



AN INNOVATIVE TECHNIQUE USING A PLASTIC BUTTON CLIP RETAINED CHEEK PLUMPER IN COMPLETE DENTURE ESTHETICS: A CASE REPORT

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Abstract:

Aim: This case report describes a simple, effective and a non invasive treatment strategy to reestablish the sunken cheeks utilizing cheek-plumper which are attached to the conventional complete denture, using plastic button clips.

Background: Individuals of current era are concern more about esthetics. Aging leads to the high impact on external facial esthetics results in slumped cheek resulting in undesirable facial esthetics. Cheek plumper is a commonly used prosthesis to enhance the support of sunken cheeks providing better esthetics.

Case description: Patient with sunken cheeks desires to obtain a denture with esthetic rehabilitation. Cheek plumper was appended to denture with a plastic button clip.

Conclusion: Button clip retention of cheek plumper for sunken cheek patients is advantageous due to its precise fit, excellent esthetics and corrosion resistance. This innovative approach helps in accomplishing prosperity of the patient.

Key words: Unconventional dentures, sunken cheeks, Cheek plumper, press button clips

Introduction

A prosthodontist's role in rehabilitation does not intend to simply replace the missing teeth, but rather additionally reestablish the facial support¹. Cheeks are a vital part of facial esthetics due to their extreme visibility. The support provided by the teeth, the ridges or the dentures determine the form of the cheeks². Ageing leads to the high impact on external facial aesthetics due to early tooth loss, alveolar resorption and reduced tonicity of musculature resulting in slumped or hollow cheek thereby an undesirable facial esthetics³. Cheek plumpers are basically to support the cheek to give a youthful appearance. It is particularly helpful in patients who have lost their teeth and part of the maxillary bone as a result of a traumatic injury. Undetachable cheek plumper has some disadvantages like increased weight, difficulty in insertion, muscle fatigue; interference with masseter and buccinator muscle function and coronoid process of the mandible.² It can also not be used in patients with limited mouth opening². Some authors have used magnets^{1,4,5}, die

pins⁷ and metallic push button^{3,6,7} as attachments to overcome the demerits of undetachable cheek plumper. But this magnets and die pins as attachments also have some disadvantages. Hence, this clinical report focuses on to enhance facial aesthetics of completely edentulous patients with sunken cheeks with the help of plastic push button as a detachable cheek plumper.

Case description

This clinical case report of a plastic press button retained cheek plumper in complete denture esthetics treated at JSS Dental College and Hospital, A Constituent College of JSS Academy of Higher Education and Research, Mysore, Karnataka.

Case report

A 61 year old male patient reported to the department of prosthodontics & crown and bridge with the chief complaint of missing teeth and sought replacement due to unaesthetic appearance (Figure 1). He gave a history of teeth extracted over a period of two years due to periodontal problem and decay.

He was edentulous since 6 months. On examination one of the significant findings was poor esthetics, unsupported oral musculature and slumped cheeks. The patient required complete dentures with some form of cheek support. Based on patient's needs a treatment plan was formulated. It was chosen to give patient upper and lower complete dentures with detachable cheek plumpers for the maxillary denture.

Clinical procedures

Maxillary and mandibular impressions were made using impression compound (DPI PINNACLE, Dental products of India, Mumbai) and the primary cast was made using dental plaster. Spacers were adapted over the cast and the special trays were fabricated using autopolymerizing acrylic resin. Border molding was done using low fusing impression compound, (DPI PINNACLE tracing sticks, Mumbai) and final impressions were made with zinc oxide eugenol impression paste (DPI, Mumbai). Master cast was made using dental stone. Jaw relations were recorded using modeling wax in conventional method and casts were mounted on to the 3 point articulator. Teeth arrangement was done using Premadent teeth and a wax set-up was tried in the mouth to check esthetics, phonetics, occlusal vertical dimension, and occlusion. At the try-in stage, cheek plumper was made using wax as separate portions on the buccal surface of the trial denture. They were superficially appended to the buccal surfaces on the right and left side and tried in the mouth to determine the amount of desired cheek support appropriate for comfort, function, esthetics. Trial dentures were coated with a thin layer of petroleum jelly to facilitate the easy removal of the plumpers for processing. These plumpers were located between the 2nd premolar and 2nd molar region of the maxillary denture flange. The adjustment in the appearance with and without wax-up cheek plumper was apparent and was readily accepted. They were designed according to the intraoral space availability which was necessary to enhance the appearance and thickness which otherwise would interfere with functional movement.

