

# An Innovative Technique to Improve Complete Denture Aesthetics Using Cheek Plumper Appliance: A Case Report

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## ABSTRACT

Aesthetics plays an important role in complete denture treatment. Prosthetic rehabilitation of a completely edentulous patient no longer confines to only the replacement of missing teeth. Nowadays patients are too demanding for improvement in esthetics at the completion of treatment. The loss of support of the facial musculature is of great concern in treating completely edentulous patients. Sunken cheeks are one of the major consequences of flaccid facial musculature. Natural teeth should be preserved but at the same time, clinician must be aware of the edentulous ridge that could be destroyed by forces exerted on the denture during function. Further, it has a greater impact on the aesthetics as well as the psychology of the patient. Cheek plumper appliances can restore such facial delinquencies. The underlying principle for providing this appliance is that some patients have depressed cheeks and require extra support for improved facial aesthetics. Literature has well evidenced the extensive usage of magnets as attachments, but it has been shown that magnets lose their magnetic property over a period leading to failure of treatment. However, push buttons that were used in the cheek plumpers seems to increase the durability of the cheek plumper appliances. This clinical report describes a simple technique to improve support for sunken cheeks using detachable acrylic cheek plumper.

**KEYWORDS:** Cheek Plumpers, Facial Esthetics, Sunken Cheeks

## INTRODUCTION

As the world becomes more image conscious, people are increasingly on the lookout for ways and means of enhancing their natural beauty. It is important for a dentist to consider the whole face in totality when trying to work on dental aesthetics. External facial features like eyes, nose, cheeks, lips and facial musculature due to their extreme visibility are an important factor in determining facial aesthetics.<sup>1</sup>

Ageing leads to the high impact on external facial aesthetics due to early tooth loss, alveolar resorption and reduced tonicity of musculature. The key to aesthetic replacement to all these losses is to support and harmonize the collapsed lower third of the face with the upper part with the help of various treatment modalities.<sup>2</sup>

At times denture flange do provide support to the perioral muscles but fails to mimic the fullness of the cheeks. Cheek plumper or cheek lifting appliance is essentially a prosthesis that support and lift the cheek to provide necessary support and esthetic.<sup>3</sup> A conventional cheek plumper prosthesis is a single unit prosthesis with extension near premolar–molar region which support the cheek. Cheek plumpers or cheek lifting appliances have been used previously for the purpose of improving

and psychological profile in patients. Cheek plumper can be of two types :

1. Undetachable / Conventional Cheek Plumper
2. Detachable cheek plumper

Undetachable cheek plumper has some limitations like increased weight which could hamper retention of the maxillary complete denture and makes it difficult to insert. Moreover, long-term use can lead to muscle fatigue, and also it cannot be used in patients with limited mouth opening.<sup>4</sup>

Slumping or sagging of cheeks can increase person's age in appearance and hence have a negative effect on the self confidence of the patient. This clinical report focuses on to improve facial aesthetics of completely edentulous patients with sunken cheeks with the help of detachable cheek plumper.

## CASE REPORT

A 45-year old completely edentulous male patient reported to the Department of Prosthodontics with the chief complains of missing teeth and poor aesthetics. 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 1 years and has not worn denture since then.

*How to cite this article:*

Aggarwal P, Gupta MR, Pawah S, Singh A. An Innovative Technique to Improve Complete Denture Aesthetics Using Cheek Plumper Appliance: A Case Report. *Int J Oral Health Med Res* 2016;3(2):51-54.

Extra-oral examination revealed that patient had poor aesthetics, unsupported oral musculature leading to sunken cheeks (Fig.1). Intra-oral examination revealed that ridges were low well rounded in both maxillary and mandibular arch. All the steps for conventional complete denture were completed till try-in stage. At the try-in stage, the template for cheek plumper was fabricated with the help of impression compound. Impression compound was molded and placed over the maxillary right and left buccal flange of the denture base (Fig.2). Border movements were done so that the compound is well adapted. Movements were repeated till the cheeks gained required fullness. Now, the cheek plumper made of impression compound were separated from waxed up denture bases (Fig.3). Denture flasking and dewaxing procedures were finished separately for the final denture and cheek plumpers (Fig.4). The resultant mold space was then packed with heat-polymerizing acrylic material and curing procedures were completed. After curing, the cured final prosthesis and plumpers were retrieved. Trimming, finishing, and polishing procedures were performed (Fig.5).



