

Innovative dual impression technique for patients with atrophy idiopathica mucosa oris

Praveen G, Swatantra Agarwal, Nirmala B. G, Saurabh Gupta, Vikas Sharma

Department of Prosthodontics, Jazan University, College of Dentistry, Jazan, Saudi Arabia

Abstract

Atrophy idiopathica mucosa oris is an oral fibrosing disease resulting in marked rigidity and an eventual inability to open the mouth or had limited mouth opening. Patients with limited mouth opening are a common occurrence in prosthodontic practice. The majority of these patients can be treated with exercise and stretching movements before impressions are made. Some will not respond to these procedures because of facial scarring and surgical manipulation of the facial muscles. This article presents an impression procedure for overcoming difficulties encountered in such reduced mouth opening patients that can be assembled intraorally, disassembled intraorally, and reassembled extraorally.

Key Words: Atrophy idiopathica mucosa oris, impression technique, limited mouth opening, oral submucous fibrosis

Address for correspondence:

Dr. G. Praveen, Shri Kalleshwara Nilaya, Veterinary College Road, Vinobanagar, Shimoga - 577 204, Karnataka, India. E-mail: praveenmds@yahoo.co.in

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INTRODUCTION

Schwartz (1952) coined the term “atrophy idiopathica mucosa oris” to describe an oral fibrosing disease.^[1] In 1953, Joshi subsequently termed the condition oral submucous fibrosis (OSF).^[2] OSF is an insidious chronic disease affecting any part of the oral cavity and may extend to pharynx and esophagus, and may be preceded or associated with vesicle formation. It is always associated with juxtaepithelial inflammatory reaction followed by fibro-elastic change of the lamina propria with epithelial atrophy leading to stiffness of the oral mucosa and causing trismus.^[3] This is a disease of unknown cause that occurs mainly in the Indian Subcontinent and is associated with a genetic predisposition and alteration, infection and viral agents, carcinogens, nutrition, and

immunological factors.^[4] It is most commonly related to the habit of chewing areca nut (areca catechu). Consumption of chillies, deficiency of iron and Vitamin B-complex, smoking, alcohol and tobacco play a synergistic role in the initiation of disease.^[5]

The stiffness of the oral mucosa in such patients leads to limited mouth opening. For such patients, a prosthodontist encounters certain problems during treatment such as: Difficulty in insertion of full-size stock trays, trauma to peri-oral tissue due to lack of flexibility of oral tissue, and improper tissue manipulation due to fibrous bands.^[6] During impression making, the loaded tray requires wide mouth opening for proper tray insertion, alignment, and retrieval. Maximum wide opening is required for retrieval of set impression if the patient has a high palatal vault. As this is not possible in patients with restricted opening ability, a modification of impression procedure is often necessary.^[7]

This article describes an Innovative dual impression technique for partially edentulous patients requiring removable dental prosthesis with limited oral opening and a high palatal vault.

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TECHNIQUE

- Preliminary impression of palate [Figure 1] is made with impression compound (DPI Pinnacle, The Bombay Burmah Trading Corporation, Mumbai, India) by adapting the kneaded material with fingers and supporting the same till it hardens and poured with dental plaster [Figure 2]
- Custom tray (Rapid Repair Powder; Dentsply India, Gurgaon, India) with a wax spacer and tissue stops will be fabricated on this plaster cast. On external surface of the tray, four metal balls palatal to one on each canine region and one on each molar region were embedded so that 1/4th of the metal ball will be inside the tray with 3/4th of the ball remaining outside [Figure 3]. This will help to orient the putty impression
- With custom tray in place, silicon putty (Aquasil, Soft Putty/Regular Set, Dentsply DE TREY, Germany) was mixed and adapted to the dentulous as well as to the edentulous part that engages the metal balls along with slopes of acrylic tray adapted to the palate

