

Versatility of buccal fat pad in management of oral Submucous fibrosis: Case series

Archana Chaurasia¹, Sumit Bhatt², Bharat Veer², Priyank Gupta²

¹ Associate Professor, Department of Oral and Maxillofacial Surgery, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India

² Department of Oral and Maxillofacial Surgery, Institute of Dental Sciences, Bareilly, Uttar Pradesh, India

Abstract

Submucous fibrosis is a debilitating chronic condition marked by progressive fibrosis of the oral cavity and throat, particularly the buccal mucosa, resulting in trismus. The disease has a significant prevalence in the Indian subcontinent, with the highest incidence in South India due to a variety of harmful practises. Surgical surgery is sometimes necessary in the treatment of oral submucous fibrosis, despite the many medicinal options available. Following the removal of fibrous bands, various flaps have been employed to restore surgical defects. Because of its superior vascular supply and low donor site morbidity, the buccal fat pad remains the most versatile.

Keywords: medinilla beddomei, phytochemicals, GC MS analysis, acetone extract, fever

Introduction

In 1952, Schwartz developed the name "atrophica idiopathica mucosa oris" to describe an oral fibrosing disease found in five Kenyan Indian women [1]. In 1953, Joshi coined the term "oral submucous fibrosis" to describe the disorder. Oral submucous fibrosis affects 2.5 million people worldwide, with the majority of instances occurring in the Indian subcontinent, particularly in eastern and southern India [2]. In India, oral submucous fibrosis affects people of all ages and from all socioeconomic backgrounds [3]. After Pan Parag was introduced to the market, there was a significant increase in the incidence of oral submucous fibrosis, which has continued to rise. The majority of patients have a spicy food intolerance, as well as rigidity of the lip, tongue, and palate, limiting mouth opening and tongue motions to varied degrees [4]. Oral submucous fibrosis treatment can be divided into two categories: medicinal and surgical [5]. Multiphase injections of hydrocortisone, hyaluronidase, triamcinolone, placental extract, with vitamin, and iron supplements are among the medicaltherapies.. Intralesional steroids are likely to be effective only in cases where mouth opening is severely impaired. Kerr *et al* [6]. have thoroughly documented on the medical management in the review literature. When a patient's mouth opening is severely restricted, surgical therapy is the preferred option. Flaps and coronoideotomy are used to resurface the defect when the fibrous bands are released [7]. Various surgical treatments documented in the literature claim varying degrees of success. It's only recently that buccal fat pad has been used as a grafting source. The buccal fat pad is a pliable, lobulated mass that is easy to reach and mobilise. After tumour resections and oroantral communications after tooth extractions, the buccal fat pad is primarily employed to cover abnormalities in the posterior maxilla regions [8, 9, 10]. The goal of this study is to see how effective buccal fat pads are as an interpositioning material in the surgical treatment of oral submucous fibrosis.

Materials and Methods

Between 2018 and 2021, at our centre surgically treated 4 patients of verified oral submucous fibrosis with a mouth opening less than 20 mm including the buccal mucosa. After surgery and the removal of fibrous bands, a pedicled buccal fat pad was used as an interpositioning material to cover the bare portions in the mouth cavity. All of the patients exhibited significant trismus. Each patient was asked to provide a full personal history, with a focus on their cigarette use. In every case, the preoperative interincisal distance was measured with the mouth open widest (Figures 1 and 2). Preoperative oral prophylaxis was used in all instances.



Fig 1-2: Bilateral oral submucous fibrosis (preop).

Methods

The procedures were done with fibro-optic nasal intubation and general anaesthesia. The horizontal. The surgical knife was used to make an incision along the occlusal plane on the buccal mucosa, away from Stenson's duct opening. Digital palpation was used to discover the fibrous bands. Fibrous bands were freed after dissection with fingertips. Manipulation was used to further release the wounds until no constraints were felt. The mouth was then forced to open to an appropriate range of around 35 mm using the mouth gag. The coronoid process was reached through the wounds generated or with another incision made along the mandible's external oblique ridge. Subperiosteal dissection was used to uncover the coronoid process. The coronoid process was osteotomized and coronoidectomy was accomplished with the use of a bur. The mouth opening was measured intraoperatively. A mouth openness of 30–35mm was considered the minimum acceptable opening in adults. A tiny portion of the lesions were removed and biopsied. The buccal fat pad was reached from behind the zygomatic buttress, on the posterior superior margin of the generated buccal defect (Figure 3). After blunt dissection, the buccal fat pad was softly mobilised via the sub mucosa until a considerable volume was acquired to cover the defect without stress. This was accomplished by gently releasing the buccal fat pad to the bare area with small artery forceps and securing with 3/0 Vicryl suture. The buccal fat pad was used to mask the buccal flaps that ran from the soft palate to the corners of the mouth (Figures 4 and 5). Antibiotics were given to all of the patients as a precaution. Ampicillin 1 gm IV was given before intubation. Ryle's tube was retained intraoperatively for feeding in some situations where the mouth aperture was severely constricted operatively. For at least one week after surgery, all of the patients were on a liquid diet. The patients were told to rinse their mouths with 10mL of Hexidine every eight hours.

After 36 hours, mouth opening exercises were started using Hiester's mouth gag 15–20 times thrice daily for at least 1 month for all patients. All patients were instructed to do the exercises 15–20 times thrice daily for at least one month. The patients were told that they needed to quit smoking immediately. Every month, all of the patients were contacted for follow-up. A complete clinical examination was performed after patients were asked about their signs and symptoms. The condition of the mouth was recorded.



Fig 3: Buccal fat pad exposed.



Fig 4: Buccal fat pad sutured (left).



