

Case Report

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Anthropoidal pouch technique for resorbed mandibular ridge

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Abstract

Conventional complete denture is the best treatment for edentulous arches. There is resorption of bone in both maxilla and mandible. There is more bone resorption in mandible than maxilla, due to which mandibular dentures loose retention and stability. Neutral zone implies that the forces applied by the muscles are in harmony with the denture, therefore providing the denture optimum stability and retention. This case report discusses the procedure to treat the resorbed mandibular ridge.

Keywords: Neutral zone; Mandible; Admix; Green stick; Impression compound.

Introduction

Resorption of the residual ridge is a chronically progressive and irreversible process. Resorption of the residual ridge is a common occurrence after bone removal. Teeth especially during the first year after tooth loss after which he has a slower but progressive rate of resorption [1]. The lower prosthesis is the strongest problem, with discomfort and sagging being the most common problems [2]. This is because the lower jaw atrophies faster than the Upper jaw and has a less residual ridge for support and retention [3]. The prosthesis becomes passive due to the complexes. neuromuscular control and leads to difficulty printing, chewing, and swallowing, which in turn leads to loss of retention and stability in complete dentures [4]. As a result, fabrication becomes difficult for the dentist. To increase stability and retention of the mandibular prosthesis, previous reports have recommended positioning the posterior teeth of the prosthesis just above the crest of the edentulous ridge of the mandible.

This relationship between dentures and tissue is very important for the stability and retention of the denture. Stability and retention are possible when there is good bone on which the denture can rest, such a position may not be suitable for the resorbed ridges. There will be a Horizontal discrepancy between

the teeth and resorbed ridges added with increased vertical distance between the occlusal table and tissue support can lead to denture instability.

For these types of cases, there is a technique that is anthropoidal pouch technique. In the lower denture patient faces problems like pain and loosening of the denture. This is because the mandible resorbs faster than the maxilla as the maxilla has a good blood supply.

The neutral zone technique is effective in patients who had a poor experience with numerous unstable and unretentive lower dentures. These patients typically have a severely resorbed mandible, making it difficult to arrange the teeth for a stable denture. Although the neutral zone is not new, it is valuable.

Case report

A 60-year-old patient came to the OPD in the department of Prosthodontics having a chief complaint of lack of teeth for 6months and wants to get them replaced with dentures. The patient presented with a history of betel nut consumption due to which there was less mouth opening than normal.

On clinical examination of the alveolar ridges, the maxillary alveolar ridge was found to be rounded and well-formed,

whereas the mandibular alveolar ridge was low and resorbed making it difficult for the mandibular denture to seat.

After a thorough evaluation of the patient's history and clinical examination, various treatment options were explained to the patient. Various options like pre-prosthetic surgery followed by a conventional denture, implant-supported over denture, and conventional complete denture were discussed with the patient. Finally, a conventional complete denture was planned for the patient.

Technique

1. The primary impressions were made in a stock tray with a mucocompressive material, impression compound. The acrylic special tray was fabricated for the secondary impression (Figure 1).



Figure 1: Primary impression.

2. The maxillary secondary impression was made in a special tray with low-fusing impression compound and zinc-oxide-eugenol material (Figure 2).

3. The mandibular secondary impression was made in admix technique, It's a combination of impression compound and green stick (low-fusing) compound.

4. The occlusal rims were made on self-cured acrylic denture bases (Figure 3).



Figure 2: Secondary impression.

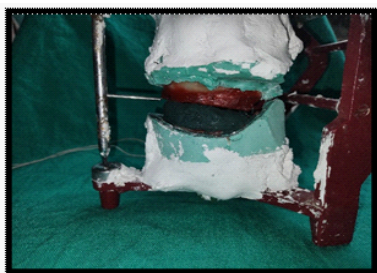


Figure 3: Occlusal rims articulated.

5. Mandibular occlusal rim was completely removed and wire loops were attached over the record base in accordance with the recorded vertical height.

6. Greens stick was softened at 65°C.

7. The softened compound was kneaded and a roll was formed according to the crest of the ridge and was adapted to the retentive loop to establish vertical dimension.

8. The attached roll of the compound was reheated in the water bath, with the record base firmly seated, the patient was asked to perform various movements like swallowing, speaking, sucking, pursing lips, pronouncing vowels sipping water, and slightly protruding the tongue several times which simulated physiological functioning (Figure 4).

9. Then the impression was removed from patient's mouth and transferred to the master cast. Grooves were cut and putty was adapted around the neutral zone impression.



Figure 4: Neutral zone recorded.



Figure 5: Teeth arrangement.

10. Neutral zone impression of the green stick is removed and a modelling wax occlusal rim is made.

11. Then the teeth arrangement following the putty index (Figure 5).

12. After the teeth arrangement try in was done of the waxed-up dentures in the patient's mouth, after which the patient was asked to repeat all the functional movements. This was done to confirm the stability of the denture during all the border movements. The dentures were then processed.

13. The dentures were finished and polished (Figure 6).



Figure 6: Finished denture.

Discussion

The goal of prosthetic care is to restore normal function, Aesthetics, speech and patient health. This case report presents some modifications with respect to the conventional total prosthesis that contribute to this support and stability of the prosthesis. Conditions affecting recordings in the neutral zone are numerous, such as functional movements, materials are used recording, technique used, muscle tone, vertical dimensions, the period of complete edentulism, etc. For many years, the researchers searched for the corresponding tooth Position for complete denture [5].

Prosthesis built on a severely resorbed mandible ridge distributes the muscle using the neutral zone technique Strengthens and improves retention and stability of the prosthesis, which prevents the prosthesis from slipping during the process function.6 Prostheses thus constructed are superior in Design, since there is less food intake, with better Esthetics, proper placement of posterior teeth, leave enough room for the Tongue [7]. Over the years, different materials have been used to record the neutral zone such as impression compound [8], waxes, impression plaster, polyether, and tissue conditioners. The impression compound material is a high viscosity material making it difficult to record the oral functions and also the uniform reheating of the compound is not possible. Uniform softening of the wax is a must to properly record muscular movements. Impression plaster is messy and chaotic, may be swallowed by the patient while performing functional movements. Polyether impression material sets through an irreversible chemical reaction, thereby, making it cumbersome to perform any modification in the set material and reuse it. Tissue conditioners, even when held by wire loops, do not have enough body to be used.

In this case green stick is used as impression material for recording neutral zone. The position and morphology of teeth play an important role in the stability of dentures. Generally, teeth should be arranged in a neutral zone. The teeth should be placed on the oral musculature rather than the traditional principles of the teeth setting as the musculature varies for each patient. Because the cuspal shapes tend to cause denture instability through the tripping effect, zero-degree teeth were positioned in a monoplane articulation.

Conclusion

This case report presents the use of anthropoidal pouch method for severely resorbed cases. This technique has proven to be effective in cases of resorbed ridges and patient feeling difficulty in chewing. As a prosthodontist our goal is to give a good conventional denture.

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