Case Report

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Detachable Magnet-retained Cheek Plumpers: A Case Report to Restore Facial Support

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ABSTRACT

Background: Prosthetic rehabilitation does not mean to simply replace teeth in completely edentulous patients, but also to fabricate a complete denture prosthesis that will also restore facial fullness/support. Conventional procedures can fulfil this requirement. Here; we present a case report of Detachable Magnet-retained Cheek Plumpers.

Keywords: Cheek, Detachable magnet-retained, Plumpers.

INTRODUCTION

Aesthetics plays a major role in an individual's life; both professionally and socially.[1] In completely edentulous patients the desire to restore teeth for purpose of mastication has always been the goal, but along with mastication the denture should also provide adequate aesthetics to satisfy the needs of the patient. Usually denture alone serves to provide adequate facial esthetics by providing support to the perioral musculature. In most cases dentist provide adequate lip support but fail to restore facial support wherein the denture fails to mimic the fullness of the cheeks.

Cheeks are an important part of facial aesthetics due to their extreme visibility. Form of the cheeks is determined by the support provided by internal structures - teeth, ridges or dentures.[1] Therefore to enhance facial support 'Cheek Plumpers' can be used. Cheek plumper or cheek lifting appliance is essentially a prosthesis that support and lift the cheek to provide necessary support and esthetic.[2]

As age increases along with changes in function aging also has a high impact on the facial aesthetics due to early tooth loss, alveolar resorption which leads to thinning of tissues, reduced tonicity of musculature and loss of elasticity of the skin causing concavities below the malar bone or hollow cheeks. Slumping or slagging of cheeks can add years to the patients age and hence have a detrimental psychological effect on the patient leading to lack of self-confidence.

Prosthetic rehabilitation does not mean to simply replace teeth in completely edentulous patients, but also to fabricate a complete denture prosthesis that will also restore facial fullness/support. Conventional procedures can fulfil this requirement.[3,4] Proper extensions and contours of denture flange can help to achieve this; however in some cases with sunken cheeks extra support has to be provided with the help of cheek plumpers.

Cheek plumpers can be of two types :-[5]

1. Undetachable/conventional cheek plumper
2. Detachable cheek plumper

A conventional cheek plumper prosthesis is single unit prosthesis with extension near premolar–molar region which support the cheeks.[6]

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Undetachable cheek plumper has some limitations like increased weight which could hamper retention of the maxillary complete denture and makes it difficult to insert. Moreover, long-term use can lead to muscle fatigue, and also it cannot be used in patients with limited mouth opening.[7] Therefore a detachable cheek plumper is beneficial as it can be used as per the need of the patient, provide more comfort to the patient without making the denture heavy. The main advantages of cheek plumper are that it is economical, non-invasive and improves aesthetics dramatically.[6]

The present clinical report exemplifies the use of magnet-retained detachable cheek plumper prosthesis in a completely edentulous patient with hollow cheeks.

CASE REPORT

A 63-year old male patient reported to the Department of Prosthodontics with completely edentulous maxillary and mandibular arches. The patients chief complaint was to replace his missing teeth and aesthetic concerns. While recording the patients history it was noticed that patient was socially demoralized due to loss of teeth and poor aesthetics and avoided social events due to poor aesthetics. History revealed that patient underwent extractions of multiple teeth over a period of 2 years which lead to complete edentulousness. Intra-oral examination revealed that ridges were low well rounded in both maxillary and mandibular arch.

Extra-oral examination revealed that patient had poor aesthetics, unsupported oral musculature leading to sunken cheeks (Fig.1).

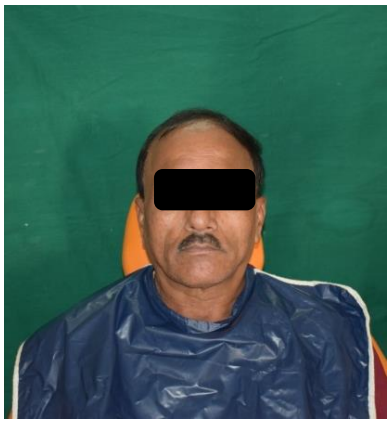

Fig 1: Extraoral view of the patient.

Patient was conscious of that and desired a prosthesis which would make his face look fuller and healthier. Treatment plan was formulated, keeping patient's demand in mind. It was decided to give patient maxillary and mandibular complete dentures with detachable magnet-retained cheek plumpers. Patient was given detailed information regarding the procedure and consent was taken for the same.

Clinical Procedure and Fabrication of cheek plumper:

1. Conventional impression procedures were performed. Primary impression was made for maxillary and mandibular arches using impression compound (Fig.2).

