

A technical note on use of extracoronal saggix attachment for full mouth rehabilitation

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Abstract

Successful esthetic and functional restoration of dentition with tooth wear requires contemporary as well as conventional treatment techniques. Despite patient's demand for fixed prosthesis it is not always feasible due to multiple factors such as missing distal abutments, economic constraints. This article aims to describe the prosthetic rehabilitation of patient with excessive tooth wear and bilaterally missing posterior tooth in both maxillary and mandibular arches.

Keywords: Attrition, Saggix attachment, Partial edentulism, Precision attachment.

Introduction

Successful esthetic and functional restoration of dentition requires contemporary as well as conventional treatment techniques. A systematic treatment approach is needed for the management of tooth wear especially if it is complicated by bilateral posterior edentulism (Kennedy's Class 1).¹ Fixed partial dentures cannot be planned due to the absence of distal abutments. Implant supported restorations are not feasible due to lack of bone and economic reasons. Extracoronal attachment retained cast partial dentures are one such treatment modality for satisfactory results.²

Case Report

A 55 year old male patient reported to the Department of Prosthodontics with chief complaint of inability to chew food and unaesthetic appearance of teeth. Clinical intraoral examination revealed marked attrition in maxillary and mandibular anterior region with bilateral posterior edentulism which led to decrease in vertical dimension (Fig. 1-3). Panoramic view showed teeth present in the region 13 12 11 21 22 23 24 35 34 33 32 31 41 42 43 44 and moderate bone resorption in the maxillary and mandibular posterior region (Fig. 4). Most of the teeth had inadequate crown length with pulp chambers nearer to the occlusal surface, so intentional endodontics therapy was planned for the remaining teeth.

1. Centric relation was recorded with the help of Dawson technique (Bilateral manipulative technique). Vertical dimension (VD) was determined for the patient with the help of aesthetic, phonetic, anatomical landmarks and facial measurements. V D was increased by 4 mm.
2. Casts were mounted onto the semi adjustable articulator (Hanau wide view, USA) with the help of lucia jig and inter occlusal records in centric relation and at increased VD. (Fig. 5).
3. Interim max and mandibular removable partial dentures were given at the increased V D for a period of 1 month for adaptation and evaluation of any TMJ problems.

4. Diagnostic mock-up of the anterior teeth was done at the increased VD.
5. Endodontic treatment was carried out in relation to 11, 13, 17, 21, 22, 23, 24, 25, 32.
6. Clinical crown lengthening was performed in mandibular arch. It was done with the help of electrosurgical unit considering the relationship of crown root –alveolar bone and esthetical demands. Excess soft tissue was removed from the labial and palatal aspect. Tooth preparation was done and immediate provisional restoration was placed after the procedure taking into consideration the margins of the restoration such that it does not hinder the healing and the establishment of the biological width. (Fig. 6)
7. Maxillary anterior teeth were prepared and provisional FPD was given. (Fig. 7).
8. Provisional restoration was adjusted for determining anterior guidance by locating all excursive pathways from centric relation to an edge to edge relationship in both protrusive and lateral jaw position. Labial contour and incisal edge was determined and then final impressions were made of the modified provisional restorations.
9. The casts were prepared and mounted on an articulator with the help of facebow and centric bite record. Wax coping of the anterior teeth were done and burnout plastic male components of saggix attachments were attached on both the sides distal to the distal abutments using parallelometer mandrell for optimum positioning. Cingulum rests were in the wax pattern of crown as an aid for indirect retention in cast partial denture.
10. Wax coping with bilateral attachments and housing joined to the connectors were invested and casted together for better accuracy.
11. Maxillary and mandibular coping trial was done in patient's mouth. (Fig. 8).
12. Final metal fused to ceramic crowns are fabricated for maxillary and mandibular anterior teeth and tried in patient mouth. Subsequently, elastomeric

impressions (Zhermackzetaplus silicone putty and light body) of edentulous area is made with the crowns in position.

13. Master casts are made in diestone (Kalabhai Ultrarock). Anteroposterior palatal strap for maxillary and lingual plate was planned for mandibular arch (Fig. 9). Casted partial denture was tried in patient's mouth and its extensions were examined.
14. Bite records on modelling wax (Pyrax Modelling Wax) were fabricated on the cast partial dentures. (Fig. 10).
15. Master casts were mounted on semi adjustable articulator (Hanau wide vue, USA) using the centric relation and facebow transfer.
16. Posterior teeth were arranged. Mutually protected occlusion and maximum intercuspation in centric relation was verified in patients mouth.
17. Dentures were processed, trimmed and finished (Fig. 11). Female components of the attachments were attached to the dentures with the help of relining method (chair side technique). Patient was called for follow up after 24 hours, 1 week and 3 months.



Fig. 1: Preoperative frontal view



Fig. 2: Preoperative lateral view (right)



Fig. 3: Preoperative lateral view (left)

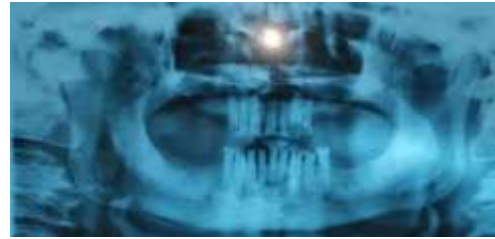


Fig. 4: OPG (Preoperative)



Fig. 5: Mounted casts on semi adjustable articulator at increased VD



Fig. 6: Mandibular provisional restoration



Fig. 7: Maxillary provisional restoration



Fig. 8: Coping trial



Fig. 9: Wax pattern of maxillary and mandibular cast partial denture



Fig. 10: Casted maxillary and mandibular dentures with occlusal rims



Fig. 11: Post operative view

Discussion

Loss of tooth substance resulting from attrition, abrasion, erosion or abfraction leads to reduced masticatory efficiency and vertical dimension.³ To establish functional integrity, health and esthetics full mouth reconstructions are done which restores the masticatory apparatus to as near normal as possible.⁴ Loss of posterior support is main reason for the reduced vertical dimension in this case which led to undue stress on the anterior teeth resulting in excessive wear. Interocclusal space as well as closest speaking space is evaluated to determine the loss in vertical dimension. Interim RPDs are given at the increased VD for patient adaptability and evaluation of any TMJ problems.⁵

Conventional removable partial dentures in distal extension cases forces are directed towards the abutment tooth further deteriorating the condition. Precision/Semiprecision attachments are mostly indicated for long-span edentulous arches, distal extension bases, and nonparallel abutments.⁶ It reduces stress to the abutment and allows rotational/vertical movement of denture base.^{7,8} It also provides crossarch load stabilization and prosthesis stabilization in distal extension bases. Good retention helps in psychological acceptance of the dentures.⁹

Mutually protected occlusion was given as anterior teeth were periodontally sound. Posterior teeth prevent occlusion of anterior teeth in maximum intercuspation and

consequently anterior teeth protect posterior teeth in protrusion.¹⁰

Conclusion

Full mouth rehabilitation not only restores esthetics and functional aspect but also the overall health of the masticatory apparatus. Proper diagnosis and treatment planning are paramount for long term success of the prosthesis.

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None.

Conflict of Interest

None.

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