

## Prosthodontic Management of Complete Denture Patient With Press Stud Attachment Detachable Cheek Plumper For Esthetic Enhancement- A Case Report

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### Abstract

The goal of the prosthetic management of complete denture treatment should be the re-establishment of the full range of oral functions and the esthetics of the face which is lost due to long term edentulism. Facial asymmetry also is a common finding of facial dynamics of the completely edentulous patient which often lead to functional and esthetic concern of the patient, due to this loss of support of the facial musculature is of great concern from the esthetic point of view which occurs with age . Slumped cheeks are one of the major consequences of slacked facial musculature. Thus this case report describes the management of slumped cheeks to obtain esthetic occlusion and support to the cheeks with detachable cheek plumper.

**Keywords:** Detachable cheek plumper, facial esthetics, press stud attachments, slumped cheeks

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### I. Introduction

A very small degree of facial and dental asymmetry is a common finding and is normal in the facial dynamics of the geriatric population but some of the facial asymmetries can be more obvious and lead to both functional and more of esthetic concern of the patient<sup>[1]</sup>. Consciousness about esthetics is growing in this world, and it also plays an imperative role for individual owing to the physical and social needs.

As Jamieson stated,<sup>[2]</sup> "fitting the personality of the aged patient is often more difficult than fitting denture to the mouth." If the psychology of the patient is not considered, ones best efforts fail to provide results..

During prosthodontic rehabilitation of such patients, the cheek area requires some extra support as compared to the support provided by flange and teeth of the denture alone. To fulfill this requirement of extra bulk, appliance known as cheek lifting appliances or cheek plumpers are added in the denture<sup>[3]</sup>. These can be fixed or removable. The conventional design was fixed cheek plumper, which was achieved by thickening of buccal flange with an extension near the premolar or molar region. Such designs are integral part of the contour of the maxillary denture flanges in the mediolateral and the anteroposterior direction within physiologic limits. However, these have few disadvantages like increased weight; discomfort to patient while chewing and loss of retention. Moreover, in cases of difficulties faced, patients cannot remove the plumpers resulting in wastage of the entire denture prosthesis<sup>[4]</sup>. The other alternative is detachable cheek plumper. Most commonly used attachments in removable plumper prosthesis are magnets, press stud attachments, ball end clasps and springs<sup>[5,6]</sup> but the magnets lose their magnetism over a period leading to the failure of treatment. Thus, push buttons/press stud fastener were used in this clinical case to increase the longevity and durability of the cheek plumpers<sup>[7]</sup>. Their advantages of detachable cheek plumpers are easy removal by the patient during various oral functions, easy maintenance of oral hygiene, economical, noninvasive, improved esthetics to the desired level, simple in the method of fabrication.

## **BACKGROUND**

The main reason for providing this detachable appliance is that some patient have sunken cheeks and need extra support for better aesthetics. Cheek Plumpers have been described in literature for improving esthetics and the psychological profile of patients with maxillofacial defects and facial paralysis. Use of the plumper prosthesis in maxillofacial prosthodontics is also well documented<sup>[8]</sup>.

## **CLINICAL CASE REPORT**

A 65 year old male patient visited to our Department of Prosthodontics of Haldia Institute of Dental Sciences and Research complaining of difficulty in mastication and poor esthetics with the expectation of improving his facial appearance. He has been edentulous since 10 years. The patient and his son complained of his slumped cheeks, which makes him appear much older than he actually was. Patient was not happy with the collapse of cheeks due to the missing teeth (FIG 1).



**FIG 1- PRETREATMENT PHOTOGRAPH SHOWING SUNKEN APPEARANCE OF CHEEKS**

Keeping in mind the needs of the patient a proper diagnosis and the treatment plan was formulated involving the fabrication of conventional complete denture for maxillary and mandibular denture along with intraoral press stud retained detachable cheek plumpers for the maxillary denture

## **CLINICAL PROCEDURE**

- 1) Primary impressions of maxillary and mandibular arches were made using impression compound (DPI pinnacle, Mumbai, India) and custom trays were fabricated using auto polymerizing acrylic resin (Trevalon Dentsply ltd, Gurgaon, India)
- 2) Border molding was done using low fusing impression compound. (DPI Pinnacle, the Bombay Burmah Trading Corporation Limited, Mumbai, India) and final impression was made using zinc oxide eugenol impression material (DPI, Mumbai, India).
- 3) Further Jaw relations were recorded, facebow transfer was done teeth were set using a semi- adjustable articulator and anterior and posterior teeth arrangement try- in was done to check for occlusion, esthetics and phonetics.
- 4) On the day of the try in cheek plumper were made on both the buccal flanges of the maxillary denture in the premolar and molar region by adding modeling wax in increments and the border movements were done till the shrunken cheeks changed into satisfactory fuller appearance (FIG 2 and FIG 3 ).



