PROSTHODONTIC MANAGEMENT OF MANDIBULAR RESORBED RIDGE USING PHYSIOLOGICAL IMPRESSION TECHNIQUE - A CASE REPORT

ABSTRACT
Making a definitive impression of an edentulous arch can be challenging when the residual ridges present with less-than-ideal conditions. The objective is to develop a physiologic impression with maximum support of both hard and soft tissues. Tissues could be displaced during impression making and result in subsequent pathology, or they could be placed i.e. compression within the physiologic limits in order to maximize the support from the edentulous ridge. Close adaptation to the basal seat contributes to stability. This technique emphasizes on the concept of tissue placement and determination of the extent of mucobuccal denture extension which is achieved by the use of a close fitting tray and a viscous impression material. Final impression is made with an elastomeric impression material to capture the anatomic details of the tissues.

Keywords: Physiologic impression, elastomeric impression

Introduction
The art and science of complete dentures for oral restoration has been debated for over a century. Today's clinical techniques are an amalgamation of the original prosthodontic philosophies. A complete denture impression is a negative registration of the entire denture bearing, stabilizing, and border seal areas present in edentulous mouth. Impression techniques can be broadly divided into pressure, non-pressure and selective pressure techniques.

Residual ridge resorption is a complex biophysical process and a common occurrence following extraction of teeth. Ridge atrophy is most dramatic during the first year after tooth loss followed by a slower but more progressive rate of resorption thereafter. Making a definitive impression of an edentulous arch can be challenging when the residual ridges present are less than ideal.

Due to the anatomical differences between the maxilla and the mandible, as well as the differences in primary and secondary load-bearing areas, impressions of resorbed mandibular ridges require special considerations.

Lack of ideal amount of supporting structure and the encroachment of the surrounding mobile tissue onto the denture borders. Thus, the main aim of the impression procedure is to gain maximum area of coverage with minimum pressure by obtaining, a fairly long retromylohyoid flange for a better border seal and retention and to educate and train the patient to maintain tongue position; i.e. forward and resting on top of lower anterior ridge when the mouth is open.

Physiologic impression technique combines both traditional and contemporary methods and the amalgamation leads to prosthesis with better retention and stability. Thus this case report presents a physiologic impression technique for mandibular resorbed ridge.

Case report
A 57 year old female patient reported to the department of Prosthodontics and Crown and Bridge of Sri Guru Ram Das Institute of Dental Sciences and Research with a chief complaint of replacement of missing teeth in upper and lower arches. The patient got her extraction done 9 months back due to mobility of teeth. On examination the patient was completely edentulous in upper and lower arches. The lower ridge was resorbed. (Fig 1)

The treatment options including implant supported prosthesis was suggested to the patient but patient was not willing for the same. So it was decided that upper and lower complete dentures will be fabricated with a different impression technique.

**Technique**

1. A preliminary impression of the edentulous arch was made using McCord’s technique (3 parts impression compound + 7 parts greenstick compound in a metal stock tray. (Fig-2)
2. The impression was refined using irreversible hydrocolloid i.e. alginate over the existing primary impression. (Fig-3)
3. The impression was poured using dental stone. The casts were retrieved and the spacer wax extending from left canine to right canine region was adapted. (Fig-4)
4. A custom impression tray on the preliminary cast using self-cure acrylic resin was adapted. (Fig-5)
5. Soften modelling plastic impression compound (green stick) was heated over the flame and was loaded over the anterior third of the intaglio surface of the special tray. The tray was tempered and seated over the denture bearing area, the labial and buccal borders were molded and the patient was asked to perform various tongue movements to mold the lingual flange.
6. The procedure was repeated for middle third, followed by posterior third of the impression tray on either side

Simultaneously. (Fig-6)

7. The wax spacer was removed. (Fig -7)
8. The adhesive was applied on the impression and tray borders and was allowed to dry. The final wash impression was made with light body Poly Vinyl Siloxane impression material, by performing lip, cheek and tongue movements. (Fig-8)

**Discussion**

The problems associated with resorbed mandibular ridge are many, most evident being the frustration of the patient due to lack of retention of denture. Osseointegrated dental implants have emerged as the "gold standard" for treating edentulous patients as they provide unique option of complete rehabilitation. However, they come with their own restrictions; notably cost and surgical risk. Implants in resorbed ridge have high surgical risk complications due to the need of regenerative techniques to improve the foundation for implants. Medical, social problems, in addition to cost factor may contraindicate autogenous bone transplantation. Therefore, conventional dentures still remain as a viable solution for majority of the ageing population.

The impression of the completely edentulous arch is the single most contributing factor towards achieving retention, stability and support. Modifications of impression techniques have been tried in the past with a view of maximizing retention, stability and support of the denture. The primary impression should fulfil the objectives of retention, stability and also provide functional support which is of paramount importance in resorbed ridges in order to preserve the ridges.

Soft tissues have varying degrees of displacement. They can be placed within physiological limit up to 2-2.5mm without undergoing compressive trauma. The tissues in the buccal shelf of the mandibular ridge do not resorb to the same extent as the anterior mandible as it is covered with dense