- This completes preliminary impression that can be disassembled intraorally for the ease of removal of impression from the mouth [Figure 4] and can be reassembled [Figure 5]. Scrape the silicon putty impression in dentulous and edentulous areas so as to provide space for light body wash impression
- Make final impression of palate with zinc oxide eugenol impression paste (DPI Impression Paste, The Bombay Burmah Trading Corporation, Mumbai, India) in a custom tray after removing the wax spacer. After palatal impression is set, the silicon putty impression will be loaded with light body wash impression to make an impression of dentulous area. Metal balls on the palatal surface of custom tray help to orient the impression accurately
- When set, this final impression can be disassembled intraorally and removed in two parts [Figure 6]. One part contains the putty impression that recorded dentulous, edentulous area, and part of the external surface of the special tray with metal balls. Other part involves the impression of palate only



Figure 1: Impression of palate with impression compound



Figure 2: Preliminary cast of palate for fabricating custom tray

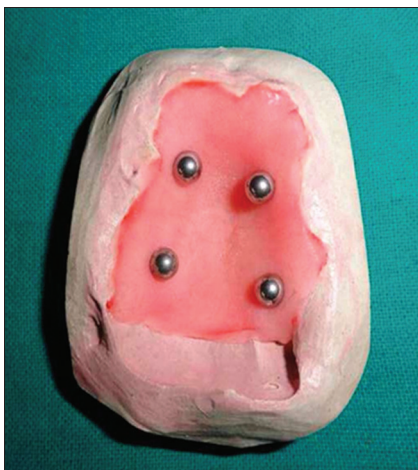


Figure 3: Custom tray with metallic balls on palatal cast

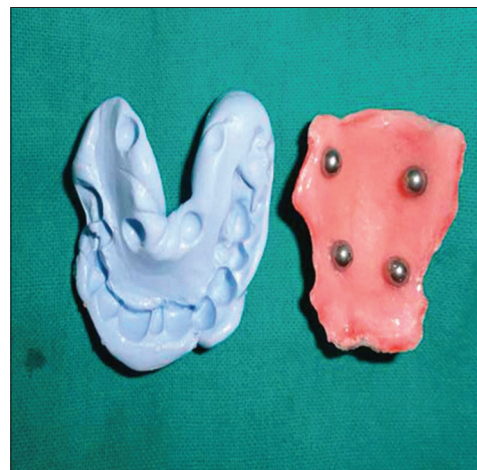


Figure 4: Disassembled preliminary impression

- This disassembled impression will be assembled extraorally to obtain a single piece full arch impression [Figure 7].



Figure 5: Reassembled preliminary impression extraorally



Figure 6: Disassembled final impressions



Figure 7: Reassembled final impressions extraorally to obtain a single piece full arch impression

DISCUSSION

The rehabilitation of a patient suffering from limited mouth opening with high palatal vault is challenging to a prosthodontist because of the patient's clinical condition and difficulties encountered in impression making.

Literature describes a number of sectional impression techniques using split custom made impression tray for both primary and secondary impression. Various pins, bolts, and Lego pieces have been used for the locking mechanism of sectional impression trays fabricated for patients with limited oral opening.^[8-10]

The technique described here is simplified and cost-effective as compared to Leubkes method by utilizing Lego plastic building block for joining the two halves. This technique does not require the modification of sectional trays as previously done by Leukbe, Cura, and many more. Silicon putty is adapted to the dentulous area by fingers as the mouth opening was very minimal and was stabilized till it sets. Wash with light body on this putty impression would enhance dimensional stability and captures minute details. Impression compound and Silicon putty are easily moldable, sufficiently hard, stable to support during the time of impression. Silicon putty is flexible enough to remove from mouth after disassembling. Metal balls used on the custom tray of the palate help disassembled impression to assemble accurately intraorally as well as extraorally. Furthermore, this technique does not require tray manipulation and impression making is simpler as compared to the Al-Hadi technique^[9] in which three sections of trays were made for preliminary impression and final impression. With this proposed technique, the buccal mucosa is not traumatized, and the patient will be comfortable during impression making and at the time of retrieval from the mouth.

CONCLUSION

The technique uses the versatility of different impression materials (trayless technique) instead of taking sectional trays for making preliminary impression in patients with limited mouth opening. Principles of engineering assemble, disassemble, and reassemble has been innovatively utilized for making impression that can be assembled, disassembled intraorally, and reassembled extra orally to obtain a single piece accurate cast.

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