Enhancing esthetics using prosthetic cheek plumper for rehabilitation of an edentulous patient: A case report

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Abstract

Denture esthetics has been defined as the embellishing effect produced by a dental prosthesis which affects the desirable beauty, attractiveness, character, and dignity of the individual. There is more to esthetics than just tooth selection. Proper positioning and support of the facial musculature, especially the orbicularis oris muscle, contribute greatly to the cosmetic effect of the dentures. Ageing leads to the high impact on external facial aesthetics due to early tooth loss, alveolar resorption and reduced tonicity of musculature.¹ The key to aesthetic replacement to all these losses is to support and harmonize the collapsed lower third of the face with the upper part with the help of various treatment modalities.

Keywords: Hemimaxillectomy, Psychological, Esthetics

Case Report

One male patient, aged 67 sought care at school of dental sciences, Sharda University, complaining of missing teeth and with the expectation of improving his appearance. Clinical examination revealed completely edentulous maxillary and mandibular arches, and extraoral findings of wrinkling of skin and flaccidity of facial muscles, resulting in sunken cheeks (Fig. 1).Since the patient was seeking improvement in his facial appearance, a treatment plan was formulated involving the insertion of conventional complete dentures and detachable cheek plumpers for maxillary dentures.

Preliminary impressions were made with impression compound (Impression Compound; Dental Products of India) and poured-in dental plaster, after which custom impression trays were fabricated with auto polymerized acrylic resin. Border moulding was done with green stick compound (Pinnacle Tracing Sticks; Dental Products of India). Definitive impressions were made with zinc oxide eugenol impression paste (Impression Paste; Dental Products of India), the jaw relation was recorded, and the tooth arrangement was evaluated. Wax patterns for the cheek plumpers were fabricated during the clinical evaluation stage. A roll of softened modelling wax was adapted over the buccal flanges of the maxillary denture on either side in the premolar molar region(Figure 2,3). The adapted wax was inspected extraorally for adequacy of cheek support and contour and modified to ensure that they did not cause occlusal interference, instability of dentures, or unnecessary tensing of facial muscles .The dentures and cheek plumpers were fabricated separately using heat-polymerized acrylic resin. Press stud fasteners (Pony Snap Fasteners) were incorporated for retention(Figure 4,5,6). During the insertion of the dentures, adequate clearance of the cheek plumpers from the occlusal table was verified (Figure 7). The patient was given

instructions regarding the attachment and detachment of the cheek plumpers and asked to come for regular followup evaluations (Figure 8).



Fig 1: Preoperative view



Fig 2: Waxed-up maxillary trial denture along waxed-up cheek



Fig 3: Press Stud fasteners incorporated



Fig 4: Flasking of plumpers



Fig 5: Dewaxing done



Fig 6: Final prosthesis



Fig 7: Prosthesis placed after adjustments



Fig 8: Post op

Discussion

The alteration of appearance is a normal consequence of aging. Tissues atrophy, and the folds and creases of the face become exaggerated. The loss of teeth intensifies the change². The support of the orbicularis oris muscle and its attaching muscles-the zygomatic, quadratus labii superior, caninus, mental& quadratus labii inferior, triangularis, buccinator, and risorius-is vital to denture esthetics.1. Normal facial appearance and skin tone depend on the proper position and functional length of the muscles.' The loss of support of these muscles results in a typical facial appearance. There is a deepening of the nasolabial fold, a drooping of the corners of the mouth, and a loss of vermilion border. There is a depression of the lips, with exaggerated wrinkling. Although conventional complete denture provides soft tissue support in the perioral region, in case of patients exhibiting sunken cheeks, additional support in the form of cheek plumpers is required to restore the facial aesthetics³. There is adequate literature available regarding advantage and mode of attachments for detachable cheek plumpers.⁴ The present case report throws light on yet another novel way of retaining the cheek plumper in the complete denture. Conventional cheek plumpers were incorporated by increasing the thickness of the distobuccal flange area of the maxillary denture, based on the patients' aesthetic requirement. Their disadvantage is that they increase the weight of the denture,

could interfere with masseter muscle and the coronoid process of the mandible and hence, destabilise the maxillary denture, especially during mastication.⁵ Detachable cheek plumpers are made to reduce the weight of the final prosthesis and improve convenience to the patient. It enables the patient to use the prosthesis without the plumpers, if required. It also aids in better maintenance of the prosthesis.⁶

Literature cites various modes of attachment to retain the cheek plumpers. Rewari A et al., Venkatachalapathy SR et al., and Abdelbagi NF et al., reported the use of magnets in conventional complete dentures, single complete dentures with facial disfigurement and cases due to hemimaxillectomy. The use of magnet retained plumper prosthesis is effective of all the other methods, buthey exhibit poor corrosion resistance and loss of magnetic property over a period of time, requiring frequent replacement.⁷ Magnets cannot be used in patients allergic to metal. The patients need to remove dentures for Magnetic Resonance Imaging (MRI) tests since the magnetic field used in MRI tests damages the magnetic assembly. The magnetic assembly should be kept away from high temperatures of more than 150°C.

Virdiya NM et al., Kuriakose EM and Swamy RK, and Aggarwal P et al., reported the use of stud attachments as an alternative to magnets. Stud attachments provide good retention to cheek plumpers on complete dentures and provide longevity compared to magnets. The limitations of stud attachments are technique sensitivity and chances of breakage over time.

In the present case report, the fabrication of in-built detachable cheek plumpers in complete dentures has been described, which is economical, does not require any additional materials or equipment, has good aesthetic value, convenient to use for the patient and is non corrosive since, it does not possess any metal component, thus making it compared to other techniques.⁹

Conclusion

In today's world denture esthetics is not confined only to selection of the teeth based on factors like form, shape, color, arrangement and sex. Instead, it is more about harmonization between the artificial and natural tissues. Esthetics in patients in need of complete dentures can be improved with the help of cheek plumpers to support the cheeks.¹⁰ They are non invasive and easy to fabricate. This case report describes a simple and economic prosthetic aid that not only offers esthetics but also improves the psychological profile of the patient.

Source of Funding

None.

Conflict of Interest

None.

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How to cite: Hassan S, Hasti A, Agnihotri N, Samra RK et al. Enhancing esthetics using prosthetic cheek plumper for rehabilitation of an edentulous patient: A case report. Journal of Orofacial and Health Sciences (JOHS). 2024;11(1)38-40