Management of oral submucous fibrosis by different surgical approaches: report of three cases

Rashmi Agarwal,¹ Ambrish Kaushal,² Rajeev Kumar Singh,³ Yogesh Upadhyay⁴

¹Department of Oral and Maxillofacial Surgery, Chandra Dental College and Hospital, Barabanki, Uttar Pradesh, India

²Department of Oral Pathology and Microbiology, Chandra Dental College and Hospital, Barabanki, Uttar Pradesh, India

³Department of Paediatric and Preventive Dentistry, King George's Medical University (Erstwhile Chhatrapati Shahuji Maharaj Medical University), Lucknow, Uttar Pradesh, India

⁴Department of Conservative Dentistry and Endodontics, Chandra Dental College and Hospital, Barabanki, Uttar Pradesh, India

Correspondence to

Dr Rajeev Kumar Singh,
rajkids2000@yahoo.co.in

SUMMARY

Oral submucous fibrosis (OSMF) is an insidious chronic progressive disease of the oral cavity which is considered as a precancerous condition. The suggested aetiological factor is the practice of certain customs/habits of the inhabitants of South East Asia. As the disease progresses, the oral mucosa becomes stiff due to the formation of fibrotic bands in the cheek, ultimately leading to reduced mouth opening and trismus. The early form of the disease can be treated by medicinal means, however, advance form needs surgical excision of the fibrotic tissue bands. The defect created due to the excision needs to be repaired by various grafts including split thickness skin grafting, bilateral nasolabial flaps, palatal island flaps, tongue flaps, buccal fat pad graft and temporalis muscle flap graft. We present the management of trismus following OSMF by various surgical approaches in three cases.

BACKGROUND

Oral submucous fibrosis (OSMF) is an insidious chronic disease, affecting various parts of the oral cavity which quite often extends to the pharynx.¹ It is characterised by the formation of vesicles along with juxta epithelial inflammatory reaction and fibroelastic changes in the lamina propria with atrophy leading to stiffness of oral mucosa, formation of fibrotic bands in cheek leading to trismus, burning sensation of the oral mucosa and inability to eat hot and spicy food.¹ The disease is predominantly found in Indian subcontinents, due to various deleterious chewing habits present in the inhabitants.

It is the condition which carries high risk of malignant transformation, that is, 3–7.6%. To date, no conclusive aetiological apart has been identified, although plenty of data have been generated on various aspects of the disease. The mainstay in the treatment of OSMF, is therefore concentrated on attempts to improve the mouth opening. OSMF can be managed by medicinal or surgical means, which constitutes two broad categories of its management.² The medical management includes multiphase injections of hyaluronidase, hydrocortisone, placental extract, triamcinolone plus vitamin and iron supplements.³ The use of intralesional steroids is limited only in cases with a mild form of the disease. Kerr *et al*⁴ has extensively reviewed the medical management of OSMF. The surgical treatment remains the method of choice in patients with marked limitation of mouth opening.⁵ Various used surgical modalities include: release of fibrous bands and covering of the raw areas with split thickness skin grafting, bilateral nasolabial flaps, palatal island flaps, tongue flaps, temporalis myotomy and

coronoidectomy.⁵ We present three cases of OSMF treated by different surgical approaches.

CASE PRESENTATION

Case 1

A 30-year-old male patient reported to the Out Patient Department of Oral Surgery with the chief complaint of inability to open the mouth and difficulty in eating. The patient started developing aforesaid problems for the last 1 year, which worsened gradually. The medical history of the patient was non-significant. The patient had a habit of chewing betel nut for last 7 years. Extraoral examination of the patient revealed reduced jaw movements. An intraoral examination evidenced reduced interincisal mouth opening (approximately 18 mm) and presence of blanching in buccal, palatal and retromolar regions with dense fibrotic bands. Based on peculiar clinical findings, the diagnosis of OSMF was established.

