infrequently, the larynx. Its hallmark characteristics involve the pallor and rigidity of the oral mucosa, culminating in a gradual constriction of mouth opening and an increased sensitivity to hot and spicy food. As the condition advances, it gives rise to challenges in mastication, speech, and swallowing. Predominantly prevalent in the Indian subcontinent, particularly in Southeast Asia, OSF finds its roots in the habitual consumption of areca nut, serving as the primary etiological factor for this condition. [1] Arecoline, an alkaloid found in areca nut, triggers the proliferation of fibroblasts and the synthesis of collagen. Additionally, the areca nut comprises flavonoids such as catechin and tannins. These compounds play a crucial role in stabilizing collagen fibrils, making them resilient against degradation by collagenase.[2] Histologically it presents as an inflammatory response juxtaposed to the epithelium, succeeded by fibroelastic alterations in the lamina propria. This sequence induces epithelial atrophy, resulting in the rigidity of the oral mucosa, leading to conditions like trismus and impaired ability to consume food.[2]

The objective in treating oral submucous fibrosis is to enhance mouth opening and alleviate associated symptoms. Surgical intervention becomes necessary for individuals experiencing significant restrictions in mouth opening. In such cases, fibrous bands are excised, and the resulting surgical defects are reconstructed using diverse grafting techniques, including split-thickness skin grafts, tongue flaps, nasolabial flaps, palatal island flaps, and buccal fat pad grafts.[5] The Extended Nasolabial flap is commonly categorized as an axial pattern flap with its blood supply originating from the facial artery. This flap can be based either superiorly or inferiorly. The dependability of the extended nasolabial flap is attributed to its consistent vascularity derived from multiple vessels in close proximity. Its recommendation is grounded in its ease of elevation, close proximity to the target defect, appropriate size for effective coverage, minimal impact on swallowing and speech functions, and the potential for a relatively cosmetically favorable outcome, given that the resulting scar aligns with natural creases.[5]

MATERIALS AND METHODS

Our hospital received and treated a cohort of five patients diagnosed with advanced Oral Submucous Fibrosis (OSMF). Each patient participated in the surgical intervention after providing informed consent. The severity of OSMF in these cases was characterized by an interincisal distance measuring less than 15 mm. Comprehensive data, including age, gender, etiological factors, history of gutkha/tobacco consumption, and preoperative mouth opening, were meticulously recorded for each patient. Furthermore, all cases were confirmed through histopathological examination. A regular follow-up protocol was implemented for a duration of one year, during which the patients' progress was closely monitored. The primary metric of interest was the maximum interincisal distance, measured at specific intervals throughout the follow-up period. This approach allowed for a thorough assessment of the effectiveness and long-term outcomes of the Extended Nasolabial Flap for reconstruction of post fibrotomy defect.

Surgical Technique

The surgical procedures were conducted under general anesthesia administered through a nasoendotracheal tube with the assistance of a fiber-optic bronchoscope. Bilateral incisions were meticulously made on the buccal mucosa using a surgical knife, extending from the corner of the mouth posteriorly depending on the location of fibrous bands at the occlusal level and away from Stenson's duct orifice. Forcible mouth opening was achieved using Histers mouth gag, and a satisfactory voluntary mouth opening was achieved (Fig.1C). Following the release of fibrous bands, the interincisal opening was documented for each patient. To address the coronoid processes, the same incisions were utilized, and a bilateral coronoidectomy or coronoidotomy was performed. Additionally, extractions of maxillary and mandibular third molars were carried out during the same surgical session. Inter-incisal mouth opening of an average of 42 mm was achieved for all patients.

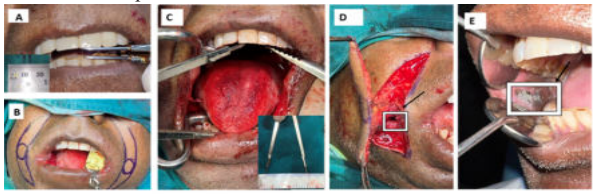

FIG. 1 – (A) Pre-operative mouth opening. (B) Marking of the extended Naso-labial flap. (C) 45mm mouth opening achieved post bilateral fibrotomy. (D) Naso-labial flap harvested and transbuccal tunnel created. (E) 12 weeks Post operatively – note intra-oral hair growth at the anterior edge of the flap.

