

A Clinical Comparison of Denture In Mandibular Resorbed Ridge Utilizing Conventional & Cocktail Impression Technique- A Case Study

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Introduction

As is evident, in extreme resorption of edentulous ridges, there is a diminished denture bearing area for support, retention and stability. The management of highly resorbed ridge has been an enigma of Prosthodontist and clinicians for ages. Residual ridge resorption is an inevitable process. Atwood has classified resorbed ridges into 6 orders ranging from pre extraction state (Order I) to the atrophic depressed mandibular ridge (Order VI) (Atwood, 1996). Highly resorbed mandibular ridge is a typical finding in geriatric patients along with thin, atrophic mucosa, lower threshold of pain, decreased flexibility of tissues and diminished muscle tonicity accompanied by poor adaptive capacity (Atwood, 1963). Long term edentulism and ill-fitting dentures results in extreme resorption of edentulous ridges, making a definitive impression challenging. Giving stable denture for such patients is fundamental but it is never easy for the dentist to do the task. A precise impression is the initial step towards an effective denture that will help to ensure that the complete denture is stable, and will also provide physiological comfort to the patient.

The utilization of ridge augmentation and implants is generally advocated for such patients but are more complicated as contrast to ordinary denture. This paper display a novel, cost effective technique for impressing Atwood's Order V and VI edentulous ridge with the aim of maximizing stability, tissue support without over compressing the tissues with the assistance of promptly accessible dental materials.

Case Report

A 62 year old patient (Fig.1) reported in the Dept. of Prosthodontics with the chief complaint with trouble in talking and chewing with the current complete denture. Upon clinical

Abstract

Making a definitive impression of an edentulous arch can be challenging when the residual ridges present with less than ideal conditions. The accomplishment of a complete denture depends on the standards of retention, stability and support. Obtaining a satisfactory stability in mandibular dentures has long been a challenge for every dental specialist. Highly resorbed ridges as in Atwood's Order V & VI are related with troubles in giving effective dentures. Instability of lower denture in such cases usually becomes the primary factor of disappointment. This case report documents are such case of improving the mandibular denture stability in a resorbed ridge utilizing the "Cocktail Impression Technique".

Keywords - Impression technique . Resorbed mandibular ridge .Cocktail impression technique. Dynamic impression technique .

examination and OPG, Atwood's order VI ridge was revealed (Fig.2). The current denture was also examined for border extension, vertical dimension, retention, stability and support (Fig.3a & 3b). The patient was not satisfied with retention and stability of his current mandibular denture so, we planned to make denture following the cocktail impression technique (Praveen et al., 2011).

An over extended preliminary impression was made with the goal to record the entire support area for the denture base following the cocktail impression technique. Preliminary impression was made by utilizing irreversible hydrocolloids (DPI, Bombay Burmah Trading Corporation) by open mouth technique (Fig.4). Customized tray was fabricated with autopolymerising acrylic resin (DPI, Bombay Burmah Trading Corporation) according to Dynamic Impression Technique (Tryde et al., 1965) (Fig.5). Tray with 1 mm wax spacer and cylindrical mandibular rests in the posterior region were made at increased vertical height. High fusing impression compound was softened, placed on the top of the mandibular rests and embedded in the patient's mouth and the patient was advised to close his mouth so that the mandibular rests fit against the maxillary alveolar ridge (Fig.6). This helped to stabilize the tray in position by preventing anteroposterior and mediolateral displacement of the tray during definitive impression. Space was made for tongue by making the lingual surfaces of mandibular rests concave. The mandibular ridge was recorded using the McCord and Tyson's technique (McCord and Tyson's, 1997). Impression compound and green sticks (DPI, Bombay Burmah Trading Corporation) in the ratio of 3:7 parts by weight is placed in water at 60°C and kneaded at a homogenous mass that provides a working time of about 90 seconds. Wax spacer was removed, this homogenous mass was loaded and patient was guided to close his mouth on the mandibular

rests (Fig.7). The patient was instructed to run his tongue along his lips, suck in his cheeks, pull in his lips and swallow by keeping his mouth closed, for recording the functional state of oral structures till the impression materials hardened. On removal from mouth, impression was chilled and reinserted to check the denture bearing area for pressure sensibility by applying heavy finger pressure on the impression and the thumbs on the underside of the patient's mandible to stimulate functional loads. If the mucosa has been properly loaded, the only discomfort that the patient should report is where the thumbs press on the lower border of the mandible. Reheating the impression in whole or part, or adding more material to deficient areas is contraindicated to prevent the flow of material which in turn will result in differential loading of the tissues. The retrieved impression (Fig.8) was visually inspected for surface irregularities, disinfected and poured utilizing beading and boxing technique (Fig.9 & 10). After this a mandibular denture was fabricated with conventional method and inserted into patient's mouth (Fig.11(a)-(d)).

Discussion

Every patient has unique treatment necessities. The issues related with Atwood's V & VI mandibular ridges are many, most evident being the frustration of the patient due to lack of retention of denture. So the proper diagnosis and treatment modalities are most imperative part of any rehabilitation plan.