Case 2

A 25-year-old male patient was referred to the Out Patient Department of Oral Surgery for the management of the chief complaints of decreased mouth opening and burning sensation of the oral mucosa. These symptoms persisted from last 1 year and gradually became more pronounced. The medical history of the patient was non-relevant; however, a habit of chewing betel nut was present from last 5 years. No significant findings were noticeable on extraoral examination but reduced jaw movements. The patient's intraoral examination revealed the presence of blanched oral mucosa in the soft palate, buccal, labial and retromolar regions with palpable fibrous bands in the buccal mucosa. The patient had a reduced mouth of approximately 17 mm. A diagnosis of OSMF was established, based on the characteristic clinical findings.

Case 3

A 27-year-old male patient reported to the Out Patient Department of Oral Surgery with the chief complaints of stiffness of oral mucosa, burning sensation, inability to eat hot and spicy food and reduced mouth opening. The patient was suffering from aforesaid symptoms for the last 6 months. A habit of chewing betel nut was present for the last 10 years. Reduced jaw movements were evidenced on extraoral examination. Intraorally, blanching of oral mucosa was present in buccal, palatal and retromolar regions. Palpable fibrous bands were present in the buccal mucosa with reduced elasticity and tongue movements were restricted. The mouth opening was 14 mm

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approximately, which was subnormal. Based on the classical features present, a diagnosis of OSMF was established.

TREATMENT

Case 1

Prior to the surgical procedure, a thorough oral prophylaxis of the patient was done. General anaesthesia with nasal intubation was administered. To section the dense fibrous bands, bilateral incisions, at the level of the occlusal plane, were made in the buccal mucosa. Care was taken to keep the incisions away from the orifice of Stenson's duct. Tearing of the commissures of lips was prevented by making a vertical releasing incision anteriorly. Digital manipulation was done to free the created wounds and sectioning of the fibrous bands was performed. Blunt dissection was carried out through the buccinator muscle to reach the buccal extension of the buccal fat pad (figure 1). It was gently teased into the defect taking care not to rupture its delicate capsule. The graft was sutured to the periphery using 4/0 Vicryl suture material and covered with sterile gauze pack wrapped in Framycetin. The patient was dismissed the fourth day after the surgery. The patient was advised to maintain good oral hygiene and perform mouth-opening exercises. The healing was uneventful and lesion healed in 2 weeks.

Case 2

A thorough oral prophylaxis was done prior to the surgical procedure. General anaesthesia was administered with nasal intubation. Fibrous bands were sectioned using the same technique used in Case 1. The flap was designed on the lateral tongue area with sufficient length and width to fill the mucosal defect without tension. The flap was raised taking care not to disturb the tongue muscles (figure 2); the flap was sutured with the margins of the mucosal defect utilising 4/0 Vicryl suture material. At the donor site of the tongue, the epithelium was undermined to facilitate the closure using 4/0 Vicryl suture material. The patient was instructed to follow good oral hygiene practices and was discharged the third day following surgery. Mouth-opening exercises were taught and the patient was instructed to perform them strictly.

Case 3

A thorough oral prophylaxis of the patient was done, prior to surgery. The surgical procedure was performed under general anaesthesia. The same technique was used to section the fibrous band, as described earlier in Case 1. A preauricular approach was extended superiorly into the scalp parallel to the superior temporal line. A hemicoronal incision was made and the muscle

Figure 2 Tongue flap graft.

covered with the deep temporal fascia was elevated from the calvarium by the subperiosteal dissection (figure 3). The muscle was brought intraorally by tunnelling through the medial aspect of the zygomatic arch and was received into the oral cavity over the mucosal defect. The defect was closed by covering it with the temporalis muscle flap. On the donor site, the flap was repositioned in a layer-wise manner by using 3/0 catgut and 3/0 black silk suture materials. Like the previous cases, the patient was instructed to maintain good oral hygiene and perform mouth-opening exercises and was dismissed on the fourth day after the surgery.