For reconstruction, extended nasolabial flaps were bilaterally raised, spanning from the tip of the nasolabial fold to the inferior border of the mandible (Fig-1B). These flaps were carefully elevated in the plane of the superficial musculoaponeurotic system, extending from both terminal points to the region of the central pedicle. The pedicle, situated 1 cm lateral to the corner of the mouth, exhibited a diameter of approximately 1 cm intraorally, the transposition of the flap was accomplished through a small transbuccal tunnel near the commissure of the mouth, ensuring a tension-free placement (Fig-1D). Subsequently, the transposed flaps were utilized to cover the intraoral defects, with the inferior wing sutured to the anterior edge of the defect and the superior wing sutured to the posterior edge (Fig-2B).Closure of the extraoral defect was performed primarily in layers after generous undermining of the skin in the subcutaneous plane, minimizing tension across the suture line and ensuring optimal wound healing.

RESULTS

The results for all patients were deemed favorable, with none experiencing flap loss, either complete or partial, across the entire sample. Notably, all individuals achieved and sustained adequate mouth opening without encountering infections at either the transferred flap or the recipient site. Complications associated with vascularity, such as the occurrence of a blue or white flap, were conspicuously absent. While one patient did display slight ecchymosis at the flap tips and suture margins, this phenomenon gradually resolved within 7-10 days postoperatively. Importantly, this minor issue did not compromise the overall success of the surgical intervention and did not necessitate any specific interventions. Following the bilateral release of fibrotic bands, the mean forced intraoperative mouth opening reached 42 mm, with a range of 38-45 mm (Fig.1C and 2B) Subsequently, at the culmination of the 1-year follow-up period, a mean mouth opening of 32 mm was observed, with a range of 28-36 mm.

Fig.2 (A) Preoperative mouth opening. (B) Extended Nasolabial flap tunneled intraorally and sutured. (C) 4 weeks post – operatively (D) 8 weeks postoperatively – note the complete mucosalization of the flap.

The overall aesthetic outcomes in the extraoral region were generally regarded as satisfactory for the patients, eliminating the need for donor site revision. However, in one case, the observation of intraoral hair transferred with the flap prompted attention (Fig-1E). This specific concern was successfully managed through subsequent de-epithelialization, ensuring resolution without the requirement for further intervention. In another patient, the development of an orocutaneous fistula near the pedicle site necessitated prompt intervention. The management approach involved the meticulous freshening up of the wound and primary closure, effectively addressing the complication. Furthermore, hypertrophic scar formation was observed in one patient. This issue was successfully managed through four rounds of intralesional administration of Injection Dexamethasone 8mg, contributing to the overall success of the surgical intervention. In the postoperative phase, all patients demonstrated effective mastication of solid food by the sixth week of follow-up. Additionally, all patients experienced relief from burning sensations while consuming regular hot and spicy food within the same 6-week timeframe. Complete mucosalization of the flap was noted in a period of 6-8 weeks (Fig-1E and 2D).

DISCUSSION

Oral submucous fibrosis, a precancerous condition, exhibits a notable prevalence in the Indian subcontinent. The etiology of this condition is multifaceted, with various factors contributing. Predominantly, the habitual consumption of betel nut and tobacco stands out as the most prevalent and widely acknowledged factor. In our study, all enrolled patients shared a positive history of engaging in the consumption of betel nut, tobacco, or a combination of both for varying durations.[1] Its treatments primarily focus on symptomatic relief since the etiology of the disease remains incompletely understood and it exhibits a progressive nature. Conservative therapeutic approaches encompass the administration of vitamins and iron supplements. In addition, intralesional injections involving hyaluronidase, placental extracts, and steroids are employed to alleviate symptoms and manage the condition. [4]

