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# Innovating the art of final impression making in restricted oral opening through the use of a sectional impression technique"

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# Innovating the art of final impression making in restricted oral opening through the use of a sectional impression technique"

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## Abstract

Making sectional impressions in completely edentulous tasks is an innovation that many prosthodontist learn with experience when such challenges are met in clinical practice. Sectioning a tray into two halves and then reassembling it in the mouth before making a final impression may sound difficult but only if guiding mechanism of one half of the tray to the other is not present. Many guiding mechanisms have been used which at times are not available. This article in the form of a clinical case report presents a clinical case where a sectional impression was made and the guiding mechanism used in this tray is simple, inexpensive and easily available even in case of an emergency. This technique allows a clinician to be prepared for such challenges at any time.

**Keywords:** oral submucous fibrosis, complete denture, prosthodontics, white lesions.

## Introduction

One of the areas where different medical and dental specialists look forward to a prosthodontist is impression making in difficult situations. For a prosthodontist, challenging cases include those with severe gagging, limited mouth opening, unusual anatomical interferences and impression making of areas other than oral cavity. Though most of the specialists have learned to overcome these challenges, cases with limited mouth opening still favour a prosthodontist because of his ability to innovate. Limited mouth opening because of fibrosis of circumoral musculature may result from surgical treatment of orofacial cancers, cleft lips, trauma, burns, Plummer-Vinson syndrome, scleroderma and more commonly oral submucous fibrosis.<sup>1-5</sup>

Techniques have been described both for primary impressions and final impression making. While use of sectional stock trays (rigid),<sup>6,7</sup> modelling plastic impression compound,<sup>2</sup> flexible trays,<sup>5</sup> have been utilized for primary impression making, different

mechanism has been used for connecting sectional custom trays. These include hinges,<sup>2</sup> plastic building blocks,<sup>1,7</sup> orthodontic expansion screws,<sup>8</sup> or locking levers.<sup>6</sup> Using expensive devices that may not be easily available is neither viable for a patient nor for the practitioner. This article describes a clinical technique of fabricating a special tray using commonly available stationary tools like a thick bell pin or even a round tooth pick. The technique also eliminates any need of adjustment while making the impressions or later assembling the tray.

## Case Report(s)

An elderly male patient aged 72 years, presented a chief complaint of the state of edentulism since last seven years, during which he had visited three local practitioners but was not able to receive one. Medical history was noncontributory and dental history revealed loss of natural teeth due to mobility. The patient was a chronic smoker and had a habit of tobacco chewing since last 40 years. Extra oral examination revealed a non Scrapable white lesion at the angle of the mouth on the right side along with deep wrinkles along maxillary and mandibular lips (**Fig.1**). The patient was referred from the department of oral medicine and was suspected to be the case of oral submucous fibrosis for which the respective department would undertake investigations and treatment.

Intra oral examination revealed very limited mouth opening (35mm by 27 mm) which corresponded almost to the circumference of a dental mouth mirror (**Fig.2**). The patient had well-formed maxillary and mandibular alveolar ridges with no evidence of intra oral fibrosis.

### Technique

After explaining the treatment plan to the patient, an informed consent was obtained from him. Preliminary impressions were made in irreversible hydrocolloid (Thixotropic, Zhermach, Italy) by using the handle of the conventional stock perforated trays which was modified by making perforations and adding wax. After obtaining the primary casts, and outlining the design

for the special tray a sectioned special tray was made using Methyl methacrylate acrylic resin (Major C&B-V Dentine, Major, Moncalieri, Italy). The tray was made in two sections which overlapped in the middle. The posterior section was fabricated first, the width of the posterior section was calculated from the total mouth opening (2/3 rd of total mouth opening to accommodate rotation of the tray while insertion). While the material was setting, three pins (modified bell pins) were placed vertically and parallel to each other after which the anterior half of the special tray was fabricated (**Fig.3**) The anterior half of the tray was aligned by running the setting resin over the modified bell pins while the material was soft. Extra length of the pins was then removed so as to flush with the surface of the anterior half. The two halves were then removed and tried on the patient. Path of insertion of the anterior half over the first half was verified through correcting the diameter of the holes for the pins.

