



# Research Journal of Pharmaceutical, Biological and Chemical Sciences

## Modified Impression Procedures for Abnormal Ridges In Complete Dentures: A Review.

Sanjna Nayar, Vikram V\*, Narayana Reddy D, Ganesh Ramesh and Sreedevi V.

Department Of Prosthodontics, Sree Balaji Dental College& Hospital, Bharath University, Chennai, Tamil Nadu, India.

### ABSTRACT

Impression forms an important virtue for the success of complete denture treatment. Restoration of the compromised ridge requires various treatment modalities. The simplest approach is often to extend the denture base adequately for proper use of all supporting tissues. To achieve this goal it is very important to get a good impression of the resorbed ridge. The impression should be able to record the tissues in static or functional form. The aim of this article is to review various impression procedures for resorbed and abnormal edentulous ridge types.

**Keywords:** Impression, Resorbed Ridges, Complete Dentures

*\*Corresponding author*



## INTRODUCTION

A complete denture impression is a negative registration of the entire denture bearing stabilizing and border seal areas present in the edentulous mouth[1]. The objectives include Preservation, Support, Stability, Esthetics and Retention [2]. The techniques used for impression can be described in 4 categories (Bernard Levin) Amount of pressure used, Open or closed mouth, Hand manipulations or functional movements and Type of tray [3].

### Types of Abnormal Ridges

#### Maxillary Ridge-Without Abnormalities

- Minimal resorption
- It is covered by firm, healthy, soft tissues
- Hamular notches are well defined
- This basal seat areas offers an excellent morphological prognosis
- 

#### Maxillary Ridge with Torus and Undercuts

- This ridge is irregular with bony undercuts
- The left tuberosity is pendulous and mobile
- A large torus is also present

#### Anterior localized ridge resorption has occurred

- It has been replaced by hyperplastic tissue
- A modified impression technique is employed

#### Advanced residual ridge resorption is evident

- Low mobile peripheral tissue attachments with obliteration of hamular notches [2].

#### Flabby Ridges

- The alveolar ridge may become mobile and extremely resilient
- Replacement of bone by fibrous tissue
- Most commonly seen in anterior part of maxillae opposing natural mandibular teeth
- This is due to presence of excessive load on the ridge and unstable occlusal conditions [2].

#### Mandibular Ridge- Without Abnormalities

- Firm broad and well developed ridge
- Favorable tongue size and position suggests good prognosis
-

## Alveolar Ridge Undercuts

### Knife Edge Alveolar Ridge

- This is primarily caused by lateral resorption
- The ridge is thin buccolingually than vertically.
- Patients exhibiting this type of ridge have severe pain on mastication [2].

### Special Impression Procedures

- Controlled - Minimally displacive impression techniques,
  - E.g. displaceable (flabby) upper ridge.
- Controlled – Pressure impression techniques,
  - E.g. Fibrous / Knife edge / Unemployed lower ridge
- Functional impressions,
  - E.g. Indeterminate peripheral extensions
- Denture space impressions, (External impressions), E.g. When the denture is subjected to excessive displacing forces from surrounding musculature [4].

### Impression Techniques-Flabby Ridges

The various impression techniques are:

- One part impression technique ( selective perforation tray)
- Controlled lateral pressure technique.
- Palatal splinting using two part tray system.
- Selective displacive technique.
- Window technique [4].

### One Part Impression Technique

Indicated: if the degree of displacement is minimal.

Technique:

- Primary impression is made using alginate.
- A spaced special tray is prepared on cast.
- Pressure on displaceable tissue was minimized by the use of perforation in the tray overlying the area.

### Controlled Lateral Pressure Technique

Indicated: Fibrous mandibular posterior region.

Technique:

- A green stick compound was used to make impression of denture bearing area.
- A heated instrument was used to remove the green stick and perforation are made related to the fibrous area.
- Light bodied silicone impression is then syringed and impression was made

### **Palatal Splinting Two Part Tray System Technique**

Given by **Osborne**, involves two overlying trays used for recording maxillary displaceable anterior tissues.

