



## REHABILITATING SMILES USING DETACHABLE CHEEK PLUMPER PROSTHESIS: A CASE REPORT

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### ABSTRACT

The edentulous state is associated with loss of teeth, resorbed alveolar ridge, reduced muscle tonicity, and hollow cheeks. Form of cheeks is determined by the support provided by internal structures—teeth, ridges or dentures. However, in individuals with marked resorption of the alveolar process, conventional dentures fail to provide adequate support, necessitating additional support for the cheeks. This can be done using cheek plumper or cheek lifting appliances. So, the present clinical report exemplifies the use of customised cobalt chromium attachments to support a detachable cheek plumper prosthesis in a completely edentulous patient with hollow cheeks.

**KEYWORDS:** Hollow cheeks, Cheek plumper, Customised attachments, Detachable attachments.

### INTRODUCTION

Facial esthetics plays an important role in a person's professional and social life.<sup>[1]</sup> The appearance of the lower half of the face is determined by the contour of the jaw bones, underlying teeth and the soft tissues and muscles surrounding the teeth. The edentulous state is associated with loss of teeth, resorbed alveolar ridge, reduced muscle tonicity and hollow cheeks.<sup>[2]</sup> Cheeks due to their extreme visibility are an important factor in determining facial esthetics. Form of cheeks is determined by the support provided by internal structures—teeth, ridges or dentures. Extraction of molars, tissue thinning due to aging, or weight loss can cause concavities below the malar bone or hollow cheeks. Slumped or hollow cheeks can add years to a person's age and hence have a detrimental psychological effect on the patient.<sup>[1]</sup>

Complete denture treatment includes not only the replacement of missing teeth but also the restoration of facial appearance. Conventional complete dentures with appropriate flange extensions and well positioned teeth adequately support the overlying lips and cheeks. However, in individuals with marked resorption of the alveolar process, conventional dentures fail to provide adequate support, necessitating additional support for the

cheeks.<sup>[2]</sup> This can be done using cheek plumper or cheek lifting appliances. Cheek plumpers or cheek lifting appliances have been used previously for the purpose of improving aesthetics and psychological profile in patients. Use of plumper prosthesis in maxillofacial prosthodontics is also well documented.<sup>[3,5]</sup>

A conventional cheek plumper prosthesis is single unit prosthesis with extension near premolar–molar region which support the cheeks. Major flaw of this design is the increased weight of the prosthesis. Also it increases the mesiodistal width of prosthesis which may hinder placement especially in microstomia cases. Detachable plumper prosthesis is thus more beneficial. The main advantages of cheek plumper are that it is economical, non-invasive and improves aesthetics dramatically.<sup>[6]</sup>

The present clinical report exemplifies the use of tich button attachments to support a detachable cheek plumper prosthesis in a completely edentulous patient with hollow cheeks.

### CASE REPORT

A 56 year old male patient reported to Surendera Dental College & research institute, Sriganganagar (Rajasthan) with completely edentulous maxillary and mandibular

arches. One of the major findings on extra oral examination was hollow cheeks (Figure 1). Patient was conscious of that and desired a prosthesis which would make his face look fuller and healthier. Treatment plan was formulated, keeping patient's demand in mind. It was decided to give patient maxillary and mandibular complete dentures with detachable cheek plumpers.

#### Steps in fabrication of the attachments

- 1) Conventional impression procedures were performed & Jaw Relation was recorded.
- 2) Teeth setting was done. After the trial dentures were finished and polished, wax up was done on the buccal flanges (figure 2) to adequately support the cheeks, such that there was no interference with functional movements. The adapted wax was inspected intraorally for adequacy of cheek support and contour.
- 3) The dentures and cheek plumpers were fabricated separately using heat-polymerized acrylic resin.
- 4) Wax pattern of plumper was invested and acrylised (fig. 3, 4). During the insertion of the dentures, adequate clearance of the cheek plumpers from the occlusal table was verified.
- 5) Afterwards space for the adaptation of tich buttons was provided by trimming the acrylic from outer surface of the denture and the inner surface of the acrylised plumpers.
- 6) The tich buttons were then joined by using autopolymerising acrylic resin.
- 7) Final insertion was done. Patient was given instructions regarding the attachment and detachment of the cheek plumpers (Fig. 5) and asked to present for regular follow-up evaluations (Fig. 6).



Figure 1: Pre-treatment photograph (frontal and lateral view).



Figure 2: Trial dentures with wax patterns for cheek plumpers.



Figure 3: Investment of cheek plumper wax pattern.



Figure 4: Upper and lower complete denture with detachable plumpers.



Figure 5: Intraoral view of dentures with attached cheek plumpers.



**Figure 6: Post-treatment photograph (frontal and lateral view).**

### DISCUSSION

Conventional cheek plumpers present major limitations in terms of retention and stability in patients with maxillary dentures due to their increased size and weight. They could also cause muscle fatigue with continuous use.<sup>[7]</sup> In the present case detachable plumper prosthesis were planned to reduce weight of the final prosthesis and to allow ease in placement of the prosthesis. Muscle fatigue can be prevented if the patient has the option of removing the cheek plumpers when experiencing discomfort. Detachable plumpers enabled the patient to remove the plumpers and use the denture if required.

Previous studies have discussed the use of press stud fasteners and magnets.<sup>[7,9]</sup> Magnets have the benefit of being small, facilitating automatic reseating because of their magnetic forces, and being easy to remove and clean.<sup>[10]</sup> Few authors have used stud attachments, orthodontic elastic modules, and wire-retained cheek plumpers.<sup>[8,11]</sup> Clinicians can choose the appropriate attachment according to the thickness and height of the denture flange and the dexterity of the patient. In the case of the patients discussed in this report, maxillary cheek plumpers failed to provide adequate support to the cheeks, probably because of the reduced tonicity of the overlying muscles and the extent of resorption of the alveolar process. Although the maxillary cheek plumpers succeeded in reducing the hollowness of the cheeks, the patients required additional support to the lower region of the cheek.<sup>[2]</sup> Therefore, additional mandibular cheek plumpers were inserted to provide additional support to the cheek.

However, cheek plumpers have a few drawbacks, including the accumulation of food, patient discomfort resulting from the additional weight and bulk of the dentures, the requirement of manual dexterity of patients to ensure accurate attachment and the susceptibility of magnetic attachments to corrosion and loss of magnetism and of the press stud fasteners to breakage.<sup>[7,8]</sup> Therefore,

periodic patient recall is necessary to assess and when required, replace the attachments.

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