



Detachable Cheek Plumpers with Magnetic Attachments for Improving Esthetics in an Edentulous Patient with Dentures: A Clinical Report

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ABSTRACT

In today's world, facial esthetics play a vital role in social and professional life. Prosthodontic rehabilitation deals not only with the replacement of missing teeth but also with enhancing facial aesthetics. Aging brings a lot of changes to the face, the most common being sunken cheeks. This clinical report describes a simple, low-cost and non-invasive technique to improve support for sunken cheeks using magnet retained detachable acrylic cheek plumpers. The new generation of magnets with improved technology provides sufficient denture retention for clinical application. However, further follow-up may be necessary to ascertain the long-term usefulness of the magnet-retained prosthesis, because of corrosion and further loss of magnetism. The two-in-one prosthesis not only replaces the missing teeth but also improves facial aesthetics.

Key Words: Aging; Esthetics; Magnets.

Introduction

Facial esthetics plays a pivotal role in a person's professional and social life. Cheeks are an important part of facial esthetics. The support provided by the teeth, ridges, dentures determine the form of the cheeks.¹ Factors like extraction of molars, aging, weight loss can lead to concavities or hollowing of the cheeks. Aging is associated with loss of teeth, resorption of the alveolar process, and reduced tonicity of the facial muscles, leading to sunken cheeks and an unesthetic appearance. Esthetics in patients in need of complete dentures can be improved with the help of cheek plumpers to support the cheeks. Prosthodontic rehabilitation not only replaces the missing teeth but also restores the facial support and facial esthetics.²

Conventional complete dentures adequately support the overlying lips and cheeks. However, in individuals with marked resorption of the alveolar process and hollow cheeks an additional support for the cheek is often required. Cheek plumpers or cheek lifting appliances are used to improve facial esthetics and facial contours. It is used in patients with maxillofacial defects and facial paralysis.^{2,3} Addition of an extra quantity of denture base resin to plump the cheek may increase the weight of the denture. Even the construction of single piece prosthesis may cause the same problem that may lead to discomfort for the patient. A detachable plumper prosthesis; where plumper can be detached easily and conveniently from the complete denture can overcome these flaws. Small compact size and strong attraction forces of magnets make them a good option to retain detachable plumpers to the basic prosthesis.⁴

This case report illustrates the use of magnets to retain a detachable cheek plumper prosthesis in a partially edentulous patient with sunken cheeks.



Fig 1



Fig 2



Fig 3



Fig 4



Fig 5

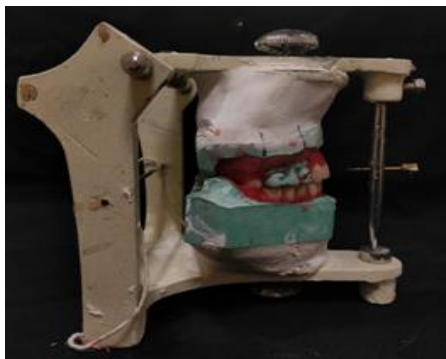


Fig 6



Fig 7



Fig 8



Fig 9



Fig 10



Fig 11



Fig 12



Fig 13

Case Report

A 49 years old female patient reported to the department of prosthodontics with multiple missing teeth and sunken cheeks. Intra oral examination revealed that the mandibular was completely edentulous and the maxillary arch had three upper right posterior teeth. The patient had moderately resorbed maxillary and severely resorbed mandibular edentulous ridges. The patient was conscious about her sunken cheeks and desired a prosthesis that would make her face look fuller and healthier.

Treatment plan was formulated, keeping the patient's demand in mind. It was decided to give the patient mandibular complete denture and maxillary dentures with magnet retained cheek plumpers.

Primary impressions of maxillary and mandibular arches were made using impression material (Y Dents, MDM Corporation, Delhi). Custom trays were made using autopolymerizing acrylic resin. Border molding was done using low fusing impression compound (DPI Pinnacle, The Bombay Burmah Trading Corporation Limited, Mumbai, India) and wash impression was made with medium body addition silicone impression material (Aquasil, Dentsply). Jaw relations were recorded. For the try-in appointment waxed denture was first tried for occlusion and esthetics. At the same appointment, cheek plumpers were made in wax and were attached to the upper waxed-up denture. Then it was evaluated to give the patient a fuller appearance. A dramatic change in the appearance with and without wax-up cheek plumper was observed and it was immediately accepted by the patient. The waxed plumper was separated from the waxed-up denture. After that flasking and dewaxing procedures were completed separately for the final prosthesis and cheek plumpers. The mold space was packed with heat-polymerizing acrylic material (DPI, Mumbai, India) and curing procedures were performed according to the manufacturer's instructions. After deflasking, the cured final prosthesis and plumpers were retrieved. Trimming, finishing, and polishing procedures were performed. Then a pair of commercially available magnets (cobaltsamarium, Ambika Corporation, New Delhi, India), 5 mm in diameter and 2 mm in thickness was employed to retain the cheek plumper with final prosthesis. Provision for placement of magnets in the flange of the final prosthesis and in the cheek plumper was made and positioned with the help of autopolymerizing resin. Complete polymerization was ensured by placing in a pressure pot and finishing and polishing was then carried out. The attachment of plumper to the prosthesis was first checked outside the patient's mouth. The prosthesis along with the plumper was then checked in the patient's mouth. for comfort, function and esthetics . The patient was educated about the positioning of the plumper to the prosthesis. The patient's demands were fulfilled. She was called form follow up to evaluate any soreness or looseness of dentures.

Discussion

Denture esthetics is more about a harmonious relationship between the artificial and natural tissues.^{5,6}

In an edentulous patient, this can be achieved by correct contours and extensions of denture flange. Sunken cheeks may require additional support to lift the cheek to an adequate level. Cheek plumper prosthesis can be an amazing solution for such patients. Cheek plumper can be of detachable and non-detachable types. In detachable cheek plumper, the plumper is made separately and attached to the dentures with various attachments like magnets, die pin, snap button, and customized attachments.⁷

Some authors have even reported arranging the second row of teeth only for esthetic reasons. Adjustment of the occlusal rim should be precise for anterior and posterior placement of the teeth and esthetics should be evaluated at rest and function. To restore physiological muscle length and to eliminate pseudoprognathic appearance, proper and correct vertical dimension is necessary.⁸

In this case magnets were used, magnets have the benefit of being small, facilitating automatic reseating because of their magnetic forces, and being easy to remove and clean, simplicity of the clinical and laboratory procedures, and constant retentive force with the consecutive number of insertion-removal cycles.⁹

However, cheek plumpers have a few drawbacks, including the accumulation of food, patient discomfort resulting from the additional weight and bulk of the dentures, the requirement of manual dexterity of patients to ensure accurate attachment, and the susceptibility of magnetic attachments to corrosion and loss of magnetism and of the press stud fasteners to breakage. Therefore, periodic patient recall is necessary to assess and, when required, replace the attachments.¹⁰

However, the long term durability of the magnets remains a problem. The cobalt-samarium magnet used in this case provided an essential retention and was cost effective for the patient. The patient was informed about the procedure and the materials used, and informed consent was procured. The patient also accepted the need for frequent review calls after insertion of the prostheses. A constant follow-up on a longitudinal basis is necessary, and further research on the magnetic field of commercially available magnets is needed.¹¹

Conclusion

The magnet retained cheek plumper prosthesis is a simple and non invasive treatment option. It successfully restores cheek contour, improves the facial esthetics and psychological well being of the patient. Magnetic retention for sunken cheek patients is advantageous due to its 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.

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