Fig 5: Buccal fat pad sutured (right).



Fig 6: After 1 week.



Fig 7: After 1 week (left).



Fig 8: After 1 week (right).



Fig 9: Preoperative picture.



Fig 10: Postoperative picture (6 months).

Results

Tables 1 reveal that the results were satisfactory in all of the patients. The range of preoperative mouth openness was 3–18mm (mean 14mm) in four subjects (Tables.1). As a result of the effective surgical therapy, the intraoperative mouth opening ranged from 25–38mm (mean 33.25 mm). 5–7 days following the operation, the patients were discharged (Figures 6, 7, and 8). At the time, the mouth opening range was 25–36mm (mean 30.63 mm). The pedicled grafts grew in smoothly and epithelialized in 3 to 4 weeks. After a 6-month follow-up period, the postoperative mouth openness was 18–35mm (mean 30mm) (Figures 9 and 10).

Discussion

Case-control studies¹¹ that assessed the odds ratios for areca nut usage among oral submucous patients and a dose-dependent association between areca nut and illness causation provide the most persuasive data. The frequency of use appears to be more relevant than the habit's longevity. Oral submucous fibrosis was linked to a high frequency of chewing and a long duration of chewing. Oral submucous fibrosis develops more quickly in commercially prepared pan masala, Guthka, and mawa (areca and lime), than in self-prepared traditional betel quid.¹¹ Early on, the histopathology^[12] comprises largely of chronic inflammatory cells infiltrating the subepithelial connective tissues with an eosinophilic component. Lesions that are older have less vascularity, fewer inflammatory cells, and thick bundles and sheets of collagen deposited just beneath the epithelium. Subepithelial stroma hyalinization commonly extends into submucosal tissues, replacing fatty and fibrovascular tissues. As a result, the treatment modality's primary goal has been to alleviate symptoms such as trismus, difficulties masticating, deglutition, and speech that impede function.

Kerr *et al.*^[6] have thoroughly documented on the medical management in the review literature. They came to the conclusion that there was insufficient data to support nonsurgical management of oral submucous fibrosis. The surgical treatments were largely designed to remove fibrotic bands surgically. The buccal fat pad is a pliable, lobulated mass that is easy to reach and mobilize. Anatomically fat pads have a central body and four extensions account for 55 to 70% of the total weight.^[8, 9] The major body is located deep within the posterior maxilla and upper buccinator fibres. The buccal extension is found on the cheek's surface and is responsible for the cheek's fullness. It is frequently seen by accident during maxillary orthognathic procedures, and there have been instances of spontaneous or traumatic buccal fat pad herniation in youngsters^[9]. The buccal fat pad is a suitable flap due to its ease of mobilisation, adequate vascular supply, and low donor site morbidity. Buccal fat pad has several advantages, including ease of harvesting, simplicity, adaptability, low risk of complications, and a rapid surgical approach. The procedure can be done in one incision, with little effect on the area's appearance or function^[12]. It's been used as a pedicled graft in face augmentation procedures, to repair chronic oroantral fistulas following tooth extractions, and to restore small and medium-sized maxillary defects following tumour resection. After temporalis myotomy and coronoidectomy, Canniff *et al.*^[13] were successful with split thickness skin grafts.¹⁴ Skin graft was utilised to cover the defect after excision of fibrotic bands produced contracture during healing, according to R. M. Borle and S. R. Borle^[5]. The rate of graft shrinkage, contracture, and rejection was found to be extremely high. Khanna and Andrade^[15] found that recurrences were widespread in their research. The morbidity associated with the donor site is another drawback of split thickness skin grafts. Tongue flaps were used to hide the buccal deformities, but they proved to be too bulky. Bilateral tongue flaps can result in severe dysphagia and the danger of aspiration after surgery. In oral submucous fibrosis, a bilateral radial forearm flap has been used to resect buccal abnormalities^[16]. The buccal fat pad proven to be a logical, convenient, and dependable interpositioning material due to its anatomic position and adequate blood supply, as well as the simplicity with which it may be accessible and moved without causing donor site morbidity.¹⁷ Because of the anatomic proximity of the donor and recipient sites, the surgery is quick. The transplant can be accessed through the same buccal incision that was utilised to extract the fibrotic bands^[18, 19]. If it fails, the effects will be minor because other solutions are available. In all cases, postoperative recovery went smoothly with no signs of infection. The postoperative mouth opening ranged from 25 to 36mm in our study (mean 30.63 mm). Clinical evaluation revealed involvement in physiologic activities such as buccal mucosa suppleness and elasticity. All of the patients' symptoms, such as burning and intolerance to spices, were removed. According to this study, connective tissue replaced the transferred buccal fat pad tissue following surgery. The degree of mouth opening was correlated in all cases with a follow-up of more than 6 months. All of the cases had good postoperative mouth opening, according to the findings.

Conclusion

The buccal fat pad appears to be an effective interpositional graft in the surgical management of oral submucous fibrosis, based on the positive outcomes of this study and the benefits it provides.

Table 1: Results of treatment: mouth opening.

| S.No | Age/sex | Preop (mm) | Intraop (mm) | At discharge (mm) | After 1 month (mm) | After 6 months (mm) |
|------|---------|------------|--------------|-------------------|--------------------|---------------------|
| 1 | 22/M | 11.1 mm | 35 mm | 22 mm | 23 mm | 25 mm |
| 2 | 35/F | 17 mm | 40 mm | 26 mm | 27 mm | 30 mm |
| 3 | 28/F | 13 mm | 35 mm | 30 mm | 24 mm | 26 mm |
| 4 | 29/F | 13.2 mm | 45 mm | 22 mm | 25 mm | 29 mm |

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