Fig. 1: Preoperative view

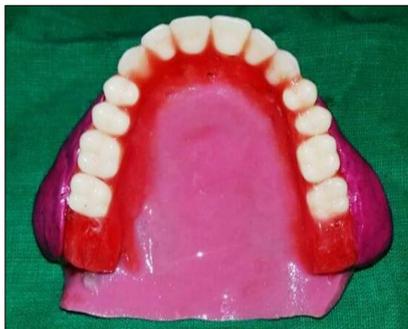


Fig. 2: Impression of cheek plumper made with impression



Fig. 2: Impression compound cheek plumper separated from waxed-up denture base



Fig. 4: Flasking of cheek plumpers



Fig. 5: Finished and polished acrylic cheek plumpers

Clinical magnets being out of affordability of patient, push button attachments were used to attach cheek plumper with denture base. Two 2mm deep and 5mm diameter holes were made on the posterior flange of the denture base and the corresponding area of cheek plumper also (Fig.6). The female part of the push button was attached to the denture base, and male part of push button was attached to the cheek plumper with the help of auto-polymerizing resin (Fig 7). The patient was given common post-insertion instructions and was encouraged to make efforts to learn to adapt to the new dentures and the push button retained cheek plumper (Fig.8). Within a week, the patient expressed satisfaction in mastication and phonetics and his esthetic dilemma was reduced with the use of detachable push button retained cheek plumper (Fig.9).



Fig. 6: Holes made on denture base for push button



Fig. 7: Female part of push button attached to denture base and male part attached to acrylic cheek plumper



Fig. 8: Cheek plumper attached to denture base



Fig. 9: Post-prosthetic view of patient

## DISCUSSION

In today's world denture esthetics is not confined only to selection of the teeth based on factors like form, shape, color, arrangement and sex. Instead, it is more about harmonization between the artificial and natural tissues.<sup>5,6</sup> Loss of teeth in posterior region results in loss of cheek support due to which cheek tend to move medially to meet laterally expanding tongue. Also, loss of the teeth in anterior region leads to changes in cheek contour as a result of loss of vertical dimension of occlusion. The apparent loss of subcutaneous fat, buccal pad of fat and

elasticity of connective tissue also produces the slumped cheeks, seen in aged.<sup>7</sup> Lazzari described the fabrication of a maxillary removable partial denture for a patient with unilateral facial paralysis.<sup>8</sup> Larsen et al. suggested construction of maxillary removable partial denture framework with a retentive mesh in the premolar region which was strengthened with modeling plastic to achieve desirable contours on estimation of speech and esthetics.<sup>9</sup> A variety of materials has been documented in the literature that act as a barrier to corrosion. They can be encapsulate materials like stainless steel, titanium or palladium metal or coating materials like a thin layer of parylene, polytetrafluoroethylene and polymeric materials<sup>7-10</sup>. Ryf et al. conducted an in vitro study to assess the interference of neodymium magnets with cardiac pacemakers and implantable cardioverter-defibrillators.<sup>11</sup> Their study results showed that NdFeB magnets for home and office use might cause interference with cardiac pacemakers and ICDs at distances up to 24 cm.<sup>11</sup>

Rectifications of drooping of cheeks can be done by different methods like reconstructive plastic surgery, injecting the botulinum toxin (BOTOX) in the facial muscles and different type of prosthesis.<sup>12-14</sup> Conventional cheek plumpers which are a single unit appliance with extensions on either side of the posterior flange of denture base, leads to muscle fatigue and decreased retention<sup>1</sup>. Therefore, detachable cheek plumpers provide an advantage to detach the cheek plumpers if they lead to muscle fatigue on long term use. Detachable cheek plumpers can be easily inserted in patients with reduced mouth opening. Various attachments like magnets, push buttons, etc. can be used to attach cheek plumper with the denture. Clinical magnets being expensive, push button attachments are the most affordable means to attach cheek plumper to the denture.

## CONCLUSION

The ability of the dentist to understand and recognize the problems of edentulous patients, to select the proper course of treatment required and reassure them is of great clinical importance. This case report describes a simple and economic prosthetic aid that not only offers esthetics but also improves the psychological profile of the patient.

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Source of Support: Nil  
Conflict of Interest: Nil