

Magnet Retained Cheek Plumpers to Enhance Denture Esthetics - A Case Report

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Abstract: *The success of prosthetic treatment not only is predicted by dentist ability but also on the ability to relate to patients and to understand their needs. There are many esthetic consequences of edentulism, among which facial disfigurement due to sunken appearance of cheeks and lips has a greater negative psychological impact on the individual. This article focuses on simple, effective and a noninvasive method for restoring the drooping facial musculature by incorporating intraoral detachable magnet retained cheek plumpers using close field magnets. The use of these detachable magnet-retained cheeks plumping appliance is a modification from conventional technique of supporting the slumped tissue.*

Keywords: *Denture, Esthetics, Cheek Lifting Appliance, Masticatory Function, Magnet Retained Cheek Plumpers.*

I. Introduction

The demand for age defying restorations has never been so prevalent in prosthodontics than it is right now. In current scenario, facial esthetics has always been an integral part of complete denture prosthetic treatment and no longer confines to just replacement of missing teeth. The natural dentition or dentures provides support to the facial musculature which is responsible for the external form of the lips and cheeks. If the lips and cheeks are unsupported, muscles become weak and do not function properly which leads to wrinkling of skin and sagging of lips and cheeks that can add years to a person's age and hence have a detrimental psychological effect on the patient professional and social life.^{1,2}

Cheek plumper, also known as the cheek lifting appliance is basically prosthesis for supporting and lifting the cheek to provide required support and esthetic that will increase the self-esteem of the patient.³ This prosthesis is basically for supporting and plumping the cheek to provide a youthful appearance. A cheek plumper can be of two types: detachable and undetachable.³

It has been seen that undetachable cheek plumper have some limitations like:

- Excessive weight which could hamper retention of the maxillary complete denture.
- Can result in muscles fatigue.
- Can destabilize the maxillary denture
- Could interfere with Masseter and Buccinator muscle function and coronoid process of the mandible.
- Difficult to insert the denture due to excessive weight.
- Can't be used in patients with limited mouth opening.⁴

To overcome the demerits of conventional undetachable cheek plumper, detachable cheek plumper has been tried that has proven more beneficial. In a detachable plumper prosthesis, plumper part can be detached from the complete denture. This clinical report illustrates an innovative technique of plumping the cheeks using detachable cheek-plumpers which are attached to the conventional complete denture, using magnets.

II. Case Report

A 67 years old male completely edentulous patient reported to the Gurunanak Institute of Dental Science and Research, Kolkata, India with the chief complaint of replacement of existing ill-fitting dentures and very poor esthetics. It was noticed that the patient was socially demoralized and unhappy due to esthetic problems of sunken and sagging of cheeks (FIG 1). History revealed that he was edentulous for the past two and half years and was wearing complete denture prosthesis since then. The general health status of the patient was

quite satisfactory with history of systemic disorders. Patient has a habit of smoking 3-4 times a day. He was leading a socially isolated life due to the psychological stress of his appearance Treatment plan was formulated, keeping the patient's demand in mind.

On clinical examination, one of the major finding was poor esthetics, unsupported oral musculature, sunken and slumped cheeks. On intra oral examination, the ridge was high well rounded in maxillary arch with labial undercut area and mandibular ridge is seen with sufficient inter arch space (FIG 2) with average mouth opening. Blackish pigmentations are seen on both side of buccal mucosa. The old existing dentures were compromised retention and stability due to under extended borders. Therefore, new complete denture was planned with magnet retained cheek plumpers to provide the adequate support on both side of the cheeks to lift the sunken cheeks to enhance facial esthetics and appearance.

Clinical Procedure:

Preliminary impressions followed by final impressions of maxillary and mandibular edentulous arch and tentative jaw relation was taken in a conventional way. After Face bow transfer (FIG 3) and centric and protrusive record has been taken by intraoral Gothic arch tracing device (FIG 4). Teeth were arranged in the usual manner to optimize occlusion (FIG 5). A wax set-up was tried in the mouth and was checked for esthetics, phonetics, occlusal vertical dimension, and occlusion.

