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Case Report

Full mouth rehabilitation of a patient with severe mutilated dentition- a case report

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ABSTRACT

Confidence of a personality involves a very important component- 'Smile'. Smiles can improve self-confidence to many folds and spread a positive vibe for the individual and the surrounding. Loss in vertical dimension or mutilated dentition is often clinical findings that lead to loss of aesthetics to an extent and function to a greater extent. For such cases, usually a multidisciplinary approach may be required, often culminating with a prosthodontic treatment to restore the vertical dimension. Full mouth rehabilitation is an incredibly interdisciplinary treatment requiring understanding, expertise and proficiency in case planning. It demands extensive knowledge of the theories along with expertise in fine skills to achieve effective clinical results. In the era of rehabilitation, a rising trend in the implementation of dental implant supported rehabilitations is growing in fashion in dentistry, especially relevant to prosthetic management. Indications for full mouth rehabilitation are multinodal including aesthetic reasons, loss in vertical dimension, discolouration of teeth, non-carious wear of teeth and multiple missing teeth. One such indication is described in the case report of this research article. This case report describes a workflow for full mouth rehabilitation of a patient with severe mutilated dentition.

Keywords: Dental implant, Mutilated, Full mouth rehabilitation, Stomatognathic

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Introduction

The process of complete dental rehabilitation requires the clinician to create a roadmap that can be followed to obtain predictable results. Visualization of the end result and knowledge to navigate the important milestones on the way is vital to long term success of such scenarios.

In several cases, the requirement for full mouth rehabilitation originates from the wear patterns that destroy the dentition. In others, rehabilitation is essential as a part of treating mutilated dentition. Management of teeth with complex mutilation varies as per the severity of its manifestations, the extent of the lesion and number of teeth involved. Thus, the treatment may range from preventive strategies, to bonding and changes in the vertical dimension of occlusion with full coverage restorations. The balance between the ethical norms to be minimally invasive and the degree of intervention needs to be maintained. In practice, maintaining this balance a difficult task revolving around several factors that determine the decision in treatment planning.

As with any complex treatment, the phases may be interchangeable and some steps may be omitted if needed. The aim here is to provide a treatment flow with key milestones marked so as to place the necessary emphasis on those points

Diagnosis and Treatment Planning

With a plethora of complaints involving inability to chew food, generalized caries and unesthetic smile, a 52-year-old female reported to our clinic. On intraoral clinical examination, we witnessed mutilated permanent dentition accompanied by partial edentulousness in lower posteriors. Further clinical inspection of the patient revealed severely carious teeth and posteriorly collapsed dentition (Figure 1). The teeth with caries involving pulp were 16, 14, 11, 21 and 22 required endodontic intervention. Evaluation of aesthetics preoperatively revealed a low smile line (Figure 2)[1,2]. The diagnosis and management of mutilated dentition is intricate and experience integrated with clinical skill is required for obtaining effective results.

On clinical examination, a provisional diagnosis of Turner and Missirlian classification category 2 was provided[3]. The treatment plan was devised to restore with implant supported prosthesis in 14, 34, 36, 45, 47 and tooth supported prosthesis in remaining dentition. The choice of prosthesis for this patient was metal coping fused with porcelain, owing to compromised tooth structure needing extensive splinting of teeth[4].

Treatment Execution

After obtaining informed consent for the treatment, with permission granted by the Institutional Review Board under the ethical guidelines for human subjects and animals, the entire treatment was planned. The centric relation was obtained using Dawson technique[5,6]. Vertical dimension (VD) at rest (VDR) and occlusion (VDO) was obtained and prosthesis was planned in existing VD. Diagnostic impression was taken and mounted in the semi-adjustable articulator (STRATOS 300, Ivoclar ®) with the help of facebow record and inter occlusal records using bite registration paste. A diagnostic wax up was done to establish occlusion. The gross tooth preparations of the maxillary arch followed by temporization and implant placement in 14, 34, 36, 45, 47 (NobelReplace® Conical Connection). Stage 2 recovery of the implants was planned after 3 months. Provisional restorations were cemented temporarily with the help of prefabricated temporary fabricated with PMMA from the mock wax up design. The provisional restorations are cemented intraorally with anterior guidance from all excursive movements at an existing vertical dimension and observed for any alterations in the stomatognathic dynamics.

Shade determination (VITA classic shade guide®) was done according to the unrestored existing teeth(7,8). Stage II recovery of the implants was done with gingival formers for emergence profile. .After a week, the

patient was recalled and gingival retraction with double cord soaked in local anaesthetic solution containing adrenaline (ULTRAPAK Ⓡ knitted cord). A master impression one stage putty wash technique (Elite HD+, Zhermack ®) was made, together with closed tray abutment level for implants. Using pattern resin (Pattern Resin LS, GC®) and the existing modified temporary prosthesis, a final jaw relation was recorded. Jig trial was done for the implants in relation to adjacent teeth. A metal coping trial was done in both arches and fit was ensured with a fit checker and series of IOPAs (Figure 3). This was followed by the Ceramic Bisque trial of final prosthesis for adjustments required in aesthetics and occlusion (Figure 4). A canine guided occlusion was obtained, prosthesis was glazed with required staining and cemented using GIC luting cement (Figure 5, 6 and 7). Patient recall protocol was set for 1, 3 and 6 months. She was instructed meticulous oral hygiene instructions using floss and brushing twice a day.

