



NOVEL TECHNIQUE OF FABRICATION OF MEDICINAL RESERVOIR FOR BURNING MOUTH SYNDROME

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ABSTRACT

Burning Mouth Syndrome is often challenging for health professionals to diagnose as well as to treat. Its treatment requires a multidisciplinary approach and both psychological and pharmacological aspects should be considered simultaneously. In the present case report, medicinal reservoir was incorporated in the interim removable partial denture of a patient suffering from burning mouth syndrome. The reservoir helped in the prolonged and sustained release of the topical medication in the oral cavity and patient was found to have relief in her symptoms after 3 month follow up.

Key words:

Burning mouth syndrome, interim
removable partial denture, medicinal
reservoir.

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INTRODUCTION

Burning Mouth Syndrome (BMS) is characterized by the presence of burning sensation of the oral mucosa in the absence of any signs and symptoms of specific oral lesions. International association for the study of pain defines this condition as 'burning pain in the tongue or other oral mucous membrane associated with normal signs and laboratory findings lasting atleast 4-6 months.⁽¹⁾ This condition is generally idiopathic in nature and its etiopathogenesis so far remains unclear.

The syndrome majorly affects the middle or old age women.⁽¹⁾ Epidemiological studies reveal that the prevalence rate of BMS increases upto 12-18% in post menopausal women.⁽¹⁻²⁾ This burning sensation is one of the difficult tasks to be treated by health care professionals especially if it is accompanied by pain. It requires an interdisciplinary approach for the proper management. Treatment planning should be customized for each patient as each individual shows different symptoms and etiological factor.⁽³⁾ In the current case report, a functional medicinal reservoir has been incorporated in an interim removable partial denture to increase and prolong the topical application of the medicament through constant release of the gel from the reservoir.

CASE REPORT

A 46- year -old female patient was referred to the Department of Prosthodontics and Crown & Bridge from the Department of Oral Medicine and Radiology with the known diagnosis of Burning Mouth Syndrome for the fabrication of a medicinal reservoir in an attempt to increase and prolong the duration of drug release in the oral cavity. There was a history of constant burning sensation associated with pain in the mouth. Patient gave the history of undergoing multiple extractions considering teeth to be the reason for pain. (Fig 1).



Fig 1 Extraoral view

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After regular follow-ups and various investigations, diagnosis of BMS was made in Department of Oral Medicine and Radiology and patient was elaborating about the reduction in pain following treatment.

On clinical examination, oral mucosa was found to be of normal color and texture. Saliva was thick and mucous and flow was inadequate. 14, 15,16,17,44,45,46,47 teeth were found to be missing.(Fig 2) It was planned to fabricate interim removable partial denture (RPD) to rehabilitate the edentulous space and fabricate medicinal reservoir in maxillary RPD.



Fig 2 Intraoral view showing multiple missing teeth

Fabrication of medicinal reservoir

Primary impressions were made using irreversible hydrocolloid impression material for both maxillary and mandibular arches. Impressions were poured in Type III gypsum product and maxillary and mandibular casts were obtained. Modelling wax was adapted over the maxillary cast to block the space for medicinal reservoir. Casts were then duplicated using reversible hydrocolloid material and new set of casts were prepared. Denture bases and occlusal bites were then fabricated over the duplicated casts. Maxillomandibular relationship was recorded in the patient's mouth.(Fig 3)



Fig 3 Cast duplication after wax up followed by occlusal bite fabrication

Articulation was done followed by teeth arrangement. After trial (Fig 4), acrylization was done over the duplicated casts. Maxillary and mandibular interim RPD's were finished and polished.



Fig 4 Occlusal try in

Soft biostar film was adapted over the maxillary and mandibular master casts. Biostar film was removed and cut in such a way so as to fit into the space created in the finished RPD's. Biostar film was adapted and joined to the intaglio surface of the maxillary RPD using cyanoacrylate and self cure acrylic resin. Hence, a reservoir of 2 mm uniform thickness was created in the RPD. 3 holes of 2 mm each were created at equidistant areas in the soft intaglio surface of the RPD. Insertion of the interim RPD's was done and it was checked for the stability and retention. Patient was instructed to inject the medicament by herself using a 2 mm needle and syringe in the prescribed dosage of the medicament (Fig 5).



Fig 5 Fabricated functional medicinal reservoir with resilient intaglio surface

After a follow up of 1 week, the patient was found to be satisfied. She could feel the medicine in her mouth for upto a period of 6 hours which provided a soothing effect in the oral cavity.

DISCUSSION

Burning mouth syndrome is generally painful and often difficult to tolerate for the patient. Clinical manifestations are generally diverse and variable. It involves presence of chronic oral symptoms including oral mucosal pain, altered taste sensation, xerostomia and the intensity increases at the end of the day.⁽⁴⁻⁵⁾ Symptoms seldom disturb with the sleep cycle. However, oral burning pain remains the most common symptom of BMS.

Generally, burning sensation is perceived as burning, tingling, tender, numb feeling of oral mucosa most commonly involving the anterior part of the tongue followed by dorsal and posterior part of the tongue, hard palate and labial mucosa.⁽⁶⁻⁷⁾ The onset of pain is spontaneous involving both the sides with absence of any identifiable precipitating factors. Seventy percent of individuals experience taste disturbances. Many theories had

been enlisted regarding the etiopathogenesis of BMS. Etiology is multifactorial and involves the interaction between psychological, physiological and neurological factors.

Clinician should do a thorough clinical examination of the oral mucosa in patients with BMS as lack of oral mucosal pathology is important for the diagnosis of BMS. Management of BMS can be broadly classified into topical, systemic medication along with psychological therapy. Various medications that can be used are anxiolytics, antipsychotics, antibacterials, antifungals, antidepressants, analgesics, vitamin, minerals and hormonal replacements.⁽⁸⁾

Medicinal reservoir prepared for this particular patient aimed to rehabilitate the missing dentition as well as led to sustained and prolonged release of prescribed topical medication. Mode of fabrication of medicinal reservoir was similar to salivary reservoirs used in xerostomia patients.^(9,10) Intaglio surface of the medicinal reservoir is soft and resilient which provides adequate release of medicament under pressure of every swallow. The technique was simple, cost effective with a therapeutic advantage. After a 3 months follow up, the patient was found to be satisfied and there was relief in her symptoms.

CONCLUSION

Burning Mouth Syndrome is often a frustrating condition for the patient and requires full motivation from both clinician and patient during treatment. Exact cause is often difficult to diagnose and management is not easy for the health professionals. Localized drug therapy using a medicinal reservoir is a novel pharmacological intervention which helps in alleviating the symptoms.

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