

Rehabilitation of an elderly patient with the use of flexible overdenture: a case report

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ABSTRACT

Background: To rehabilitate an elderly patient who was unwilling to have her teeth extracted.

Methods: This study reported the management of a 72 year old female with reversed anterior cross bite, reduced occlusal vertical dimension and some anterior teeth that could not be restored coronally. Endodontic treatment was done on her anterior teeth, teeth preparation were done for the fitting of an overdenture on the upper arch. A flexible removable partial overdenture was fitted on the upper arch and a flexible removable partial denture on the lower arch.

Results: An elderly female with an improved occlusion without loss of several of her anterior teeth and an ability to smile showing her teeth. The patient was comfortable with the flexible removable partial overdenture on the upper arch and flexible removable partial denture on the lower arch with improved self-confidence.

Conclusion: Flexible overdentures are effective in rehabilitating elderly patients who are unwilling to loose their teeth, restoring general wellness.

Keywords: flexible overdentures, elderly, rehabilitation

INTRODUCTION: Tooth loss is common in the elderly and this affects them psychologically as their aesthetics is affected and they lack the willingness to smile, and ability to chew and speak effectively.¹ Various ways of replacing missing teeth have evolved over the years such as the rigid removable partial dentures, fixed partial dentures and implant retained overdentures.² Elderly patients may not want to undergo surgical procedures for implant retained overdentures and may not have suitable abutments for fixed partial dentures.³ The partially dentate elderly patients may not be comfortable having their teeth extracted as they associate it with dying thus the option of

removable partial overdentures in elderly patients with compromised anterior teeth.⁴ The overdenture is defined as a removable partial denture or complete denture that covers and rests on one or more remaining natural teeth, the roots of natural teeth and / or dental implant.⁵ Flexible overdentures are known to maintain proprioception, maintain the alveolar bone, act as stress breaker, boost the patients psychology as the roots of the abutment teeth of the overdentures are retained.⁶ Flexible removable partial overdentures and flexible removable partial dentures offer more comfort, retention and stability to the elderly partially dentate patient than a rigid partial removable denture.^{7⁸}

Case report

A 72 year old female presented to the Restorative department of the Lagos State University Teaching Hospital Ikeja, Lagos Nigeria with complaints of a dull pain in the upper right quadrant of about one month duration which was continuous, not severe enough to disturb her sleep, non radiating to the right ear and no

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associated headache. Pain was not worsened by chewing, hot or cold water. She is a known hypertensive patient on medication.

Intraoral examination revealed a localised erythematous swelling with a purulent discharge around the labial sulcus of a grade III mobile upper right lateral incisor. There was severe attrition on the upper right lateral incisor and canine; the upper right central had a preparation for a palatal veneer. The upper left central and lateral incisors had retained roots with failed restorations. Lower right second and third molars, lower left premolars and molars; upper right premolars and molars and upper left first molar were missing (Figures 1, 2, 3).



Figure:1 Preoperative Picture



Figure: 2 Preoperative Picture



Figure: 3 Preoperative Picture

Periapical radiographs revealed diffused periapical radiolucency and widening of the periodontal ligament space and horizontal bone loss involving the upper right central incisor, lateral incisor and canine; upper left central and lateral incisors. The upper left central incisor showed ledging of the post while the upper left lateral incisor had a post that was too short with a vacuum between the post and gutta percha with apical extrusion of the gutta percha.

A diagnosis of chronic periapical abscess involving upper right central incisor, lateral incisor and canine; Chronic apical periodontitis secondary to failed root canal treatments involving upper left central and lateral incisors was made. Kennedy class I on the lower arch with missing lower right second and third molars, lower left premolars and molars. Kennedy class II modification 1 on the upper arch with missing upper right premolars and molars and upper left first molar (Figures 2 and 3).

A treatment plan was drawn up which entailed extraction of the upper right lateral incisor, retreatment of the root canals of upper left central and lateral incisors, root canal treatment of upper right central and canine, fabrication of a flexible removable partial overdenture on the upper arch and a flexible removable partial denture on the lower arch.