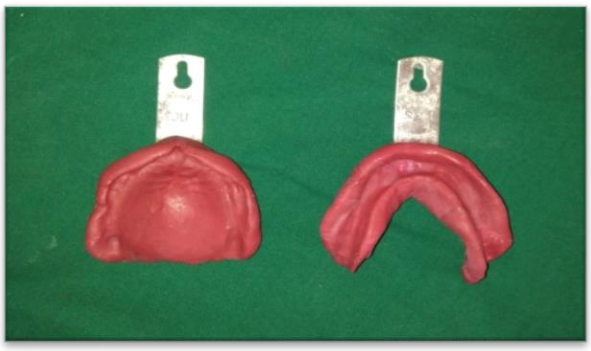

Fig 2: Primary impression using impression compound.

2. Followed by which border moulding was done using low fusing compound(green stick compound) and final impression was made using zinc oxide eugenol paste (fig. 3).

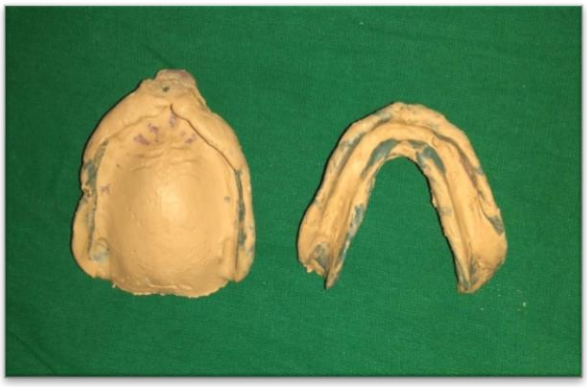

Fig 3: final impression using ZOE paste.

3. Denture base were made on master cast and occlusal rims were fabricated and jaw relation was recorded. Recorded jaw relations were mounted on mean value articulator (fig. 4).

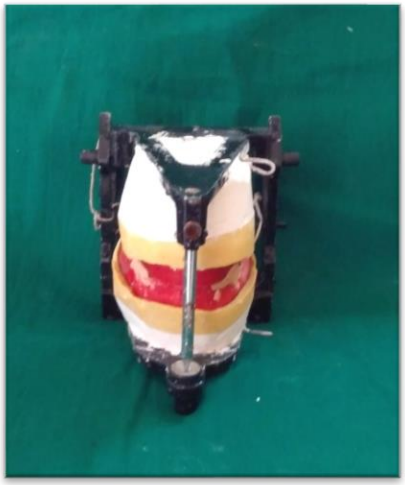

Fig 4: Jaw relation recorded mounted.

4. Teeth setting was done. After the trial dentures were finished and polished. Impression compound was then moulded and adapted on the buccal flanges to adequately support the cheeks, such that there was no interference with functional movements. The adapted impression compound was inspected intraorally for adequacy of cheek support and contour (fig. 5).

