

Customized Attachment Retained Hollow Cheek Plumper to Enhance Esthetics in Elderly: Report of a Novel Technique

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ABSTRACT

Introduction: Esthetics is an integral part of dental treatment. Geriatric patients with completely edentulous arches are increasingly demanding improved esthetics at the end of treatment. Sunken cheeks are one of the major prosthetic complication post denture insertion if the cheeks are not adequately supported by prostheses.

Case Report: Cheek plumper is prosthesis that extend near premolar-molar region to support the cheek in edentulous patients. They may either be attached or detachable according to requirement of case. This article describes the use and fabrication of a customized attachment for cheek plumper using dowel pins commonly used in dental laboratories for fixed dental prosthesis fabrication.

Conclusion: This article describes an innovative, simple and cost-effective attachment system used in completely edentulous patient requiring complete denture prostheses with detachable cheek plumper.

Keywords: Facial, Esthetics, Prosthetic, Device, Sunken Cheeks

INTRODUCTION

Being completely edentulous is an impediment in the patient's day to day life. Not only are the functions like mastication and speech in such patients hampered but also esthetics is impaired to a major extent. In today's scenario where looks and appearance are of utmost importance to any individual, the concern of geriatric population has also shifted from not only the replacement of missing teeth to restoring esthetics as well. As Jamieson CN¹ stated, "fitting the personality of the aged patient is often more difficult than fitting the denture to the mouth." During the fabrication of dentures, proper extension and contouring of denture flanges can help to achieve facial esthetics by supporting the lips and cheeks. However, sometimes due to long term edentulism and tissue laxity the patient may present with hollowed cheek appearance. In such cases extra support has to be provided. Slumped or hollow cheeks can add years to a person's age and can have a detrimental psychological effect on the patient.² In such cases, cheek plumper can be given. A conventional cheek plumper is single-unit prosthesis with an extension near the premolar-molar region that supports the cheeks. However, single unit prosthesis can become a problem during insertion and removal for certain patients due to the increased bulk. Moreover it is difficult to be used in patients who have limited mouth opening as the additional thickness may hinder the insertion and/or removal of the dentures.³ Another type of cheek plumper is the detachable one. In this the cheek plumper is a separate unit from the denture, thus facilitating ease of insertion and removal from oral cavity. Several attachments have been used and reported

in literature for attaching the separate cheek plumper to the denture. This case report intends to highlight a case of edentulous patient who was given cheek plumpers bilaterally to enhance esthetics along with complete denture using customized attachments.

CASE REPORT

A 63 year old male patient reported to the Department of Prosthodontics and Crown & Bridge with complaint of fractured mandibular denture due to fall. The patient's desired to get new set of dentures rather than repairing the fractured one. On extraoral examination sunken flaccid appearance of the cheek was appreciated. (Figure 1) The patient was given an option of cheek plumpers to enhance his esthetics. To give a better idea, Prodent modeling wax was molded and added onto the sides of his existing maxillary complete denture. Improvement in the extraoral appearance was shown to the patient, thus motivating him for the treatment. The complete denture fabrication was carried out using the conventional denture fabrication technique. The primary impressions were made using impression compound followed by border molding and final impressions. While recording jaw relation, the occlusal rims were adjusted according to patient's vertical dimension. Modeling wax of approximately 7 mm was adapted onto the sides of the maxillary rim after applying petroleum jelly onto the buccal aspect of the rim. The maxillary and mandibular rims were inserted in the patient's mouth and the esthetics was evaluated. Required adjustments were made by shaping the wax templates that were adapted buccally. Once optimum esthetics was achieved and the

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How to cite this article: Aaditee Vande, Abhijeet Kore, Pronob Sanyal, Kumar Nilesh. Customized attachment retained hollow cheek plumper to enhance esthetics in elderly: report of a novel technique. International Journal of Contemporary Medical Research 2019;6(6):F11-F13.

DOI: <http://dx.doi.org/10.21276/ijcmr.2019.6.6.58>

patient was satisfied with his appearance, the wax templates were detached from the rim. After teeth arrangement was done, the patient was recalled for try-in appointment. During the try-in phase, the wax templates were again re-evaluated



Figure-1: Preoperative clinical photograph showing sunken flaccid appearance of the cheek



Figure-2: Dewaxing carried out and lost salt technique used during packing stage for fabrication of hollow cheek plumper



Figure-3: Steps in fabrication of cheek plumper using a metallic dual dowel pin with plastic sleeve (a), the die pin and sleeve cut to a length of 2 mm (b), metallic dowel pin attached to the cheek plumper using auto-polymerizing acrylic resin and the plastic sleeve incorporated into the buccal surface of maxillary denture by creating a slot (c,d).



Figure-4: Postoperative photograph of patient wearing cheek plumper and having better cheek fullness.

and patients consent was obtained for final fabrication of the dentures and the cheek plumpers in heat cure denture resin material.

Dewaxing was carried out and lost salt technique was used during packing stage for fabrication of hollow cheek plumpers.(Figure 2) After processing was complete, a hole was made on the surface of the cheek plumpers where the attachment was to be placed. This same hole was used for washing out the salt crystals from the plumper. A customized attachment was planned for the cheek plumpers using a metallic dual dowel pin with plastic sleeve. The die pin and sleeve was cut to a length of 2 mm. The metallic dowel pin was attached to the cheek plumper using autopolymerising acrylic resin and the plastic sleeve was incorporated into the buccal surface of maxillary denture by creating a slot. (Figure 3) The dentures were inserted in patient's mouth and patient was taught how to insert the cheek plumpers with the help of the customized attachment. Post insertion instructions were given. Instructions regarding cleaning of the metallic attachment and the plastic sleeve were also explained. The patient was kept on regular follow-up for a period of 6 months and was satisfied with improvement in appearance. (Figure 4)

DISCUSSION

Conventional cheek plumpers though easy to fabricate have certain limitations. It increases the weight of the prosthesis. This may cause muscle fatigue and can also make the denture unstable.⁴ Increased bulk of the prosthesis makes insertion and removal difficult, particularly for patients with xerostomia.⁵ Detachable cheek plumpers are a viable option to improve the esthetics along with providing patient comfort. Being a separate unit, detachable cheek plumper can be attached to the denture after the denture is inserted in mouth.

Various pre-fabricated attachment systems for detachable cheek plumpers have been used, most common being press buttons and magnets.^{6,7} However only few cases of customized attachments have been reported in literature.⁸ One such customised attachment is the use of single straight dowel pin. However using single dowel pin may lead to rotation of the plumper along the surface of denture during function. Hence two single straight dowel pin are required. In this case report a double dowel pin with single head also known as cross-pin has been modified and used as an attachment.

The cross-pin serves as an anti-rotational attachment for the detachable cheek plumper and avoid its rotation along the denture surface. Hence the purpose is served by giving one attachment only. The difference in the size of the double dowel pin also helps the patient to properly seat the plumper in place. Making the plumpers hollow, reduced their weight thus reducing the weight of the entire prosthesis and making it comfortable for the patient.

CONCLUSION

This article describes a simple, cost effective, non-invasive technique to improve esthetics in completely edentulous individuals with hollow cheeks. Hollow detachable cheek plumpers can effectively restore the cheek contours to acceptable limits.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 21 -05-2019; **Accepted:** 04-06-2019; **Published:** 30-06-2019