Discussion

Full mouth rehabilitation is sorted for mainly 2 agendas: restoring the crown height and hence the vertical dimension and correction of the lost esthetics[9,10]. Correction of this is essential for re-establishment of the balance in the stomatognathic system. The process of complete dental rehabilitation necessitates the clinician to formulate a roadmap, a pathway that can be followed to produce predictable results[6]. Having a clear vision of the end result and knowing how to successfully navigate the important milestones on the way is paramount to long term success in these cases. It is important to arrive at a comprehensive aesthetic and functional problem list for each patient. For the sake of convenience and understanding, we have performed the treatment in 4 phases and 10 distinct restorative steps.

Phases in Our Rehabilitation:

Phase 1: Remove faulty restorations and assess all teeth for remaining tooth structure.

Phase 2: Foundation Work & Surgical Phase: Extractions, Implants and endodontic procedures.

Phase 3: Final restorative phase. Follow the 10 steps

1. Diagnosis

2. Mount Maxillary Model with Correct Orientation Relation.

3. Deprogram & Mount Mandibular Model In Centric Relation.

4. Finalize Vertical Dimension And Diagnostic Wax-Up.

5. Fabricate Provisional.

6. Decision Making For Final Restorative Material.

7. Volume Based Tooth Preparations.

8. Tissue Management, Impressions & Bite Records.

9. Bonding/Delivery.

10. Diligent Occlusal Management.

Phase 4: Maintenance phase.

As with any complex treatment, the phases may be interchangeable and some steps may be omitted if needed. The aim here is to provide a road map with key milestones marked so as to place the necessary emphasis on those points. The balance between the degree of intervention and the ethical need to be minimally invasive should always be maintained. In day-to-day practice, maintaining this balance is always a difficult call and several factors govern that decision.

Conclusion

The skill of a prosthodontist depends on tackling the challenges in the treatment planning and execution with effective outcomes. It comprises treatment of carious lesions, minimising sensitivity, restoring vertical dimension and aesthetics with appropriate prosthetic dental material. Currently, the most vital challenge in any prosthetic full mouth rehabilitation is the time taken for the total treatment procedure. In the present case, the treatment was completed in a month with a minimum of 5 clinical appointments.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal.

Conflict of interest

The author/s have no conflict of interest to declare.

Acknowledgement

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Authors Contribution

Vaishnavi R - Performed all procedures, case completion, documentation and manuscript drafting.
Aakansha M & Tasneem R - Aided in the conception of the diagnosis and planning , scrutiny of outcomes and has done the final corrections of the manuscript.

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Figures

Figure 1: Intraoral frontal view of the patient showing mutilated dentition

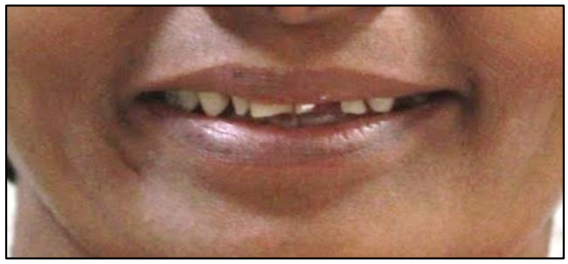

Figure 2: Extraoral frontal closeup view of the patient showing mutilated dentition

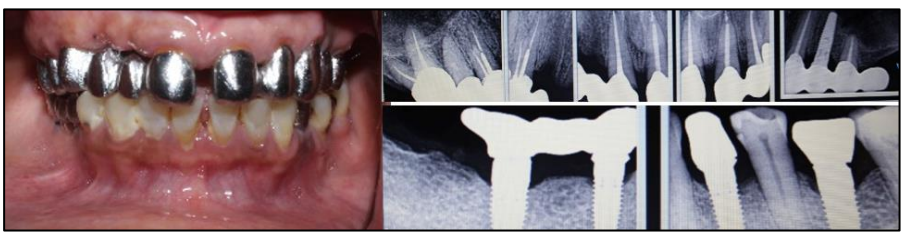

Figure 3: Metal framework trial

Figure 3: Preoperative and postoperative intraoral frontal view of the patient

Figure 5: Preoperative and postoperative extraoral frontal view of the patient

Figure 6: Preoperative and postoperative smile

Figure 7: Preoperative and postoperative extraoral profile view of the patient smile

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