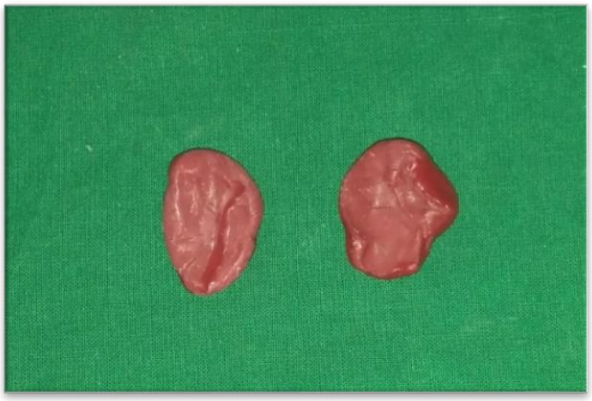

Fig 5: Impression compound for fabrication of cheek plumper

5. The dentures and cheek plumpers were fabricated separately using heat-polymerized acrylic resin (fig. 6, 7).

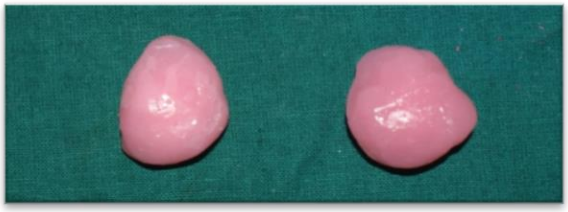

Fig 6: Fabricated cheek plumpers

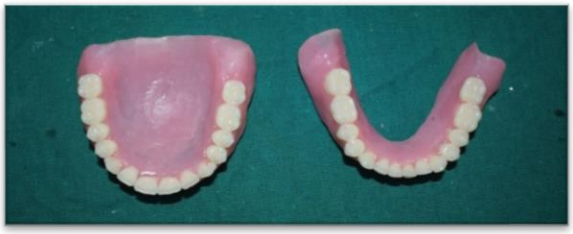

Fig 7: Fabricated complete denture

6. During the insertion of the dentures, adequate clearance of the cheek plumpers from the occlusal table was verified.

7. Four intra-oral magnets were used. The dimension of the magnet used was 3mm in diameter and 1.5mm in width. After the space for adaptation of magnets was provided by trimming the acrylic from outer surface of the denture and the inner surface of the acrylised plumpers according to the size of the magnets. The magnets were then joined by using autopolymerising acrylic resin (fig. 8. Fig 9. Depicts the attachment of cheek plumper to the denture in molar region.

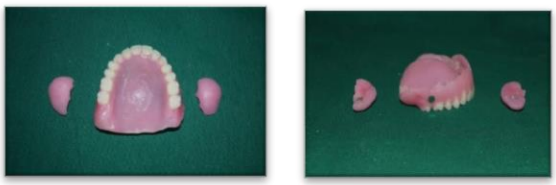

Fig 8: Magnets attached to the cheek plumper and denture

8. Figure 9. Depicts the attachment of cheek plumper to the denture in molar region.

Fig 9: Magnet-retained cheek plumper attached to the denture.

9. Final insertion of the complete denture prosthesis and cheek plumper was done. Patient was given instructions regarding the attachment and detachment of the cheek plumpers (fig. 10) and asked to present for regular follow-up evaluation of the magnet-retained cheek plumper.

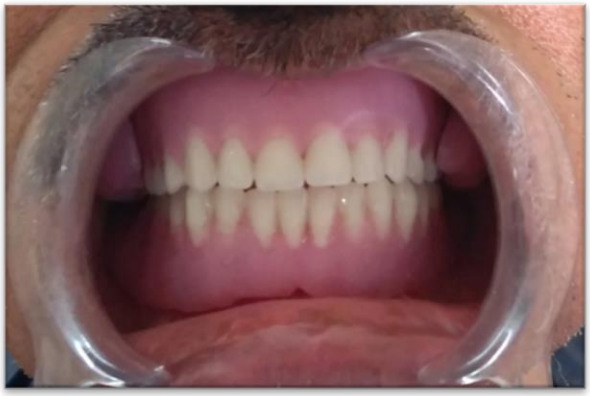

Fig 10; Final insertion.

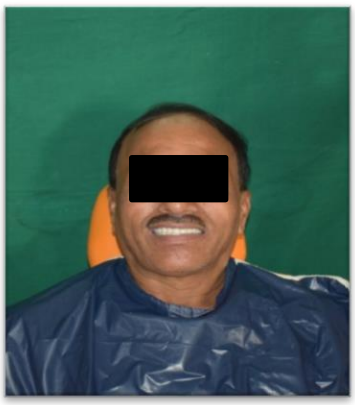

Fig 11: Post operative view.

DISCUSSION

Completely edentulous patients are the most difficult patients to satisfy as their expectation is not only replacement of teeth but also that the denture should be stable, efficient in mastication and aesthetically pleasing. Retention and stability of dentures can be obtained by using proper impression techniques. Aesthetics is derived from facial support i.e. lip support and cheek support. As age advances there is continuous resorption of the alveolar bone and due to loss of molar teeth it gives a sunken appearance to the patient. As mentioned above cheek are an important part of facial aesthetics therefore it important to restore the fullness of the cheeks.

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. 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.[8]

Other treatment option is detachable or undetachable cheek plumpers that are more economical and easy to fabricate. Conventional cheek plumpers are a single unit piece and hence not comfortable for the patient and also due to heavy weight cause lack of retention of maxillary denture. Therefore detachable dentures are preferred.

In this case report magnet-retained detachable cheek plumpers were used.

Magnet-retained cheek plumpers have following advantages:[7,9]

1. 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.

2. 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.

The magnet-retained cheek plumper also have a few disadvantages that the magnetic property of the magnets is reduced over time and hence require frequent replacement.

CONCLUSION

This case report has described a simple, economical and non-invasive alternative way to fabricate cheek pumpers for hollow cheek to improve facial aesthetics. An effort was made to improve patient's appearance by providing better support to the cheeks. It is the duty of the dentist to understand the needs of the patient and select proper treatment options for the patient. Patient satisfaction is the main goal for any prosthetic rehabilitation.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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