

Enhancing Aesthetics of the Completely Edentulous Patient Using Friction Retained Cheek Plumper: A Case Report

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Abstract: The aim of this case report is to enhance the aesthetic of completely edentulous patient using the customized friction retained cheek plumper. The complete loss of teeth leads to handicap situation due to impairment of mastication and facial disfigurement resulting in negative psychological impact on the patient. To improve this condition apart from the regular measures of teeth arrangements to obtain lip and cheek support, better denture aesthetics can be provided by additional support using cheek plumper. This article provide simple, non-invasive, cost-efficient method to improve facial appearance of complete denture patient with slumped cheek in addition to flabby ridge.

Keywords: Cheek plumpers, flabby ridge, slumped cheeks, friction retained

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I. Introduction:

In today's world aesthetics play a crucial role in a person's professional and social life. The presentation of the lower part of the face is depends on the contour of the jaw bones, underlying teeth, and the soft tissues and muscles surrounding the teeth. The edentulous state is associated with loss of teeth, resorbed alveolar ridge, reduced muscle tonicity, and hollow cheeks. The complete loss of teeth leads to handicap situation due to impairment of mastication and facial disfigurement resulting in negative psychological impact on the patient. While replacing the teeth in such patients, it is essential that the prosthesis not only replace the missing teeth but also restore the facial contours. Proper extensions and contours of denture flange, proper teeth arrangement can help to achieve this. However in some cases like patients with hollow cheeks, to improve this condition apart from the regular measures of teeth arrangements to obtain lip and cheek support, better denture aesthetics can be provided by additional support using cheek plumper or cheek lifting appliances¹. 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. Also the mesio-distal width may hinder placement². Detachable plumper prosthesis is thus more beneficial. In a detachable plumper prosthesis, plumper part can be detached from the complete denture³. This clinical report illustrates the fabrication and advantages of friction retained customised detachable cheek plumper prosthesis in a completely edentulous patient.

CASE REPORT: A 62-year-old male patient reported to the department of prosthodontics, government dental college and hospital Aurangabad with a chief complaint of difficulty in chewing and poor aesthetics due to loss of teeth and slumped cheeks, requesting replacement of missing teeth. On examination patient had completely edentulous upper and lower arches with flabby ridge in maxillary anterior region. Patient had lost his teeth over a period of 5 years as they were mobile and was edentulous for past 1 year. Patient was conscious about the hollowness of his cheeks and desired a prosthesis which would make his face look fuller and healthier. All the treatment options were provided to the patient. Because the patient were seeking improvement in his facial appearance, a treatment plan was formulated involving insertion of conventional complete dentures and detachable cheek plumpers for maxillary denture as opted by the patient.

FABRICATION: Maxillary and mandibular primary impressions were made using impression compound (Y Dents, MDM Corporation, Delhi). An acrylic custom tray (DPI RR Cold Cure) was used for the maxillary arch