- A palatal tray is fabricated with wax being used to create a space on the palatal aspect of mobile tissue.
- In this tray, a zinc oxide impression is made of the palate.
- Once this is set the second tray is made completely encompassing the first tray.
- The second tray should be inserted from front, backwards, and presence of supporting zinc-oxide eugenol should prevent backward displacement of the mobile ridge

### **Selective Composition Flaming Technique**

- A primary impression is taken in a mucostatic impression material (e.g. Impression plaster or alginate) and cast in stone.
- A spaced special tray for an impression compound impression is then constructed on this model.
- The tray is loaded with compound and an impression taken of the model of the patient's mouth.
- This reduces the risk of displacing the flabby ridge. The tray is then warmed and placed in the patient's mouth.
- It is adapted and border moulded to the tissues, and should be quite retentive.
- The impression is removed and warmed all over apart from the flabby ridge area. The impression is retaken, the flabby ridge is compressed but not distorted as the other portions of the impression compound sink into the tissues.
- A wash impression may be taken in impression paste to obtain maximum detail and retention and stability.

### **Window technique**

#### **Two Part Impression Technique: Mucodisplacive And Mucostatic**

- First described by Osborne, for use in mandibleit ensures that pressure exerted by the tray does not cause distortion of the mobile tissues.
- Modification of special tray after the more viscous impression material has been used to record the whole area leads to distortion, which is overcome.

## **Controlled – Pressure Impression Techniques**

Indicated in unemployed lower alveolar ridge unable to provide acceptable support against vertical loads and positive stability against lateral forces.

### **Method**

Primary impression made with alginate or putty elastomer. Impression relieved over ridge crest area and wash impression obtained with low viscosity material.

### **Functional impressions**

#### **Indications**

- Reduced retentive forces ( Atrophic ridges )
- High displacing forces ( Uncontrolled muscle activity)
- Peripheral form molded by peri–denture musculature.
- Existing denture utilized for the procedure [3].

#### **Method**

- Tissue conditioning materials usually employed for the procedures.
- Impression surface & periphery of existing denture reduced by 1.5-2mm to create space.
- Fitting surface of denture cleaned & dried.
- Material mixed & spread over fitting surface
- Denture seated in patients mouth; patient instructed to close in centric occlusion.
- Patient encourage to perform functional movements such as talking, swallowing, smiling, to obtain a functionally generated impression.
- Denture removed after 5 – 6 minutes ; inspected and surplus material trimmed.
- Patient returns after few / 24 hours; impression inspected & cast poured [5].

### **Denture space determination (External Impressions)**

- To determine the space within which the denture can be sited without being subjected to excessive displacing forces from the surrounding musculature.

#### **Neutral Zone**

- That area in the mouth, where, during functions the forces of the tongue pressing outward are neutralized by the forces of the cheeks and lips pressing inward.
- Hence a possible zone of equilibrium
- Generally done for lower
  - Done at any stage of CD fabrication
  - Materials used:

- Waxes
- Znoe
- Rubber
- Base putty
- Self-cure acrylic
- Impression compound
- Tissue conditioners.

On accurate master casts, stabilized denture bases are constructed.

- Wire loops embedded over ridge crest for retention
- Low fusing compound rims attached to bases.
- Patient trained to perform a range of functional movements such as smiling, swallowing, speaking, etc.
- Compound rims softened and denture bases inserted; functional movements carried out.
- Wash impression obtained with light – bodied elastomer brushed on compound rims.
- Functional movements repeated
- Plaster matrices constructed around records.
- Matrices guide in arranging & waxing teeth & polished surfaces in optimum denture space.
- After wax trial is completed, external impressions are obtained using ZOE paste / light – bodied elastomer [5].

#### REFERENCES

- [1] Prosthodontic Treatment For Edentulous Patients- Zarb-Bolender Twelfth Edition
- [2] Textbook of prosthodontics – Sheldon Winkler
- [3] Impression Procedures- Bernard Levin D.D.S.
- [4] British Dental Journal 199,715-719(2006)- A Review Of Prosthodontic Management Of Fibrous Ridges-R W I Crawford & A D Walmsley
- [5] Modified Impression Techniques For Hyperplastic Ridge Types- J Prosthodont 1971.