Border molding was done in both the halves separately using low fusing green stick compound (DPI, Dental products of India Ltd, Mumbai, India) (**Fig.4**). Final impressions were made by first recording the posterior part followed by placement of anterior part over the posterior part (**Fig.5**). Once the final impressions were made, conventional procedures for fabricating the complete denture prosthesis were used to fabricate the denture. The patient was demonstrated how to insert and remove the denture and was put on a follow up for one year. After an early period of adaptation, the patient was highly satisfied with the prosthesis.

## Discussion

Oral submucous fibrosis is a clinical condition that is common in the south East Asia, especially in areas where pan and tobacco consumption is high<sup>11, 12</sup>. Circumoral fibrosis is a clinical complication that may range from mild to severe. Besides an inability to open mouth the condition also is accompanied by xerostomia especially with salivary gland involvement. Besides impression making other procedures like jaw relations and denture trial are also difficult, therefore such appointments must be well organized especially with respect to time. The technique described in this article has advantages than those described in the literature. It can be easily mastered, does not require special instruments, equipment or material, does not rely on the skill of the laboratory, is inexpensive and yields good results. The difficulty with this technique is the clinician's ability to place the anterior component over the posterior one with ease while at the same

time holding the posterior component in place on the residual alveolar ridge. This can be achieved by proper education of the patient who can help in holding the posterior half of the tray while the clinician fits the anterior half over the posterior half.

## Conclusion

Sectional tray and sectional impressions are innovative ways to overcome challenges associated with patients having limited mouth opening. The technique described in this article being inexpensive can be utilized in academic institutes where access to expensive innovations is limited. In an emergency situation any dental practitioner can also use this technique without having to rely on the laboratory technician.

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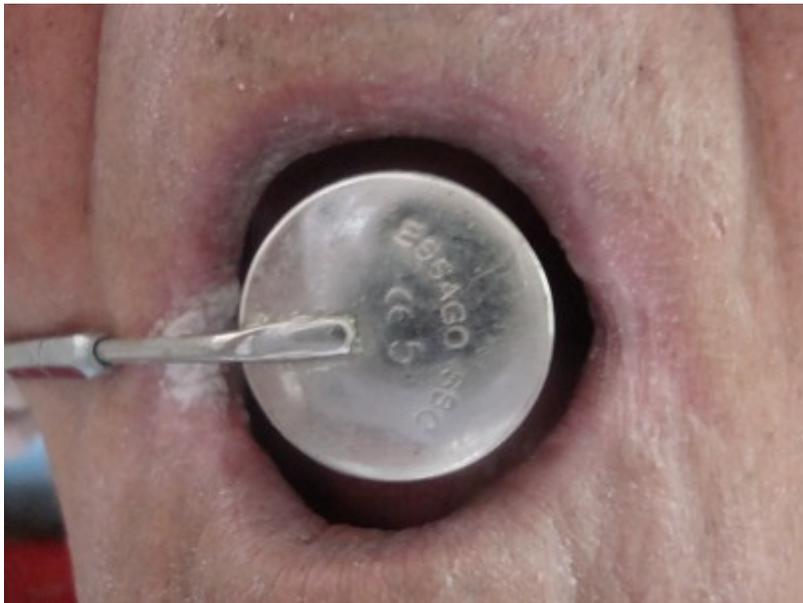
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## Illustrations

### Illustration 1

Oral opening when compared to mouth mirror held against it



### Illustration 2

Special tray sectioned into two parts (Anterior and posterior)



### Illustration 3

Border molded sectional special tray



### Illustration 4

Final impression made on sectional tray



## Illustration 5

Complete denture in place