and final impression was made using window technique^{4,5}(Fig. 3). In the maxillary arch border molding was done using low-fusing impression compound (DPI Pinnacle Tracing Sticks; Dental Products of India, Mumbai, India), and a wash impression was made using zinc oxide eugenol impression material. Flabby tissues was marked by using indelible pencil and its marking was transferred on wash impression. Window was created and tray inserted. Addition silicon light-body material (Dentsply Aquasil impression material) added into the window using dispensing gun. This material was secured using gauze piece and dental plaster. A mandibular impression was made using the admix technique⁶. Jaw relation records were obtained. This was followed by a trial of the waxed denture. For recording the area available for the cheek plumpers a roll of softened modelling wax was adapted over the buccal flanges of the maxillary denture on either side in the premolar-molar region. The patient was then asked to perform functional movements like opening and closing of the mouth and lateral movement of the mandible to record the amount of space actually available in the coronoid region and coronomaxillary space for incorporation of the cheek plumper. The adapted wax was inspected extra orally for adequacy of cheek support and contour. Following that the recording was retrieved, and the wax extending onto the peripheral seal area was reduced by 2 mm to keep it away from the denture borders (Fig. 4). A putty index of the customized, molded wax was made using addition silicone (Zermacetaplus)(Fig. 5). Added wax was then removed carefully. Pattern wax (Kerr Dental Laboratory Products, Orange, CA) was used to make retentive attachments on the polished surface of the buccal flange of the maxillary denture in the premolar and molar area to aid in the retention of the cheek plumper. The retentive attachment was 2 mm high, 2 mm thick and 3 mm away from the outer periphery of the plumpers(Fig. 6). The retentive attachments and the buccal flange were duplicated using irreversible hydrocolloid material alginate (Tropicalgin) (Fig. 7) and poured in type III dental stone (Kalastone; Lalabhai, Mumbai, India) (Fig.8) Removed wax plumpers were added in the putty index with some addition molten wax and was oriented onto the duplicated cast. The wax pattern thus obtained was evaluated for appropriate thickness and fit. The plumpers was fabricated from this wax pattern using flexible polyamide denture base material (Valplast; Valplast International Corp., Westburg, NY), and the denture was acrylicized separately using heat-cure acrylic resin, (DPI Heat Cure; Dental Products of India) (Fig. 9). The shade of the denture base resin and flexible cheek plumper were matched before processing. Following finishing and polishing, the flexible cheek plumper was fitted on the denture. The complete denture with the plumpers was tried in the patient's mouth. The patient was given instructions regarding use, and maintenance of the cheek plumpers. He was recalled after 24 hours, 1 week, 2 weeks, 1 month, and 6 months. The patient did not report pain or discomfort, and no ulcerations or sore spots were noted on intraoral examination. The denture hygiene was satisfactory. The patient reported complete satisfaction with the denture at recall visits.

II. Discussion:

The retentive mechanism used for the cheek plumper was a friction lock attachment. It does not contain any metal components, can be fabricated easily in the laboratory, does not require any extra or specialized equipment, and is cost effective. For fabrication of the cheek plumper, flexible denture base material was chosen for the exact fit it offers and its flexibility but its retention over time also depends on the number of times the patient removes and attaches it. Further research is needed to establish its lifespan. Conventional cheek plumpers, when used, add to the weight of the prosthesis, can cause muscle fatigue, and make the denture unstable. They also make insertion and removal difficult. In this report, a detachable plumper was fabricated, reducing the weight of the definitive prosthesis and allowing easy placement and removal onto and off of the denture. In the past, many other attachments have been used for the purpose of connecting the plumper to the denture and have their own advantages and disadvantages⁷⁻¹².

III. Conclusion:

This article describes a simple, cost effective, non-invasive technique to improve aesthetics in completely edentulous individuals with hollow cheeks.

References:

- [1]. Fernandes A, Correia M, Pinto N: Prosthesis for cheek support—a case report. *J Indian Prosthodont Soc* 2002;2:19-20
- [2]. Keni NN, Aras MA, Chitre V. Customised attachments retained cheek plumper prosthesis: a case report. *J Indian Prosthodont Soc.* 2012 Sep;12(3):198-200. doi: 10.1007/s13191-012-0132-y. Epub 2012 Jun 8. PMID: 23997472; PMCID: PMC3416943
- [3]. Bhushan P, Aras MA, Coutinho I, Rajagopal P, Mysore AR, Kumar S. Customized Cheek Plumper with Friction Lock Attachment for a Completely Edentulous Patient to Enhance Esthetics: A Clinical Report. *J Prosthodont.* 2019 Jan;28(1):e1-e5. doi: 10.1111/jopr.12591. Epub 2017 Jan 25. PMID: 28122401.
- [4]. Watson RM. Impression technique for maxillary fibrous ridge. *Br Dent J* 1970;128:552.
- [5]. Deogade, Suryakant. (2017). Window impression technique: A prosthetic approach to flabby ridges. 10.18231/2455-8486.2017.0032.
- [6]. McCord JF, Tyson KW: A conservative prosthodontic option for the treatment of edentulous patients with atrophic (flat) mandibular ridges. *Br Dent J* 1997;182:469-472
- [7]. Dr.Smita A. Khalikar, D.rAshwini B Bhole, Dr. Shankar P Dange&Dr.Kishor M Mahale(2020) A Detachable Press Button Retained Cheek Plumper Prosthesis to Enhance Aesthetics in Geriatrics: Case Report,*J of Prosthet Dent*, 15(1);121-126

