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## **Esthetics redefined in completely edentulous patient by modified cheek props: A clinical case report**

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### **Abstract**

Aesthetics plays an important role in a person's social and professional life. Emphasis on facial esthetics has become an integral part of dental treatment. Prosthetic rehabilitation of a completely edentulous patient no longer confines to only replacement of missing teeth. Patients are increasingly demanding improvement in esthetics at the end of treatment. Slumped or hollow cheeks can add years to a person's age. This article has described a simple, effective and noninvasive treatment alternative to improve facial appearance in a completely edentulous patient with hollow cheeks by making use of detachable hollow cheek plumper prosthesis.

**Keywords:** Prosthetic rehabilitation, edentulous patient, sunken cheeks, hollow detachable cheek plumper

### **Introduction**

Facial esthetics play an important role in a person's professional and social life <sup>[1]</sup>. Cheeks due to their extreme visibility play an important role in determining facial esthetics. Form of cheeks is determined by the support provided by internal structures such as 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 <sup>[2]</sup>. Ageing has an impact on facial esthetics due to loss of alveolar process and teeth, loss of muscle tonicity, loss of elasticity of the skin, and impairment of function <sup>[3]</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>[4]</sup>.

Cheek plumper is the prosthesis which not only improves the esthetics but also can increase patient's confidence. It extends premolar to molar region and supports the cheek. Fabrication of a single-piece denture with cheek plumper has its own limitation(s) which includes difficulty during insertion and removal in patients with limited mouth opening <sup>[5]</sup>. This technique offers more advantages in terms of ease of use along with rest (attaching and detaching the cheek plumper from the denture) and maintenance of oral hygiene <sup>[6]</sup>. Also, a conventional cheek plumper prosthesis is a single unit prosthesis with extension near premolar-molar region which support the cheek. Major flaw of this design being increased weight of the prosthesis <sup>[7]</sup>.

Cheek plumper can be of two types:

1. Undetachable / Conventional Cheek Plumper
2. Detachable cheek plumper <sup>[8]</sup>.

The present article exemplifies case report of detachable hollow cheek plumper with fulfilling the limitation.

## Case Report

A 49-year-old completely edentulous male patient reported to the Department of Prosthodontics with the chief complains of difficulty in chewing due to missing teeth and poor aesthetics. The patient was very conscious of his appearance and desired a prosthesis which would make his face look fuller and healthier. It was noticed that patient was socially demoralized due to loss of teeth and poor aesthetics because of sunken cheeks. History revealed that patient was edentulous since last 2 years and has not worn denture since then. Extra-oral examination revealed that patient had poor aesthetics, unsupported oral musculature leading to sunken cheeks (figure 1). Intra-oral examination revealed that ridges were well defined in both maxillary and mandibular arch and diagnosed with According to ACP Classification: Class II Completely Edentulous maxillary and Mandibular edentulous arch with Sunken [Hollow] Cheeks<sup>[9]</sup>.

Keeping the patient's demand in mind, fabrication of maxillary and mandibular complete dentures with intraoral stud buttons-retained, detachable hollow cheek plumpers attached to the maxillary denture was planned. The steps of fabrication were as follows.



**Fig 1:** Straight profile of the edentulous patient showing sunken cheeks

(1) Primary impressions of maxillary and mandibular arches were made using modelling plastic impression compound (DPI pinnacle®), and custom trays were fabricated using auto polymerizing acrylic resin.

(2) Border moulding was done using green stick modeling plastic impression compound, and definitive impressions were made using c silicon light body impression material (Aquasil, Dentsply/caulk).

(3) Jaw relations were recorded; teeth setting followed by try-in was done to check for occlusion, esthetics, and phonetics. (Figure 2 & 3).



**Fig 2:** Jaw Relation Recorded



**Fig 3:** Try in done

(4) Following try-in, cheek plumpers were made using modeling wax were attached over the buccal flange of the waxed up maxillary denture in the premolar molar region on either side for trial in the same appointment. The adapted plumpers were inspected extra orally for adequacy of cheek support and contour and interference with functional movements. (Figure 4)



**Fig 4:** Wax cheek plumpers fabricated according to the adequacy of cheek support

(5) Significant change in facial esthetics was seen after attaching cheek plumpers and was readily accepted by the patient

(6) Wax cheek plumpers were detached from denture flange area. To create hollowness in the area of increased cheek fullness, excess wax from the center of bulk is removed keeping 2mm wax at the periphery of cheek plumper, and both the plumpers were processed using heat cure acrylic resin by flasking. After deflasking, cured denture and cheek plumpers were retrieved, trimmed, finished, and polished. (Figure 5)



**Fig 5:** Flasking, dewaxing and packing of denture and cheek plumper done in separate flask

(8) Two 2 mm deep and 5 mm diameter holes on either side were made on the buccal flanges of the maxillary denture and corresponding area of cheek plumpers (Figure6). Stud buttons were incorporated in the denture as well as cheek plumpers with auto polymerizing acrylic resin, and complete polymerization was ensured by placing it in a pressure pot.

After inserting the complete denture, plumpers were attached to the maxillary denture and adequate clearance from the occlusal table was verified (Figure 7).



**Fig 6:** Two 2 mm deep and 5 mmdiameter holes on either side



**Fig 7:** Stud buttons were incorporated in the denture as well as cheek plumpers

(9) The hollow cheek plumper is then closed by auto polymerizing acrylic resin while it is in a dough stage to avoid any food lodgment and to reduce weight of the denture (Figure 8 & 9).



**Fig 8:** Hollow cheek plumpers attached and evaluated



**Fig 9:** Cheek plumpers closed by using cold cure acrylic resin in dough stage and properly adapted.

(10) Roughening the border area of the hollow cheek plumper of the heat-polymerizing resin surface, and cleaning and wetting it well with the auto polymerizing acrylic resin-monomer prior to sealing can facilitate watertight closure<sup>[10]</sup>.



**Fig 10:** Final denture

(11) Attachment and removal of cheek plumper were demonstrated, and necessary instructions were given to the patient. He was asked to visit for regular follow up. Follow up was done after 1 week, 1month, and 6 months. Patient is still on follow up.



Before Denture Insertion



Denture Insertion before Cheek Plumper attachment



Denture Insertion after Cheek Plumper attachment

## Discussion

Due to flaccid appearance of cheek and facial muscles, cheek plumper was introduced in this conventional denture. Detachable cheek plumper provides an advantage to detach the cheek plumper if they lead to muscle fatigue on long term use. These cheek plumper is good option in patients with less mouth opening. Hollow cheek plumper was used to reduce the weight of the denture and to reduce the muscle fatigue. Muscle fatigue can be prevented if patient has the option of removing the cheek plumper when experiencing discomfort<sup>[11]</sup>. Placement and removal of denture is also made easy with detachable cheek plumper.

In the past, magnet retained plumper prosthesis have been used but they exhibit poor corrosion resistance and loss of magnetic property over a period of time<sup>[12]</sup>. Clinical magnets are expensive and comparatively heavy option, push button attachments are the most affordable means to attach cheek plumper to the denture. Therefore, in this case push button cheek plumper is considerate option. Clinicians can choose the appropriate attachment according to the thickness and height of the denture flange and the dexterity of the patient<sup>[13]</sup>.

## Conclusion

To correct sunken cheeks to enhance the aesthetics of an individual is one of the many challenges faced by a Prosthodontist. The dentist's ability to understand and recognize the problems of edentulous patients, to select the proper course of required treatment and reassure them has proven to be greatest clinical value. In this case not only the chewing efficiency was improved also the psychological support was provided to the patient by improving the esthetics.

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