

Detachable Cheek Plumpers Retained With Die Pins- A Clinical Report

¹Dr. Ajay Mootha, Professor and HOD, Department of Prosthodontics, YCM & RDF's Dental College Ahmednagar

²Dr. Kalyani Deshmukh, PG student Department of Prosthodontics, YCM & RDF's Dental College Ahmednagar

³Dr. Surojit Dutta, Professor, Department of Prosthodontics, YCM & RDF's Dental College Ahmednagar

Corresponding Author: Dr. Kalyani Deshmukh, PG student Department of Prosthodontics, YCM & RDF's Dental College Ahmednagar

Type of Publication: Clinical Report

Conflicts of Interest: Nil

Abstract

Prosthetic rehabilitation of a completely edentulous patient should never be restricted

to the replacement of missing teeth. The edentulous state is associated with loss of teeth, resorbed alveolar ridge, reduced muscle tonicity, and hollow cheeks. The ultimate aim of complete denture treatment should be restoration of the full range of oral functions and esthetics.

This article describes a simple, scientific, cost-effective technique to improve facial esthetics in

a completely edentulous patient with the help of a cheek plumper. The technique used here implements use of die-pins as attachments to retain the plumpers.

Keywords: Aging, Esthetics, Detachable cheek plumper, Die-pins

Introduction

Prosthodontic rehabilitation does not mean to simply replace the missing teeth, but also restore the facial support. Conventional procedures can fulfill these requirements. But in some cases, where the patient has sunken cheeks an extra support to the dentures must be provided. The support provided by the teeth, the ridges or the dentures determine the form of the cheeks. Factors like extraction of molars, thinning of tissues due to aging, or weight loss may lead to concavities or hollowing of the

cheeks¹. This can make a person appear more older and hence have a negative psychological impact on the patient. This can be overcome by using cheek plumper or cheek lifting appliances.

Cheek plumper is basically a prosthesis to enhance the support of sunken cheeks providing better esthetics. Cheek plumpers have also been used to improve esthetics in patients with complete dentures. A conventional cheek plumper is a single-unit prosthesis with an extension near the premolar molar region that supports the cheeks. Such devices are an integral part of the contour of maxillary denture flanges designed by overcontouring denture flanges in the mediolateral and anteroposterior directions within physiologic limitations.² Cheek plumpers have been described for improving esthetics and the psychological profile of patients with maxillofacial defects and facial paralysis³. Use of plumper prosthesis in maxillofacial prosthodontics is also well documented^{3,4,5}.

Materials and methodology

Male patient, aged 70 years, reported at the Dental College and Hospital complaining of missing teeth and with the expectation of improving their chewing efficiency and appearance. Clinical examination revealed completely edentulous maxillary and mandibular arches,

and extraoral findings of sunken cheeks (Fig. 1). Because the patients were seeking improvement in their facial appearance, a treatment plan was formulated involving the insertion of conventional complete dentures and detachable cheek plumpers for maxillary denture. Preliminary impressions were made with modeling plastic impression compound and poured-in dental plaster, after which custom impression trays were fabricated with autopolymerized acrylic resin. Border molding was done with green stick modeling impression compound. Definitive impressions were made with zinc oxide eugenol impression paste, the jaw relation was recorded, and the tooth arrangement was evaluated. Wax patterns for the cheek plumpers were fabricated during the clinical evaluation stage. A roll of softened modeling wax was adapted over the buccal flanges of the maxillary denture on either side in the premolar molar region. The adapted wax was inspected extraorally for adequacy of cheek support and contour. Because the definitive wax patterns of the maxillary cheek plumpers and modified to ensure that they did not cause occlusal interference, instability of dentures, or unnecessary tensing of facial muscles. Die pins were used as attachment for cheek plumpers (Fig.2a) which has keyway (Fig.2b) and key (Fig.2c). Parts were cut according to the thickness and height of the denture flange. The keyway part of die pin was incorporated into the buccal flanges of the denture (Fig.3a) and the key part was incorporated into cheek plumpers (Fig.3b). The dentures and cheek plumpers were fabricated separately using heat-polymerized acrylic resin. During the insertion of the dentures, adequate clearance of the cheek plumpers from the occlusal table was verified (Fig.4).The patients were given instructions regarding the attachment and detachment of the cheek plumpers and asked to present for regular followup evaluations(Fig. 5).

