

Case Report

An innovative prosthodontic approach to manage Oral Submucous Fibrosis patient with reduced mouth opening by split mandibular denture: A case report

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ABSTRACT:

Literature has well evidenced the fabrication of split denture for the management of reduced mouth opening cases. In this third millennium, we are experiencing technological and procedural advancements in almost every field of dentistry. Oral submucous fibrosis is a subjective feeling of reduced mouth opening. Patients experiences severe problems due to oral submucous fibrosis i.e. discomfort in wearing the intra oral prosthesis. It also affects the quality of life of the patients. Many prosthodontic management options emerged and still researches are on progress to find best option for oral submucous fibrosis management. Wearing complete dentures can be an tremendously uncomfortable experience for the people with oral submucous fibrosis. Different treatment modalities have been recommended in the literature to conquer the problem of oral submucous fibrosis in complete denture patients. This case paper showed an innovative technique to manage oral submucous fibrosis patient with reduced mouth opening by split mandibular denture. The denture showed excellent esthetic and functional outcomes with complete patient satisfaction.

Key words: Oral submucous fibrosis, Split denture, Border Moulding, Tobacco.

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INTRODUCTION

Oral submucous fibrosis, an insidious chronic disease and a precancerous condition, distressing any part of the oral cavity and sometimes the portions of pharynx. Oral submucous fibrosis is primarily developed due to prolonged use of tobacco, areca nut, spices.¹ The mechanism of fibrosis involves the lamina propria and the submucosa and may frequently extend into the underlying musculature resulting in the deposition of dense fibrous bands. This procedure then later on produces restricted mouth opening.² This reduced mouth opening is a characteristic symptom of this disease. Such dilemmas are also explained as microstomia by many of the pioneer researchers in the literature.³ In literal meanings, microstomia is defined

as an abnormally small oral opening caused by scleroderma, oral submucous fibrosis, sequel of burning, surgical interventions of maxillofacial and oral neoplasms and temporomandibular joint disorders. Because these patients have a limited mouth opening, conventional method of inserting complete denture would be very difficult and problematic.^{4,5} So, managing or rehabilitating edentulous patients with reduced mouth opening is difficult and challenging for clinicians until unless a new technique is available. Therefore, it is essential to amend the existing conventional technique of denture fabrication for such circumstances.⁶ Nevertheless, managing the patients those diagnosed with oral submucous fibrosis is complicated until the normal mouth

opening is restored. This case paper illustrated a novel technique to manage oral submucous fibrosis patient with reduced mouth opening by split mandibular denture.

CASE REPORT

A 45 year-old male patient reported to the Department of Prosthodontics, Crown and Bridge at our institution, with complaint of difficulty in chewing due to missing teeth for the past 4 years. On clinical assessment, no gross facial irregularity was identified in relation to maxillofacial composition. The TMJ, muscles of mastication and facial expression were identified to be usual. No observable abnormalities or maltreatment were seen in the intraoral musculature, mucosa of the lips, cheeks, tongue. Authors noticed severely resorbed mandibular ridge on intra-oral estimation. Patient gave history of chewing tobacco since 25 years. He also admitted to have fifteen to twenty packets per day. Patient has the history of tooth loss due to mobility (periodontitis related). Maxillary arch was having full dentition with acceptable occlusal plane and morphologies. Patient entered in the department of prosthodontics and crown & bridge with chief complaint of difficulty in eating due to missing teeth. The patient had a history of oral submucous fibrosis with reduced mouth opening and was under medication for the same. The examined mouth opening was not less than three fingers. Figure 1 showing reduced mouth opening and corresponding intraoral view of the maxillary arch. After making comprehensive case history, stock stainless steel edentulous mandibular tray was selected. A single mandibular denture with split facility was planned to be fabricated. Selected tray was sectioned in the mid line and primary impression was attempted by impression compound (figure 2). Special tray was fabricated in two sections and a holder was secured above these two pieces to hold the tray in correction position while impression making (figure 3). Border moulding and final impression was completed using green stick compound and zinc oxide E impression material (figure 4). Master cast was obtained and occlusal rim was fabricated in two pieces secured with metal pins (figure 5). Following jaw relation procedures, teeth arrangement was done. Denture was processed by compression moulding technique using heat cure acrylic resin.



Figure 2: sectioned impression tray in the mid line and primary impression



Figure 3: Special tray in two sections with a holder



Figure 4: Border moulding and final impression



Figure 5: Master cast and occlusal rim



Figure 1: Reduced mouth opening and intraoral view



Figure 6: Processed two piece mandibular denture secured in midline by metal separable pins



Figure 7: Esthetic evaluation of the denture

Processed denture was finished and polished and inserted in the patients mouth for aesthetic and occlusal evaluation (figure 6 & 7). Instruction related to two piece denture placement and removal was given to the patient.

DISCUSSION

Many of the researchers have discussed the prosthetic problems that occur in oral submucous fibrosis patients. Trismus is the term which is also used by many practitioners for limited mouth opening. Such problems may be frequently seen related orofacial cancers, head and neck radiation, reconstructive lip surgery, burns, trauma, micro-invasion of muscles of mastication, temporomandibular joint (TMJ) dysfunction syndrome and genetic disorders.^{7,8} Different treatment modalities include surgery and modification of denture design. Oral submucous fibrosis is a precancerous condition usually characterized by the fibrosis of the lamina propria and limited mouth opening which necessitate immediate concentration at the earliest to treat the predisposing factors.^{9,10} It is also deemed necessary to comprehend that the dental practitioners may be the first person to recognize the problem and aware the patient. Any deviation from traditional methods of fabrication of complete denture would be a comfortable relief for a patient suffering from oral submucous fibrosis. Many of the pioneer workers in the literature have shown several methods to construct sectional dentures to overcome these issues.¹¹ Researchers have tried many modalities in dentures like cast Co-Cr hinges, swing-lock attachments, stud attachments, orthodontic expansion screws, pins, bolts, telescope system, rods, clasps, cast locking recesses and magnets. Although these methods are not going to be a final therapy, this provisional measure assists to tune the patient more towards the final prosthetic therapy.¹² A limited mouth opening which seems smaller than the size of a complete denture can make prosthetic treatment very difficult. It would have not allowed the patient to easily insert denture in the mouth. Numerous techniques have been explained to make sectional impression trays and two piece sectional dentures.¹³ Such denture would be defiantly easy to insert and remove from the mouth with limited opening. Such sectional trays are particularly helpful during

impression procedures as wide mouth opening is not required for intraoral tray placement. Accordingly split dentures are predominantly helpful since wide mouth opening is not required for intraoral denture placement.

CONCLUSION

This case paper showed an innovative technique to manage oral submucous fibrosis patient with reduced mouth opening by split mandibular denture. Patient reported wit reduced mouth opening for which split denture was fabricated. We have noticed that this prosthesis was easy to fabricate, reliable, non-invasive and economical that greatly improves mastication, phonetics and esthetics. The benefit of split denture fabrication is that, it enable patient to insert it easily as two separate pieces and rejoin intraorally to seat comfortably on mandibular alveolar ridge. The denture showed excellent esthetic and functional outcomes with complete patient satisfaction.

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