

## CASE REPORT

# Aesthetic Management of a Completely Edentulous Patient with the help of Cheek Plumper and Neutral Zone Approach

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### Abstract

Most attractive feature of human being is facial beauty and facial expression which not only effect individual personality but also increase the confidence level. Long term absence of teeth leads to loss of tonicity of skin and musculature which often leading to sunken appearance of the face. This case report describes the management of a completely edentulous patient with the help of neutral zone approach for severely resorbed mandibular ridge and cheek plumper for sunken cheek.

**Keywords:** Resorbed ridge, Neutral zone, Cheek plumper, Esthetics.

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### Introduction

Facial Aesthetics has become an integral part of complete denture prosthetic treatment and no longer confines to just replacement of missing teeth. The natural dentition or dentures provides support to the facial musculature which is responsible for the external form of the lips and cheeks. If the lips and cheeks are unsupported, muscles become weak and do not function properly which leads to wrinkling of skin and sagging of lips and cheeks that can add years to a person's age and hence have a detrimental psychological effect on the patient professional and social life.<sup>1,2</sup>

While replacing missing teeth, it is important that the prosthesis not only replaces the missing teeth but also restore the facial contour. A cheek plumper or cheek lifting appliances can restore these facial contours. The rationale for providing this appliance is that some patients have hollow cheeks and need extra support for better facial aesthetics.<sup>3, 4</sup> Cheek plumpers are basically for supporting and plumping the cheek to provide a youthful appearance. It is especially useful in young patients who have lost all their

teeth and part of the maxillary bone as a result of a traumatic injury. However, it can also be used in patients who have an unusually excessive slumping of the cheeks as a result of teeth loss.<sup>5</sup>

In this case report it is simplified approach for management of sunken cheek by cheek plumper followed by neutral zone impression.

### Case Report

A 54 year old male patient reported to department of prosthodontics, Chhattisgarh dental college and research institute, Rajnandgaon with chief complaint of difficulty in chewing food due to complete missing teeth with both maxillary and mandibular arch. Patient was also not happy with the collapse of the cheeks due to missing teeth [Fig. 1 (A,B)]. Keeping in mind the needs of the patient a proper diagnosis and treatment plan was followed. On clinical examination it was seen that mandibular ridge was severely resorbed [Fig.1 C] and maxillary arch was moderately resorbed but extra oral examination shown that cheeks appeared to have a sunken appearance on both the sides.

Maxillary and mandibular diagnostic impressions were made with alginate (**Neocolloid; Zhermack**). Maxillary arch and mandibular arch final impression was made using selective pressure impression procedure using green stick compound (**Pinnacle tracing stick, DPI, Mumbai, India**) for peripheral molding and impression with light body (**Aquasil LV Light Body, Dentsply Caulk**). Jaw relation was recorded, and the maxillary and mandibular casts were mounted. For mandibular resorbed ridge neutral zone procedures are carried out

The softened compound was kneaded and a roll was formed according to the crest and was attached to the base. The attached roll of compound was reheated in the water bath and was carried into the patient's mouth. With the record base firmly seated, the patient was asked to perform a series of actions like swallowing, speaking, sucking, pursing lips, pronouncing vowels sipping water and slightly protruding the tongue several times which simulated

physiological functioning. During function of the lips, cheeks, and the tongue, the forces exerted on the soft compound moulds it into the shape of the neutral zone. [**Fig .2A**]

The index was made [**Fig .2B**] and would have preserved the space of the neutral zone. [**Fig .2C**] Teeth arrangement was done exactly following the index. The position of the teeth was checked by placing the index together around the wax try-in. [**Fig. 2D**]

Cheek plumpers were attached on to the maxillary buccal flange region at the try-in stage [**Fig. 3A, B**]. The cheek plumpers designed in this case were suspended with the help of modelling wax. The extent of support was decided based on the space available intraorally and esthetics. The position of cheek plumpers was marked on the trial dentures. Cheek plumpers were processed separately and were attached to the final denture with the help of self-cure acrylic resin. [**Fig. 3C**].

**Fig. 1 (A,B) – Extraoral Front and Side View of Patient having Sunken Cheek, C – Intraoral View of Completely Edentulous Mandibular Ridge**



**Fig. 2 A– Neutral Zone Impression By Softened Compound B- Plaster Index**



**Fig. 2C- Wax Flowed To Neutral Zone Space, D- Complete Arrangement Of Teeth Based On Neutral Zone Space**



**Fig. 3 A- Complete Maxillary Denture With Cheek Plumper, Postoperative Front (B), and Side View (C).**

## Discussion

Kamakshi et al<sup>6</sup> and Deogade et al<sup>7</sup> used magnets as attachments, but it is seen that magnets lose their magnetism over a period and thus push buttons were used in the cheek plumpers to increase the longevity of the cheek plumpers.<sup>4</sup>

Quick short term results can be enhanced by using non –surgical injectable fillers like Botulinum toxin-A, but long term results are awaited.<sup>8</sup>

Surgical procedures also carried out for sunken cheek but it leaves postsurgical scar. Due to this reason cheek plumper is better option for esthetics. But these may lead to increase weight of the prosthesis causes muscle fatigue due to constant strain acting on the muscles. For these reasons hollow cheek plumper is preferred in-order to reduce the weight of the prosthesis for long term success.

The neutral-zone approach registers the neutral zone to determine the proper placement of teeth after resorption has taken place. Recording of tongue positions and movement receives close attention in the neutral-zone approach. Tongues of aged persons showed no atrophic tendencies, which is not true of other tissues. It is advantageous to record the positions of the tongue during sucking, swallowing, and movement. In this case report it is simplified approach of management of mandibular resorbed ridge and sunken face by neutral zone approach and cheek plumper.

## Conclusion

The changes in appearance, function and psychological wellbeing have an enormous impact on the patients' personal lives. Cheek

plumper enhances the beauty of the patient having sunken cheek and neutral zone procedure improve the functional efficiency of the denture. This procedure is simple, effective and non invasive treatment alternative to improve facial appearance and better acceptability to the patient.

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**Ethical Permission:** Obtained

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