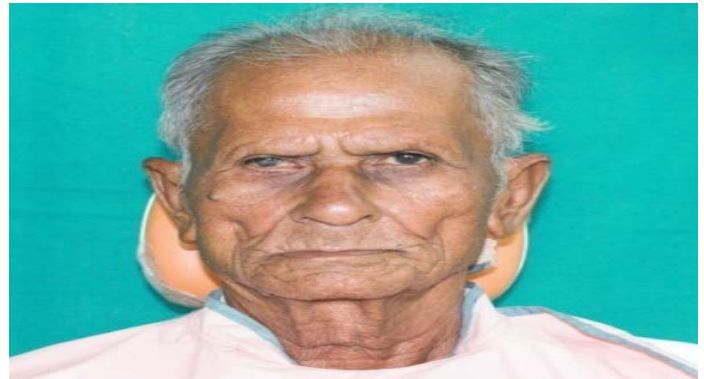


Fig.1 Pre-operative photograph



Fig.2a) Die pins used as attachments 2b) Keyway part 2c) Key part



Fig.3a) Keyway part of die pins incorporated into buccal flanges of denture 3b) Key part incorporated into cheek plumpers



Fig.4 Insertion of denture with cheek plumpers



Fig.5 Post-operative photographs

Discussion

The area available for the cheek plumper is not static and therefore requires knowledge of anatomy and physiology of the area for fabrication of a successful and functional prosthesis. The cheeks are supported from three aspects, the zygoma above, the mandible below, and the parotid gland overlying the masseter muscle posteriorly⁶. Additional support is provided by the subcutaneous fat and the buccal fat pad. This support is responsible for the soft, rounded contours of the cheeks in the lower third of the face⁶. The anterior part of the cheek is supported by the muscular framework converging into the modioli, and posterior support is provided by the posterior teeth and their supporting structures⁶.

With the loss of the posterior teeth, the cheeks tend to collapse to varying degrees and move medially to meet the laterally expanding tongue. Loss of subcutaneous fat and elasticity of the connective tissue produces the hollow cheeks seen in the aged⁶. The space that exists between the cheek and the denture flange varies from patient to patient depending on the factors mentioned above.

Kamakshi et al. have described a magnetically retained detachable cheek plumper to enhance the facial profile in patients with shrunken cheeks⁷. The author used neodymium close-field magnets for retention. Keni et al. described a technique to support shrunken cheeks with a detachable cheek plumper using customized attachments made of Co-Cr alloys and orthodontic separators⁸. Muthuvignesh advocated a fixed cheek plumper for rehabilitation in Bell's palsy patients⁹. Virdiya et al. described various attachments for detachable cheek plumpers in conventional complete denture prosthesis². Nariman et al. used push buttons as a retentive aid for detachable cheek plumpers¹⁰. Also few authors have used stud attachments, orthodontic elastic modules, and wire-retained cheek plumpers.^{11,12} Clinicians

can choose the appropriate attachment according to the thickness and height of the denture flange and the dexterity of the patient.

The technique described in this case report for fabrication of a detachable cheek plumper retained by the use of die pins with is easy to fabricate, cost-effective, noninvasive and maintains patient comfort and snap fit of plumpers to dentures can be achieved.

Conclusion

Detachable cheek plumpers provide increased patient comfort, leading to greater patient acceptance of the prosthesis. By advocating this treatment to the patient, his lost smile is reincarnated, and comfort, function, and facial appearance improved. Although there are various attachments available for fabrication of a detachable cheek plumper such as press or push buttons, magnets, and orthodontic separators, each has their own pros and cons. Detachable cheek plumper attached with die pins is easy to fabricate, cost-effective, noninvasive and maintains patient comfort.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal.

References

1. Bains JW, Elia JP. The role of facial skeletal augmentation and dental restoration in facial rejuvenation. *Aesthetic Plast Surg.* 1994 Summer;18(3):243–6.
2. Virdiya NM, Palaskar JN, Wankhade J, Joshi N. Detachable cheek plumpers with different attachments for improving esthetics in a conventional complete denture: A clinical report. *JProsthetDent* 2017;117:592–6.

3. Larsen SJ, Carter JF, Abrahamian HA. Prosthetic support for unilateral facial paralysis. *J Prosthet Dent* 1976;35:192-201.
4. Lazzari JB. Intraoral splint for support of the lip in Bell's palsy. *J Prosthet Dent* 1955;5:579-81.
5. Unger JW, Stroster T. Modification of the maxillary complete denture in the management of unilateral facial paralysis. *Quintessence Int* 1989;20:51-4.
6. Martone AL: Effects of complete dentures on facial esthetics. *J Prosthet Dent* 1964;14:231-255
7. Kamakshi V, Anehosur GV, Nadiger RK: Magnet-retained cheek plumper to enhance denture esthetics: case reports. *J Indian Prosthodont Soc* 2013;13:378-381
8. Keni NN, Aras MA, Chitre V: Customised attachments retained cheek plumper prosthesis: a case report. *J Indian Prosthodont Soc* 2012;12:198-200
9. Muthuvignesh J, Kumar NS, Reddy DN, Rathinavelu P, Egammai S, Adarsh A, et al. Rehabilitation of Bell's palsy patient with complete dentures. *J Pharm Bioallied Sci* 2015;7:S776-8.
10. Nariman R, Sowmya M, Krishna P. A single complete denture with cheek plumpers to improve facial aesthetics. *J Dent Res Sci Dev* 2015;2:17.
11. Deogade SC. Magnet retained cheek plumper in complete denture esthetics: A case report. *J Dent (Tehran)*, 2014; 11: 100-5.
12. Riley MA, Walmsley AD, Harris IR. Magnets in prosthetic dentistry. *J Prosthet Dent*, 2001; 86: 137-42.