Clinical photographs and study models were taken and extraction of the upper right lateral incisor was done under local anaesthesia and a time interval of four weeks was allowed for healing of the extraction site to occur. Root canal treatment was commenced on upper right central incisor and canine. Retreatment of the root canals was performed on the upper left central and lateral incisors with removal of the old posts and gutta percha, proper cleaning of canals and shaping using endodontic files under copious irrigation, drying of canals with paper points and obturation using gutta percha and sealant under lateral condensation technique. Access cavities sealed with glass ionomer cement (Figure 4). The abutment teeth; upper right central incisor and canine; upper left central and lateral incisors were prepared to form dome shapes using tapered fissured bur, to receive the flexible removable partial overdenture on the upper arch. A flexible removable partial denture was fitted on the lower arch. Upper and lower alginate impressions were

made and sent to the prosthetic laboratory for the fabrication of bite blocks. Shade A3 was selected by both the patient and operator. On the following appointment, occlusal vertical dimension was determined and bite registration was done with bite blocks set at edge to edge occlusion with an increase in occlusal vertical dimension of 1mm. The bite blocks and casts were then sent to the laboratory for mounting on an articulator (Figure 6) and fabrication of a flexible removable partial overdenture on the upper arch and a flexible removable partial denture on the lower arch. The upper flexible removable partial overdenture and the lower flexible removable partial denture were fabricated by injection moulding.

They were placed in warm water for 3 minutes and then fitted on the upper arch and the lower arch respectively. The teeth were initially set on edge to edge occlusion but the patient complained that she would not be recognisable thus a new flexible removable partial overdenture was fabricated for the upper arch and a new flexible removable partial denture on the lower arch with the occlusion set in an increased reversed anterior occlusal vertical dimension. The patient was satisfied and was able to finally smile showing her teeth (Figures 7,8,9,10). Five months later the glass ionomer cements used to seal the root canal orifices of all the abutment teeth failed; thus re-restoration of the root canal orifices were done using amalgam (Figure 5). The patient also had fluoride therapy and was re-counselled on routine scaling and polishing with fluoride therapy every 6 months as well as the need and methods of maintaining good oral hygiene regularly.



Figure 4 On sealing with glass ionomer cement



Figure 5 On sealing with amalgam



Figure 6 Bite blocks mounted on articulator

Results

An elderly female with an improved occlusion without loss of several anterior teeth and an ability to smile showing her teeth. The patient was comfortable with the flexible removable partial overdenture on the upper arch and flexible removable partial denture on the lower arch with improved self-confidence. (Figures 8, 9, 10.)



Figure 7 Right: flexible removable partial upper overdenture and left: flexible removable partial lower denture



Figure 8 Post fitting front view



Figure 9 Post fitting right view



Figure 10 Post fitting left view

Discussion

The utilization of the natural dentition as support for overdenture has shown to be a beneficial alternative to extraction of teeth.⁹ Some studies in keeping with this study have shown that tooth supported overdentures are effective in maintaining the alveolar ridge, enhancing retention and stability, restoring function and aesthetics.^{3,10}

A study comparing patient satisfaction with acrylic and flexible partial dentures found that subjects exhibited greater satisfaction with flexible removable partial dentures than the conventional ones⁸ thus the choice of use of the flexible removable partial overdenture over the conventional one in this study. Flexible denture enhances stability due to its snug fit and viscoelastic nature without regard to changes in movement of the denture bearing area.^{7,11}

A study showed improved oral health related quality of life with use of both conventional and flexible removable partial dentures but more in the flexible group.¹ This is in keeping with this study whereby the subject who presented with inability to smile, lack of self-confidence and reduced morale was now able to smile with a more positive approach to life and increased self-confidence.

The choice of use of amalgam to replace the glass ionomer cement restorations in this case report is due to the greater compressive strength of amalgam than glass ionomer cements.¹² The present financial standing of the subject did not give room for the choice of cast copings.

The need for strict adherence to oral hygiene protocols, denture inspection and maintenance cannot be overemphasized as without these, failure is bound to occur.¹³

Conclusion

Flexible overdentures are effective in rehabilitating elderly patients who are unwilling to loose their teeth, restoring general wellness. Subjects may be willing to conform to previous occlusion than having a reorganised occlusion especially in the elderly.

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