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Original Research

Effectiveness of buccal fat pad in surgical management of oral submucous fibrosis: A prospective study of 20 cases

Shoyeb K. Shaikh, Madan Mishra*, Gaurav Singh, Jitender K. Aurora, Saif Khurhsid

Department of Oral and Maxillofacial Surgery, Sardar Patel Postgraduate Institute of Dental and Medical Sciences, Lucknow, Uttar Pradesh, India

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ABSTRACT

Objectives: The objectives of this study were to evaluate the effectiveness of pedicled buccal fat pad in the surgical management of oral submucous fibrosis and assessment of interincisional opening, relief from symptoms, wound healing and relapse rate.
Study design: A total of 20 patients of oral submucous fibrosis of group IVa (Khanna and Andrade) were selected for the study. Patients were strongly advised for discontinuation of any adverse oral habits. Patients were followed up for one year.
Results: Mean preoperative mouth opening was 11.25 mm (SD 3.46 mm) and intraoperative mean mouth opening achieved was 41.75 mm (SD, 3.74 mm). Mean postoperative mouth opening after 1 year follow up was of 31.05 mm (SD 6.80 mm). None of the cases showed infection at any postoperative time interval. A total of 2 (10%) patients reported of burning sensation and a total of 1 (5%) had wound dehiscence which was subsequently managed successfully. A total of 2 (10%) patients showed relapse. Overall success rate was 90%.
Conclusion: Buccal fat pad functions well as a pedicled graft in the surgical management of oral submucous fibrosis. The healing was uneventful with the uptake of graft but vigorous postoperative physiotherapy was necessary for the first three months and continuing it for a minimum for 1 year to maintain the postoperative mouth opening achieved intraoperatively.

1. Introduction

Sushruta in the ancient Indian medicine text during the third and fourth century described a condition termed "vidari" under mouth and throat disease as progressive narrowing of mouth and pain on taking food, all these being observed to be characteristic features of oral submucous fibrosis [1].

Schwartz in 1952 coined the term atrophica idiopathica mucosa oris in 5 Indian women from Kenya; Joshi in 1953 subsequently termed the condition first time as oral submucous fibrosis [2–4]. Oral submucous fibrosis is a chronic debilitating fibrotic disease of oral cavity typically affecting the buccal mucosa [4], tongue, lips, soft palate [5] and sometimes also pharynx and oesophagus [3], occasionally preceded by vesicle formation [6]. It is always associated by fibrous band and histopathologically observed juxtraepithelial inflammatory reaction followed by a fibroelastic change of lamina propria with epithelial atrophy leading to stiffness of the oral mucosa, trismus and inability to eat [7].

Various reported etiological factors for the disease can be areca nut, capsaicin in chillies, micronutrient deficiencies of iron, zinc and essential vitamins. A possible autoimmune basis to the disease with demonstration of various auto-antibodies and an association with specific human leukocyte antigens has been reported, which raises the possibility of a genetic predisposition of some individuals to develop oral submucous fibrosis (OSMF) [8]. In the past various studies on surgical treatment of OSMF with various kinds of grafts have been introduced, such as nasolabial flaps [9], split-thickness skin grafts [10], radial forearm flap [11], superficial temporal facial flap with split skin graft [10] and palatal island flap [12]. These grafts have their own limitations and require surgeon's skill. The introduction of buccal fat pad (BFP) for the surgical management of OSMF is proved to be very efficient. The surgical procedure is easy and donor site is in close proximity.

The BFP was first recognized as such and described by Bichat in 1802 [13,14]. It is a mass of specialized fatty tissue which is distinct from subcutaneous fat and remains constant in terms of size even in extreme weight gain or loss and not proportional to total body fat [15,16]. The bulk of BFP occupies the buccal space and rests on the

☆ AsianAOMS: Asian Association of Oral and Maxillofacial Surgeons; ASOMP: Asian Society of Oral and Maxillofacial Pathology; JSOP: Japanese Society of Oral Pathology; JSOMS: Japanese Society of Oral and Maxillofacial Surgeons; JSOM: Japanese Society of Oral Medicine; JAMI: Japanese Academy of Maxillofacial Implants.

* Corresponding author. Tel.: +91 9565740127.
E-mail address: mm.15mds@gmail.com (M. Mishra).

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Fig. 1. Preoperative mouth opening.

periosteum that covers the posterior buccal aspect of the maxilla. It has a rich blood supply through the small branches of the facial artery, the internal maxillary artery, and the superficial temporal artery and vein by an abundant network of vascular anastomosis [17]. On an average the volume of BFP is 9.6 ml (range 8.3–11.9 ml) [18]. Defects up to 3 cm × 5 cm can be closed with BFP without compromising its blood supply [19]. Tideman et al. reported that the BFP flap is epithelialized within 2–3 weeks, thus obscuring any need of additional skin graft [19].

The advantages of using buccal fat pad are: it is a quick, simple, equally effective and technically easier flap to use where most of the oral and maxillofacial surgeon can develop expertise and execute with ease with no special or costly armamentarium and the procedure would be affordable to every socioeconomic state of people. It heals with minimal scarring having low relapse [13], can be harvested through same resection bed, thus has a very low morbidity [17] with excellent functional outcomes [9].

2. Materials and methods

A total of 20 clinically diagnosed patients (5 females–15 males) of OSMF group IVa (Khanna and Andrade) having mouth opening between 2 and 15 mm (Fig. 1), aged 16–53 years, were taken up randomly irrespective of age, sex, caste and creed. Approval of the ethical committee of the institute was taken for all the patients of the study. Patients were strongly advised for discontinuation of any adverse oral habits.

The operations were performed under general anesthesia with nasal intubation either blind nasal, retrograde or fiber optic intubation keeping the mouth opening in view. The patients underwent infiltration along the planned incision line parallel to the occlusal plane with 2% lignocaine with 1:80,000 adrenaline. A No. 15 Bard Parker blade was used for incising fibrotic bands on each side of the buccal mucosa at the level of the occlusal plane away from Stensen orifice. The incision line extended from the pterygomandibular raphe and/or anterior faucial pillars to as far as the premolar region and/or corner of mouth depending on the extend of the fibrotic bands detected by palpation. The incised fibrotic bands were further disentangled manually until no restrictions were felt. Bilateral temporalis myotomy and coronoidectomy or coronoidotomy was done in all the cases (five patients had coronoidectomy and rest had coronoidotomy). The mouth was then forced open with a Heister

Fig. 2. Intraoperative mouth opening.

mouth gag to an acceptable range of more than 35 mm (Fig. 2). Prophylactic extractions of all the erupted third molars were done. Bilateral buccal defects ranging from 4 cm × 2.5 cm to 5.5 cm × 3 cm were covered with BFP after hemostasis. The buccal fat pad (main body and buccal extension) was approached through the posterior superior margin of the created buccal defect posterior to the zygomatic buttress. After blunt dissection, through the submucosa the buccal fat pad was teased out gently until a significant amount was obtained to cover the defect without tension. The interrupted mattress sutures were placed by use of No. 3-0 Vicryl to secure the flap (Fig. 3). Same procedure was performed on the opposite side. The buccal fat pad covered the entire defect eliminating the possibility of secondary epithelialization.

Postoperatively, all patients received prophylactic antibiotics and nasogastric feeding for 1 week. Mouth opening exercises were started within 36 h. This intensive exercise was carried out daily

Fig. 3. Buccal fat pad sutured over defect.