Laboratory procedures

The plumpers and dentures were separately acrylized in the conventional way. Denture flasking and dewaxing procedures were finished separately for the final denture and cheek plumpers. The resultant mold space (Figure 3) was then packed with heat polymerizing acrylic material and curing procedure was completed. After curing, the cured final

prosthesis and plumpers were retrieved. Trimming, finishing, and polishing procedures were performed. After finishing and polishing, slots were made in the buccal surface of the denture for the plastic press buttons and the attachment surfaces of the plumpers also trimmed to make space for counterpart (Figure 4). Grooves were placed on to denture surface with corresponding elevations on the inner surface of the plumper to prevent rotation. After conforming the location of the press buttons, they were sealed with auto-polymerizing resin on the denture base and sleeves on the cheek plumpers. Autopolymerizing resin was allowed to set properly. The plumper was checked on the denture surface for smooth fitting and an discrepancy was eliminated. Trimming, polishing of the irregular surfaces was done and the prosthesis was delivered (Figure 7, 8). Patient was educated on the use and positioning of the plumpers and dentures were delivered after evaluating them for fit and aesthetics. On the recall of 48 hrs patient did not possess any problems with speech or mastication.



Figure 1: Pre-operative



Figure 2: Try in stage Cheek plumper was made using wax



Figure 3: Resultant mold space after dewaxing



Figure 4: Press button and its counterpart attached to the plumper and denture base respectively



Figure 5: Post- operative

Discussion

Denture esthetics is not limited to selection of teeth based on factors like form, shape, color, arrangement of the teeth⁴. As the age progress, treatment modalities become ever more challenging because of an extreme change in tissue tonicity; folds and creases of face occurs. Loss of posterior teeth results in loss of cheek support, which tends to move medially to meet laterally encroaching tongue. There

is even change in cheek contour due to loss of the vertical dimension of occlusion. Factors such as loss of subcutaneous fat, buccal pad of fat and elasticity of the connective tissue are the reason of the sunken cheeks that are seen in the aged persons^{3,8}. Corrections of slumping of cheeks can be accomplished by various methods like reconstructive plastic surgery, injecting the botulinum toxin⁹ (BOTOX) in the facial muscles and different types of prosthesis. The plastic surgery is a traumatic procedure which leaves behind the post-surgical scar and more over is an invasive procedure to which much of the patients won't agree to. Although these modalities may be effective, they have a variety of disadvantages among them, including cost, time to onset, skin irritation and allergic skin reactions⁴ and are mostly indicated to middle aged or younger individuals. Cheek plumpers or cheek lifting appliances improves aesthetics and psychological profile in patients. Single piece prosthesis may cause the inconvenience for the patient. To overcome the disadvantages of conventional cheek plumper, detachable cheek plumpers are now in use that have advantages of reduction in height, easy insertion and removal, prevent muscle fatigue, improves denture hygiene and allow patient to wear only denture without cheek plumper. Detachable cheek plumpers such as magnets, soft liners, wires, and customized attachments have been used but they all have disadvantages that prevent their regular uses. The attachments should be cost effective, resist rotation or movement of plumpers while in function and long acting. Magnetic retention for slumped cheek patients is beneficial due to good retentive forces, small size and automatic reseating; however due to harmful effects of magnetic field on the health of the oral tissues and loss of magnetic property over a period of time and hence requiring frequent replacement^{1,4,5}. Metallic press button retained cheek plumpers are now most commonly used that have the advantages of small and light weight, snug fit and inexpensive; on the other hand due to poor corrosion resistance and food lodgment it was not advised as a retained cheek plumper^{6,7, 10}. Recently Double die pins were used to retain the cheek plumpers⁷. Double die pins were placed on the plumpers and the sleeves for the pins were placed in the denture base. In this case double die pins were placed in the denture base and sleeves for the pins were placed on the plumpers due to smaller size of cheek plumpers and also stain less steel double die pins were used to resist corrosion. The use of plastic press buttons

incorporates all the advantages of the metallic press button along with its corrosion resistance which was the main drawback of its metallic counterpart. The plastic button clips used in this case report were made of FSSAI approved food grade plastic which are used in baby dresses. Use of FSSAI approved food grade plastics rules out any hazardous effect of plastic inside the oral cavity. This clinical report focuses on to enhance facial aesthetics of completely edentulous patients with sunken cheeks with the help of plastic press button clip as a detachable cheek plumper. The press button retained cheek plumper prosthesis successfully restored the contour of the cheek, improved the esthetics and psychological well being of the patient. Plastic press button retained detachable cheek plumper simplifies the procedure and helps the patient to attach or detach the cheek plumpers as per their convenience.

Advantages of plastic press button retained cheek plumpers⁷

1. Precise fit
2. Good strength
3. Corrosion resistant
4. Economical
5. Simple and very easy to use.
6. Can be used in patients with compromised dexterity.

Conclusion

A new prosthetic treatment with plastic press button retained cheek plumper in complete denture which was simple, effective and non-invasive treatment alternative to improve facial appearance in a patient with sunken cheeks and also boost the self-esteem of the patient by improving his appearance. The use of plastic press buttons in the present case report demonstrates the improvisation of an established conventional method to overcome its demerits. Press button retention for sunken cheek patients is advantageous due to its precise fit, excellent

esthetics and easiness of use. This innovative approach helps in accomplishing over all prosperity of the patient.

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