At the try in appointment treatment modality for the loss of buccal pad of fat in the cheek region was detected. Cotton rolls were placed in the disto-superior aspect of the maxillary buccal flanges right and left side respectively. The cotton rolls acted as template for further modeling wax addition (FIG 6A, FIG 6B) to the sectional magnet retained wax cheek plumpers. Two on each side of maxillary trial denture were used among four magnets. Wax cheek plumpers of both sides of maxillary trial denture were kept aside and male part of magnets were attached (FIG 7A, FIG 7 B). The maxillary and mandibular trial dentures were waxed up, flaked and dewaxed (FIG 8). Heat cure acrylic resin was packed by taking care not to dislodge the magnets. Laboratory remounting and final finishing polishing (FIG 9) was done. At the next appointment wax cheek plumper with the female magnets was adjusted according to the desired cheek fullness. Impression of intaglio surface of the wax cheek plumper and outer surface of polished denture was taken with light body impression material to make proper adaptation of cheek plumpers to maxillary denture (FIG 10, FIG 11.). The Cheek plumpers were flaked and dewaxed (FIG 12). Cheek plumpers were processed with high strength heat cure resin. Final finished polished denture and the cheek plumper (FIG 13, FIG 14) were inserted and any adjustments required were done by slightly re-contouring the cheek plumper along with refinishing and polishing (FIG 15). The patient was given routine post-insertion instructions and was motivated to make efforts to learn to adapt to the new dentures and the magnet retained cheek plumper. Within three weeks, the patient expressed satisfaction (FIG 16) in mastication and phonetics and his esthetic dilemma was reduced with use of detachable magnet retained cheek plumper.

III. Discussion

Denture esthetics have advanced ahead than mere selection of teeth on the factors of form, shape, color, arrangement and sex, it is more of harmonization of artificial with natural. Corrections of slumping of cheeks can be accomplished by various methods like reconstructive plastic surgery, injecting the botulinum toxin (BOTOX) in the facial muscles and different types of prosthesis. The plastic surgery is a traumatic procedure which leaves behind the post-surgical scar, sometimes contra-indicated in old patients suffering from systemic diseases.³ Although these modalities may be effective, they have a variety of disadvantages among them, including cost, time to onset, skin irritation and allergic skin reactions.⁵

The conventional cheek plumper has the major problem of retention and stability of maxillary denture due increased size and weight of the denture. It can also lead to muscle fatigue due to continuous use. In the present case detachable plumper prosthesis were planned to reduce weight of the final prosthesis and to allow ease in placement of the prosthesis. Detachable plumpers enabled the patient to remove the plumpers and use the denture if required.

Advantages of magnet retained cheek plumpers are as follows.^{4,6}

The magnets have a small size and hence can be placed within the denture and the cheek plumper without being obtrusive to either and produce strong attractive forces between the hollow plumper portion and the steel encased magnet within the buccal tissue surface of the denture. It can be introduced in the mouth after the insertion of the denture as two separate portions each of which are marked for convenience. It can be removed from the mouth during eating and when experiencing excessive muscle fatigue. It allows for ease of placement and cleaning.

Disadvantages of magnet retained cheek plumpers⁴ are-

Poor corrosion resistance, alleged 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.

IV. Conclusion

The dentist's ability to understand and recognize the problems of edentulous patients, to select the proper course of required treatment and reassure them has proven to be greatest clinical value. This case report describes a new prosthetic aid that not only provides esthetics but also improves the psychological profile of the patient.³Magnetic retention for hollow cheek patients is advantageous due to its small compact size and strong attractive forces; however, over a period of time the magnets used intraorally require replacement due to lack of long-term durability in oral conditions.

As we have used such intraoral magnets, the patient was informed about the limitations, and he was instructed to report to the clinic once every 6 months to replace the magnets if required.⁷

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FIG 1 FIG 2



FIG 3 FIG 4



FIG 5 FIG 6 A



FIG 6 B FIG 7 A



FIG 7 B FIG 8

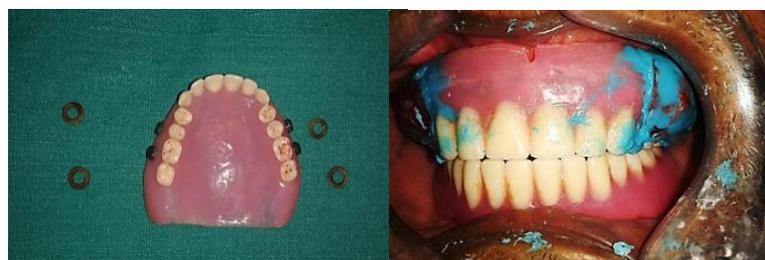


FIG 9 FIG 10



FIG 11 FIG 12



FIG 13FIG 14



FIG 15FIG 16