

# Impression of Severely Atrophied Ridge Using Soft Liner: A Case Report

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## ABSTRACT

Various impression procedures have been described for the severely atrophied mandible. When other forms of treatment, such as implants are not viable, it is imperative to record the existing supporting structures that support the prosthesis and preserve the remaining tissues. The impression may be made in either the open or closed mouth position. The closed mouth procedure permits the development of physiologic muscular border molding. The open mouth procedure permits the dentist to control the degree of pressure over the tissues and is considered to be a selective pressure method. This article reports a case, where denture foundation is developed by two approaches, functional and anatomic. Peripheral borders are developed functionally with the mouth closed and the final phase of the impression is made with the mouth open to satisfy the anatomic approach.

**KEYWORDS:** Atrophied Mandible, Open And Closed Mouth Technique, Tissue Conditioner, Polyether Rubber, Complete Denture

## INTRODUCTION

Severely resorbed mandibular ridge had always posed a problem for a dentist. This can be overcome by modified impression techniques and newer impression materials. These techniques use the concept of both positive and negative pressure.<sup>1,2</sup> Positive pressure is used in both open and closed mouth impressions. Negative pressure to capture the soft tissue in static form is attainable only with the open mouth procedure.

Development of borders with the mouth open may be achieved by several methods. Physiologic impression procedures have been described by Barone<sup>5</sup> and Tench. The theory encompasses maximum coverage obtained by the muscular movement of the patient in place of the dentist's manipulation. Tryde<sup>6</sup> used a dynamic impression method in a closed mouth position to capture the tissues in a non-pressurized yet functional state.

Finally Chase<sup>7</sup> coined the term 'dynamic adaptive

stress' with the intent of conditioning the mucosa by using tissue conditioning material in the existing prosthesis. The final impression was made after several appointments for reapplication of tissue conditioning material and after the patient was comfortable.

This article describes a procedure for the final impression of the severely atrophied mandible, which is developed by use of open and closed mouth procedures<sup>3</sup>. The objective is to develop a physiologic impression with maximum support of both hard and soft tissues.

## CASE REPORT

A 60 year old male patient reported in the outpatient department of Prosthodontics, SPPGIDMS, Lucknow with a completely edentulous maxillary and atrophied mandibular arch. Maxillary final impression was made and the cast was poured

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Record base was fabricated with the flat wax occlusal rim.

Preliminary impression of the mandible was made and lower tray was constructed on it, which was initially used as a record base with a flat wax occlusal rim. Jaw registration was made at a selected vertical dimension of occlusion. Rims occluded without inclines as a flat horizontal plane minimized untoward movement of the bases under function (Fig 1) Border extensions were developed with tissue conditioning material. Lingual borders were developed with the mouth open and patient was asked to make essential tongue movements [placement in the cheek and wiping the upper lip]. Patient was also instructed to border mold the material physiologically by producing ‘OOOO’ and ‘EEEE’ sounds while biting on the occlusal rim.<sup>4</sup>



Fig 1-Maxillary trial base with occlusion and mandibular impression tray in centric relation at acceptable vertical dimension of occlusion

The first application of conditioning material was of thicker consistency to gain maximum extension (Fig 2). The conditioning material was mixed in successive, thinner consistencies for each application. Tray was relieved wherever it showed through the conditioning material. Each application was left in the mouth for 10 minutes and was allowed to stabilize [the final addition was left in for 20 minutes for further stabilization].<sup>6,7</sup>

After the desired extensions were formed with the conditioning material, the final secondary impression was made with polyether rubber impression material, with the open mouth technique and standard border molding procedures (Fig 3).<sup>8,9</sup> This procedure minimized pressure that occurred during the closed mouth phase and provided excellent surface detail and better compatibility with

dentel stone. Cast was poured immediately to avoid distortion of the conditioning material and the polyether rubber wash. Thus the master cast was obtained (Fig 4).



Fig 2-Border extensions with tissue-conditioning material



Fig 3-Polyether rubber impression with open mouth technique



Fig 4- Master cast obtained

### CONCLUSION

The procedure described provided the patient with a denture that had function with maximum support and stability. Borders were developed with the utmost extension and can be considered a

physiologic overextension.<sup>10,11</sup> The greatest disadvantage of this procedure was the amount of time needed to develop the final impression. In addition there tends to be more initial soreness, which can be minimized with a clinical remount procedure.

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