

Full Mouth Rehabilitation Of Periodontally Compromised Partially Edentulous Arches With Multiple Missing Teeth - A Case Report

Case Report

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Abstract

Rehabilitation of patient with advanced chronic periodontitis is quite difficult and technique sensitive. In this discussed case full mouth rehabilitation with semi precision attachment seemed to be an ideal treatment. This treatment plan in this patient does not cause periodontal ligament destruction or further worsening of existing periodontal condition. This case report not describes the treatment plan but also demonstrates the clinical steps.

Keywords: Full Mouth Rehabilitation; Semi Precision Attachment; Periodontally Compromised Ridge; Multiple Missing Teeth.

Introduction

A clinical case is presented and discussed, to illustrate the treatment concept. Advanced periodontal disease is often associated with severe loss of tooth and supporting structures. Hopeless teeth need to be extracted as part of the initial therapy, whereas teeth with questionable prognosis that have not responded to the initial phase of periodontal therapy may have to be extracted following re-examination [1]. Prosthetic replacement is often necessary as part of the corrective therapy to restore function and aesthetics in the periodontally compromised dentition [2, 3]. Several studies have reported that long span fixed bridges can be placed and successfully maintained on a minimal number of abutment teeth with greatly reduced periodontal support, provided the prosthodontic treatment is preceded by adequate periodontal therapy, and followed by a plaque control program effective enough to prevent recurrence of periodontal disease [2, 4].

If presumptive abutments are well distributed and periodontal infection is under control, as little as 20-30% of the original periodontal management of the perio-prosthetic patient consists of the following sequence:

- 1) Baseline examination/diagnosis/ prognosis/patient motivation
- 2) Preliminary treatment plan/initial therapy
- 3) Re-examination after three to six months
- 4) Definitive treatment plan/corrective therapy
 - i. Extraction of hopeless teeth
 - ii. Periodontal surgery for pocket elimination and/or crown lengthening
 - iii. Supportive periodontal therapy for three to six months
 - iv. Reassessment
 - v. Provision of the final cross-arch bridge
- 5) Maintenance therapy (three to six-month recall)[5-7].

Case Report

A 55-year-old male patient reported to the Department of the Prosthodontics, Thai Moogambigai dental college and hospital with a chief complaint of missing teeth in his upper right back tooth region and unesthetic appearance for last 1year. Patient also complained of multiple mobile teeth. The patient has a history of hypertension which was under medication for the past 4 years. The preliminary examination revealed the upper arch had missing

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14, 15, 16, 17, 27 and the lower arch had 36 missing. Pre pre-operative Orthopantomogram was made to evaluate the condition of the remaining teeth.

Teeth with hopeless prognosis 46, 48 and 23 was extracted. Oral prophylaxis was done in the first visit. In the second visit Periodontal surgery was done, flap was raised and bone grafting was done in the upper and lower left back tooth region and root planning was done in the upper and lower anterior region. After 3 months of periodontal maintenance therapy the patient reported. Initially diagnostic impressions were made with alginate. The diagnostic impressions were poured to obtain diagnostic cast.

Treatment Plan

Intentional RCT was done in relation to 13, 12, 11, 21, 22, 26, 28, 38, 33, 34, 35. The patient was planned for Full mouth rehabilitation with conventional fixed partial denture and precision attachment for upper and lower right back tooth region. The abutments were prepared (Fig 2) with adequate tooth reduction with proper parallelism. The secondary impression of the abutment was made with 2 stage impression technique with addition silicone of putty

and light body consistency. Patient was given a provisional restoration to prevent post-operative sensitivity.

The Impressions of the patients prepared abutments was planned for CAD-CAM design. Metal framework was initially made using DMLS.

Patient was recalled for the trial of the metal frame work. Then the trial was made.

Once the metal framework trial was evaluated and the metal framework was further processed for ceramization.

Fig 5 showing the completed ceramic work of the metal framework. The condition of the fixed prosthesis was evaluated by checking high points. Then the prosthesis was luted with Type 1 GIC. Another impression was made with addition silicone for further processing of the removable component of the prosthesis. After the impression cast was obtained. Patient's bite was recorded using bite wax. Then a metal framework for the removable prosthesis was planned. Sublingual bar was planned in relation to the lower arch and Anteroposterior palatal strap in OPG was taken. Fig 7.