Cocktail impression technique is a combination of various impression techniques to obtain a definitive impression (Praveen et al., 2011). The technique described here utilizes the customized tray fabricated according to Dynamic impression technique described by Tryde (Tryde et al., 1965), impression material recommended by McCord and Tyson's technique for atrophic mandibular ridge followed by functional impression as in close mouth technique. Other than instability, the

important practical issue emerges from the inability of the residual ridge and its overlying tissues to withstand masticatory forces (McCord and Tyson's,1997). Furthermore, the muscle attachments are located near the crest of the ridge, with greater dislocating effect of the muscles. Thus, the range of muscle action, in addition spaces into which the denture can be extended without dislocation, must be precisely recorded in the impression. Such impression can be made by means of dynamic methods. Customized tray that is fabricated in this technique has the advantage of avoidance of dislocating effect of the muscles on improperly extended denture borders, and complete utilization of the possibilities of active and passive tissue fixation of the denture (Brill et al.,1965). Mandibular rests that fit against the maxillary alveolar ridge offer the advantage to stabilize the custom tray by preventing horizontal displacement of the tray during definitive impression. These features of the tray directly result in the impression material being shaped by the functional movements of the muscles and muscle attachments that border the denture base. For recording the functional position of the muscles, impression material recommended by McCord and Tyson for atrophic mandibular ridges was used (McCord and Tyson's,1997). This homogenous material permits moulding an impression of sufficient viscosity to obtain the definitive impression in single step. The working time of 90 sec is adequate to enable the patient to perform all the functional movements. McCord and Tyson's technique is recommended because this has better body, requires less chair side time and economical as compared to tissue conditioner or reline material. During the entire procedure, custom tray is stabilized by mandibular rests to obtain an accurate, stable, single step, functional impression. When a comparison was made between patient's current denture fabricated using conventional technique and the new denture fabricated using cocktail impression technique, the latter proved to be more efficient and functional in terms of various factors. The parameter and their and comparison is listed in Table 1(a) & (b).

Conclusion

This impression technique combines both traditional and contemporary methods and amalgamation leads to prosthesis with better retention, stability and support for Atwood's Order V & VI ridge deformities.

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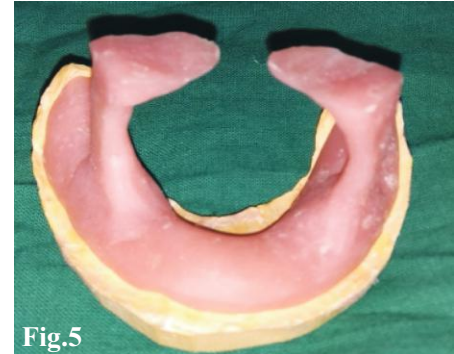
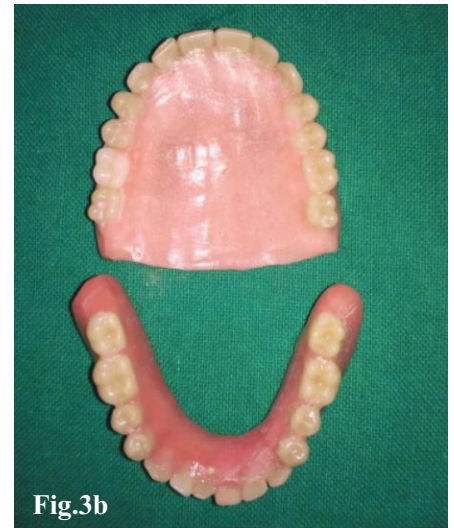
Comparison between denture by Conventional Technique and Cocktail Impression Technique Table 1 (a)

Parameter	Denture by Conventional Technique	Denture by Cocktail Impression Technique
Occlusion	Acceptable	Acceptable
Occlusion a. vertical b. centric	Adequate	Adequate
Extension	Inadequate	Adequate
Retention	Acceptable	Acceptable
Stability	Inadequate	Adequate
Support	Inadequate	Adequate
Aesthetics	Adequate	Adequate

Patient Comments :

Table 1 (B)

Parameter	Denture by Conventional Technique	Denture by Cocktail Impression Technique
Comfort	Uncomfortable	Comfortable
Chewing efficiency	Inadequate	Adequate
Aesthetics	Satisfactory	Improved
Speech	Satisfactory	Improved



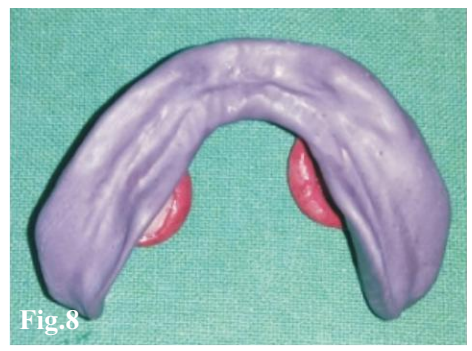


Fig.8

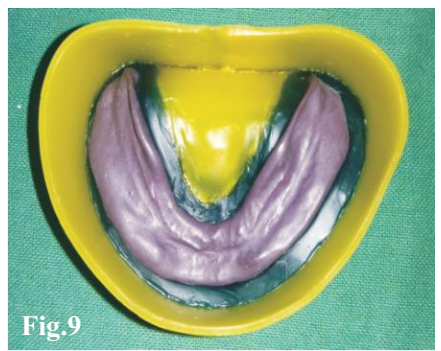


Fig.9

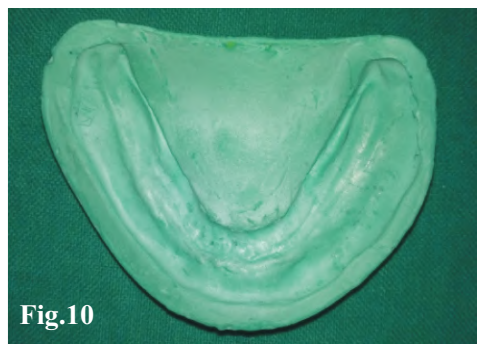


Fig.10



Fig.11a



Fig.11b



Fig.11c



Fig.11d



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