**FIG 2- WAX BLOCK ATTACHED AS CHEEK PLUMPER WITH THE MAXILLARY DENTURE ( FRONT VIEW)**



**FIG 3- WAX BLOCK ATTACHED AS CHEEK PLUMPER WITH THE MAXILLARY DENTURE ( LATERAL VIEW)**

5) Denture flasking and dewaxing were done separately for denture and cheek plumpers and after curing, the cured final prosthesis and plumpers were finished and polished.

#### **ATTACHING PRESS STUD FASTENERS TO THE MAXILLARY DENTURE**

Stainless steel press stud button (5 mm in diameter and 2mm in thickness) was used to attach the plumper to the buccal surface on both sides of a maxillary denture. Provision for the placement of button was made on the buccal surface of the denture and the intaglio surface of the cheek plumpers . Two 5mm in diameter and 2mm deep diameter holes were made at two locations one anteriorly and one posteriorly in the buccal flange of the maxillary denture and two on the intaglio surface of the plumper ( FIG 4) . The female part of the press stud fastener was attached to the detachable cheek plumper and male part was attached to the buccal surface of the denture base with the help the autopolymerising resin ( FIG 5) . This would allow the patient to detach the cheek plumper at his convenience. The prosthesis along with the plumper was then checked in the mouth of the patient for esthetics comfort and masticatory functions, adequate clearance were also verified from the occlusal table (FIG 6).



**FIG 4- DETACHABLE CHEEK PLUMPER**



**FIG 5- MALE PART OF PRESS STUD FASTENER ATTACHED TO BUCCAL SURFACE OF DENTURE BASE AND THE FEMALE PART TO ACRYLIC CHEEK PLUMPER**



FIG 6- POST INSERTION VIEW OF ACRYLIC CHEEK PLUMPER PROSTHESIS

IMPROVEMENT IN FACIAL ESTHETICS WITH DETACABLE CHEEK PLUMPERS



**BEFORE TREATMENT**  
FIG 7- PREOPERATIVE VIEW

MID FACIAL  
CREASES  
DISAPPEARS AND  
GIVES A  
YOUTHFUL  
APPEARANCE



**AFTER TREATMENT**  
FIG 8- POST-PROSTHETIC VIEW

Instructions were given to the patient regarding denture brushing regularly with soft brush and detergent along with detachment of the plumpers while maintenance. Thus patient was very happy and satisfied with the cheek plumper attached denture. The patient without and with a denture were evaluated and there was marked increase in esthetics and the patient looked quite youthful and aesthetically better (FIG 7, 8). After the complete denture with detachable cheek plumpers was delivered to the patient (FIG 9) check ups were done after 24 hrs and then 1 week, and 3 months interval. Within a week, the patient expressed satisfaction in mastication and phonetics and his esthetic dilemma was reduced with the use of detachable press stud fastener retained cheek plumper. The plumper did not impose any pressure on the vestibule, there was no muscle fatigue, no corrosion reported. Thus the cheek plumper significantly improved the profile and enhanced esthetics of the patient.



FIG 9- SMILING VIEW

## II. Discussion

Ageing is a natural process and the sequel of ageing and it leads to loss of vermillion border of the face, deepening of the nasolabial fold, drooping of the corner of the mouth, depression of lips leads to exaggerated wrinkling<sup>[9]</sup>. So in this case, a successful prosthodontic management can be achieved with Complete Denture along with Press Stud Fastener Attachment Cheek Plumper. The apparent loss of subcutaneous fat, buccal pad of fat and elasticity of connective tissue also produces the slumped cheeks, seen in aged<sup>[10]</sup>. Restoring external form of the lips and cheeks in facial disfigurement is an integral part of the dental treatment<sup>[11]</sup>. A prosthesis specially designed for the correction of facial disfigurement by supporting the sunken cheeks intraorally, thereby improving facial esthetics is known as the “Cheek Plumper” or a “cheek lifting” appliance. The main advantages of cheek plumper are that it is economical, non invasive and improves aesthetics.. The plumpers should not be visible from outside during speech and should be comfortable for the patient to justify its purpose. These prosthesis can be incorporated either as fixed/conventional or removable/detachable and can be attached either to maxillary or mandibular denture as per the requirement of the case without compromising esthetics<sup>[12]</sup>.. Cheek plumpers have a few drawbacks, including the accumulation of food, patient discomfort resulting from the additional weight of the dentures, the requirement of manual dexterity of patients to ensure accurate attachment, and the susceptibility of press stud fasteners to breakage<sup>[13]</sup>. Therefore, periodic patient recall is necessary to assess and, when required, replace the attachments..

## III. Conclusion

Every patient is unique, with unique anatomy and muscle function. The focus of the prostheses that influence esthetics and function should be to record the area of interest precisely. Basic anatomy, physiology, and the patient’s psychology play important roles in denture acceptance and use. Press Stud Attachment detachable cheek plumper simplifies the procedure and helps the elderly to preserve independence, self-esteem and to maintain dignity. Thus this case report provides an innovative aid in achieving overall well being of the patient. A lost smile, confidence and enthusiasm for life were thus restored.

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