Figure 1. OPG of the patient.



Figure 2. Prepared Abutments.



Figure 3. CAD-CAM design.

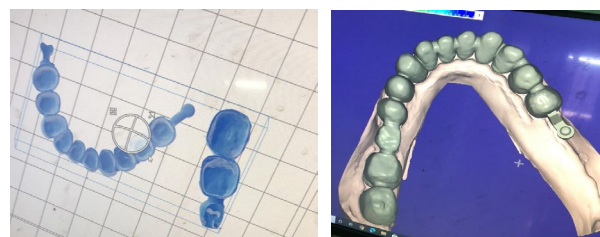


Figure 4. Prosthesis Trial.



Figure 5. Ceramic work of the metal framework.



Figure 6. Removable component of the prosthesis.

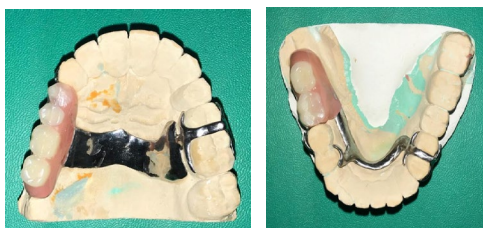


Figure 7. Post-operative OPG and Intra-oral picture of the completed treatment.



Figure 8. Post- op Intra-oral Image.



Discussion

In 1984 Turner classified the treatment of a severely worn dentition by the amount of the loss of VDO and accessible space to restore [8]. His classification and conventional treatment, which includes raising VDO with multiple crown-lengthening procedures, have been widely used up to present [8]. Intentional Root canal treatment was done in this case for many teeth to serve as abutments. Intentional Root canal treatment was performed in a single appointment in teeth which the pulp is not infected. And also, the teeth with poor prognosis which did not respond to phase 1 therapy was extracted. Proper abutment preparation is required for adequate thickness of the prosthesis. Also, the patient's adaptation to the provisional restoration was monitored for 1 month. The rehabilitation using restoration of anterior crowns and RPD providing posterior support is affordable and common for many patients who require the treatment of teeth wear because of reasons of economics and tradition [9]. In the case DMLS crowns were selected because of the long span of the fixed component. The advantages of DMLS crowns are high accuracy and fine details, part weight reduction, etc. The primary

role of the full mouth rehabilitation with semi precision attachment prosthesis is the maintenance of oral hygiene along with the relative independence of the abutments allowing the use of the prosthesis after the loss of periodontally affected abutments [10]. Fixed restorations are generally considered preferable because they splint mobile teeth, resulting in a more favorable distribution of functional load to the remaining periodontium [11].

The most important condition for improved prognosis for periodontally involved teeth is adequate oral hygiene maintenance, regular evaluation of the abutments and regular scaling [12].

At rest or during function the visibility of anterior tooth surfaces with lips is a crucial thing in determining prosthodontic outcome. Any prosthetic treatment, removable or fixed, that involves their replacement is taken into account to be critical [13]. All RPD with attachments, especially the extra coronal type, are considered more efficient in providing retention and restoring function and aesthetics [14, 15]. The invention of semi precision attachment was first introduced by Dr. Herman Chayes in the early 20th century [16].

Disadvantages associated with the use of precision retained fixed

partial dentures include excessive reduction, bulge, technique-sensitive and reduction of space for pontic. Full Mouth Rehabilitation with semi precision attachment has several advantages over conventional prosthesis. In this case report, abutments were of adequate clinical crown height to receive attachment; multiple abutments were splinted anterior to edentulous span to assist in better distribution of stresses [17]. As the cast partial denture is a fixed removable type, maintenance of the oral hygiene is quite easy. By the end of the treatment patient confidence, esthetics and masticatory efficacy was relatively increased compared to how the patient initially reported.

However, the restored anterior teeth can be easily exposed to excessive occlusal loads if the patient does not wear the RPD or resorption of residual ridge proceeds.

Conclusion

Full mouth rehabilitation with semi precision attachment seemed like an optimal treatment option for this patient, considering the periodontally compromised ridge. Even though the prognosis depends upon the periodontal maintenance by the patient.

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