The surgical approach to treating oral submucous fibrosis is focused on enhancing interincisal mouth opening and alleviating persistent trismus. The augmentation of mouth opening not only enhances a patient's capacity for effective mastication but also positively impacts speech, phonation, aesthetics, and oral hygiene. Furthermore, the increased access facilitated by improved mouth opening enables thorough examination for potential malignant transformations in the posterior region, allowing for early surgical intervention when needed**.** [2] To address the closure of the defect, diverse flaps such as temporal myofacial flaps, platysma myocutaneous flaps, palatal island flaps, bilateral tongue flaps, full-thickness or split-thickness free skin grafts, buccal fat pads, bilateral radial forearms, and anterolateral thigh free flaps have been employed, yielding varied and sometimes unpredictable outcomes.[2]

The extended nasolabial flap operates as a subcutaneous flap, benefiting from a rich network of blood vessels within the subcutaneous tissue. Unlike axial flaps that rely on specific vessels for vascular supply, this flap is of the random type and is nourished by a subdermal vascular plexus.[6]The extended nasolabial flap presents several advantages, notably having the donor site within the same operating field, ensuring reliable and robust vascularity. Its versatility in design, close proximity to the defect, and ease of elevation make it a favorable choice. The supple nature of the skin contributes to increased mouth opening and minimizes esthetic deformity. However, it comes with certain drawbacks, including the potential for intraoral hair growth, temporary widening of the oral commissure, and occasional development of hypertrophic scars at the donor site.[1]

Notably, none of the five patients included in the study experienced intraoperative complications such as damage to facial vessels, parotid duct, or branches of the facial nerve. Furthermore, our series recorded an absence of complications such as flap loss, flap avulsion, obstructive sialadenopathy, or wound dehiscence.[1] The healing process at the donor site progressed uneventfully, and the flap seamlessly adapted to the oral mucosa in all cases, contributing to the overall success of the surgical interventions.[1]

CONCLUSION

The extended nasolabial flap proves to be an adaptable solution, demonstrating successful reconstruction in the aftermath of fibrotic band release in OSMF cases. Its versatility stems from a dependable vascularity supplied by a network of numerous vessels in its vicinity. This flap is recommended due to its ease of elevation, close proximity to the defect, optimal size for effective defect coverage, minimal impact on swallowing and speech functions, and the added benefit of yielding a relatively cosmetic result with scarring discreetly situated in the natural skin crease.

REFERENCES

1. Patil, S. B., Durairaj, D., Suresh Kumar, G., Karthikeyan, D., & Pradeep, D. (2017). Comparison of Extended Nasolabial Flap Versus Buccal Fat Pad Graft in the Surgical Management of Oral Submucous Fibrosis: A Prospective Pilot Study. *Journal of maxillofacial and oral surgery*, *16*(3), 312–321. https://doi.org/10.1007/s12663-016-0975-6
2. Lambade, P., Meshram, V., Thorat, P., Dawane, P., Thorat, A., & Rajkhokar, D. (2016). Efficacy of nasolabial flap in reconstruction of fibrotomy defect in surgical management of oral submucous fibrosis: a prospective study. *Oral and maxillofacial surgery*, *20*(1), 45–50. https://doi.org/10.1007/s10006-015-0519-0
3. Rahpeyma, A., & Khajehahmadi, S. (2016). The place of nasolabial flap in orofacial reconstruction: A review. *Annals of medicine and surgery (2012)*, *12*, 79–87. https://doi.org/10.1016/j.amsu.2016.11.008
4. Borle, R. M., Nimonkar, P. V., & Rajan, R. (2009). Extended nasolabial flaps in the management of oral submucous fibrosis. *The British journal of oral & maxillofacial surgery*, *47*(5), 382–385. https://doi.org/10.1016/j.bjoms.2008.08.019
5. Balaji S. M. (2016). Versatility of nasolabial flaps for the management of severe trismus in oral submucous fibrosis. *Indian journal of dental research : official publication of Indian Society for Dental Research*, *27*(5), 492–497. https://doi.org/10.4103/0970-9290.195627
6. Kamath V. V. (2015). Surgical Interventions in Oral Submucous Fibrosis: A Systematic Analysis of the Literature. *Journal of maxillofacial and oral surgery*, *14*(3), 521–531. https://doi.org/10.1007/s12663-014-0639-3