- [8]. Lingegowda AB, Shankaraih M, Bhallaiah P: Magnet retained cheek plumpers in complete denture patient. *Int J Dent Clinics* 2012;4:65-66
- [9]. Sunil Kumar MV, Rao H, Sohi KS: Artificial cheek plumpers: a step ahead in denture aesthetics—a case report. *Indian J Stomatol* 2011;2:134-137.
- [10]. AaditeeVande, Abhijeet Kore, PronobSanyal, 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.
- [11]. Lynch CD, Allen PF. Management of the flabby ridge: Using contemporary materials to solve an old problem. *Br Dent J* 2006;200:258-61.
- [12]. 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. *J Prosthet Dent.* 2017 May;117(5):592-596. doi: 10.1016/j.prosdent.2016.08.021. Epub 2016 Oct 27. PMID: 27881312.

Figure 1: Preoperative photograph



Figure 2: Flabby Ridge



Figure 3: Impression of flabby tissue made using modified window impression technique



Figure4: Functionally molded wax cheek plumpers at the time of denture try-in



Figure5: Putty index of wax plumper

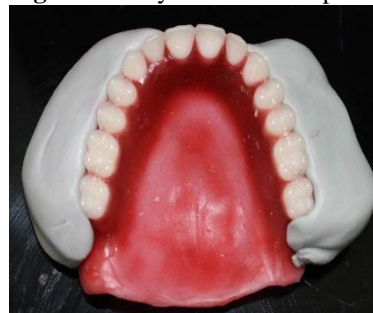


Figure 6: Friction lock retentive attachments made using pattern wax

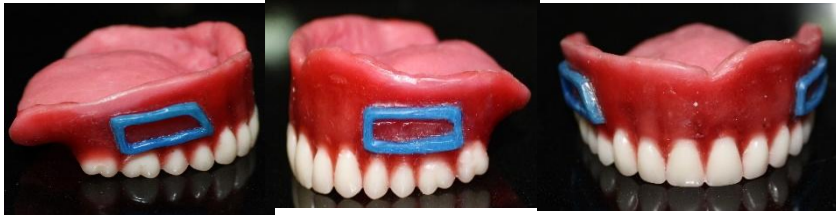


Figure 7: Sectional impression of retentive attachments using irreversible hydrocolloid material



Figure 8: Impression poured in type III dental stone



Figure 9: Final denture with separately processed cheek plumpers

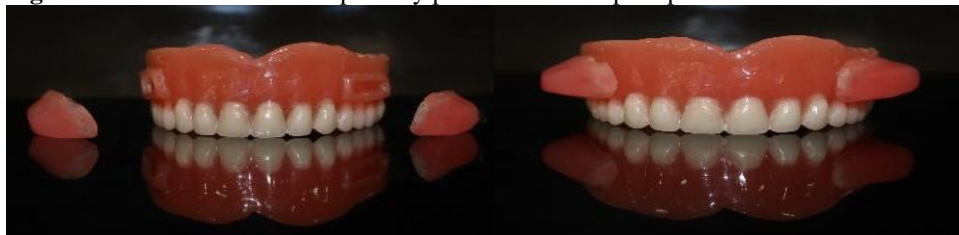


Figure 10: Post denture insertion patient photograph



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