OUTCOME AND FOLLOW-UP

Case 1

The patient was called periodically for follow-up examination, which was done up to 6 months. The patient had an immediate postoperative mouth opening of approximately 29 mm which further improved as a result of continuous mouth-opening exercises to approximately 38 mm after 6 months.

Case 2

Routine follow-up examination was made up to 7 months. During that period, a good increase in mouth opening was noticed. An immediate postoperative mouth opening was approximately 26 mm, which further increased to 36 mm as recorded at the time of 7 month follow-up examination.

Case 3

The patient was regularly followed up, up to 6 months. An increased mouth opening from an immediate postoperative of

Figure 1 Buccal fat pad graft.

Figure 3 Temporalis muscle flap graft.

approximately 25 mm to 38 mm approximately was recorded by 6 months.

DISCUSSION

OSMF is a chronic progressive disease of oral cavity resulting in blanching, fibrosis and marble-like appearance of oral mucosa, which in later stages causes severe scarring leading to limited mouth opening, often referred to as trismus. This may be treated surgically or non-surgically, with usually unpredictable results. Surgical treatment is warranted in patients with marked limitation to mouth opening, where fibrous bands are excised and the surgical defects reconstructed utilising various grafts like split thickness skin graft, tongue flap, nasolabial flap, palatal island flap and buccal fat pad graft.⁶

'Case 1' was surgically treated with buccal fat pad graft which showed that stable mouth opening was achieved by 6 months. This finding was in close relation to the findings of Kumar LK Surej *et al*,⁶ who reported that the use of buccal fat pad in OSMF gave good results. The buccal fat pad is a mass of specialised fatty tissue which is distinct from subcutaneous fat. It is termed as syssarcosis—it enhances intermuscular motion. It consists of main body and five extensions, that is, buccal, pterygo-palatine, pterygomandibular, superficial and deep temporal. The numerous advantages of employing buccal fat pad include ease of accessibility through the very incision used for creating surgical defect, thereby obviating the necessity of an alternative donor site and its ensuing morbidity. It can be teased out and spread to cover the depth and width of the surgical defect, unlike just the superficial thin layer as seen in a split thickness skin graft.

'Case 2' was treated with tongue flap graft and followed up till 7 months; significant increase in interincisal and intermolar mouth opening was achieved. These findings are consistent with the findings of Gnanam *et al*,⁷ who surgically treated five patients by excision of fibrous bands and reconstruction of surgical defects with tongue flap graft. In all the patients, post-operative mouth opening measurements were found to be increased and the burning sensation was reduced. Vaughan and Brown⁸ also used full thickness lateral tongue flap and confirmed that it was a versatile means of providing local tissue to reconstruct defects of lips, cheeks, floor of the mouth and palate. They used lateral tongue flap for the closure of large palatal fistulae and found that an interim mute function was surprisingly good.

'Case 3' was treated with temporalis muscle graft with good results achieved by 6 months. Colmenero *et al*⁹ in their study of 26 patients, found total necrosis of the flap only in one patient,

however perfect adaptation to the recipient site was achieved in all patients. In their study, patients showed reduction in oral aperture, which according to them, was due to the development of fibrosis in the retromolar area, that prevented normal mouth opening.

In our cases, the treatment success was achieved by all the three surgical methods including buccal fat pad graft, tongue flap graft and temporalis muscle flap graft.

Learning points

- Oral submucous fibrosis (OSMF) causes reduced mouth opening and adversely affects the quality of the life as the sufferers have difficulty in eating, which greatly affects their oral and general health.
- Various treatment modalities are available to manage reduced mouth opening caused due to OSMF. However, in advanced cases, no choice is left but surgical management.
- Treatment modality should be chosen based on broad thinking of the versatility and applicability to obtain more successful results with less patient discomfort.

Competing interests None.

Patient consent Obtained.

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