

ACHIEVING EXCELLENT ESTHETIC AND FUNCTIONAL OUTCOME BY A MULTIDISCIPLINARY APPROACH: A CASE REPORT

A Case Report

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ABSTRACT

Full mouth rehabilitation is a challenging treatment modality that improves the appearance of the patient and corrects imperfections in the occlusion. Vertical dimension, centric relation, speech and muscle tone are essential fundamentals of full mouth rehabilitation. There is a need to analyze each aspect carefully with regard to existing natural dentition and its relationship with the stomatognathic system. Full mouth rehabilitation tends to create smile that is not only esthetic but also functionally comfortable. This case report describes the full mouth prosthetic rehabilitation of a patient by Pankeymann-Schuyler philosophy as it is a well-organized procedure, where anterior guidance is first established followed by restoration of the posterior teeth.

Key Words: Full mouth rehabilitation, tooth wear, pankeymann-schuyler technique

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INTRODUCTION:

Full mouth rehabilitation cases are one of the most difficult cases to manage in dental practice. The severe wear of anterior teeth facilitates the loss of anterior guidance, which protects the posterior teeth from wear during excursive movement. The gradual wear of the occlusal surfaces of teeth is a normal process during the lifetime of a patient. However, excessive occlusal wear can result in pulpal pathology, occlusal disharmony, impaired function, and esthetic disfigurement.¹ Full mouth reconstruction is basically a set of procedures that are aimed at correcting an improper bite position as well as restoring chipped or worn out teeth. Full mouth rehabilitation is done where severe tooth wearing off is present. Severe tooth wear is a potential threat for dentition and masticatory function. Many factors may combine to produce the worn dentition, and the etiology often remains unidentified.² Full mouth rehabilitation is a challenging treatment modality that enhances the appearance of the patient and corrects imperfections in the occlusion.³ The complexity in treating a full mouth rehabilitation case is not only because of its long treatment time but also at times the lack of clarity in the treatment objective. A case has to be treated not only by correcting worn out, broken or discolored teeth but also requires treating the oral cavity holistically. Every patient with extreme tooth wear has unique treatment needs.⁴ The steps in treatment of these patients include a comprehensive examination, diagnostic mounting,

careful planning and sequencing of various steps, discussion with the patient of the different treatment alternatives and careful execution of the treatment plan.⁵ This article reports a sequence of full mouth rehabilitation in a patient with completely worn dentition.

CASE REPORT:

A 62 year old female patient reported to the Department of Prosthodontics in Ahmedabad Dental College and Hospital with a chief complain of difficulty in chewing due to missing teeth, worn out dentition and poor esthetics.

Intraoral examination revealed missing teeth- 17, 46; root pieces- 26,27,35,36,45; grossly carious- 24; mobility-28 and generalized attrition. (Figure-1)

An OPG (OrthoPantomoGram) (Figure-2) was advised for further treatment planning.

The treatment plan decided was extraction of 26,27,28,35,36,37,45; Root canal treatment in 31,32,33,41,42,43; Post and core in 22,23 and implant placement in 26,35,36,45,46 followed by full mouth rehabilitation.

Another OPG was advised after extractions. (Figure-3) A diagnostic impression was taken with alginate impression material and casts were prepared (Figure-4, Figure-5) for stent preparation prior to implant placement. A CBCT was taken before implant placement. (Figure-6) Implants were placed in 26, 35, 36, 45, 46 region of equinox-

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myriad with the size of 4.5×11 mm, 4.5×9.5 mm, 5.7×9.5 mm, 4.5×9.5 mm and 5.7×8 mm respectively. An indirect sinus lift was done for placement of implant in 26 region. After implant placement was done (Figure-7), other treatment procedures like root canal treatment, post and core and flap surgery in maxillary anteriors; were completed and after few months an OPG was taken. (Figure-8)

After 3 months, the second stage for implant prosthesis was carried out. Healing caps were placed and after 7 days the maxillary and mandibular anterior teeth were prepared for PFM crowns. (Figure-9) After this maxillary and mandibular closed tray impressions were taken for implants alongwith prepared teeth and casts were obtained. (Figure-10, Figure-11) Centric records were taken, facebow transfer was done and mounting of the casts was done on Hanau Wide Vue Articulator. (Figure-12)

The wax pattern was made on the anterior prepared teeth (Figure-13) and putty index was taken for preparation of temporary teeth (Figure-14, Figure-15). These temporary teeth were luted with temporary cement (Rely X Temp E) and after checking esthetics and phonetics an anterior guidance was developed. (Figure-16)

An Occlusal Plane analysis was done with the SOPA technique (Figure-17) and a posterior occlusal plane was obtained. Following this, all the remaining posterior teeth were prepared for PFM crowns (Figure-18) and closed tray impressions were taken with putty-light body and casts were fabricated (Figure-19, Figure-20). Further another facebow transfer was done for the final restorations. (Figure-21)

Posterior temporaries were fabricated and cemented in patient's mouth (Figure-22).

Following this, Metal try-in was done and checked in patient's mouth (Figure-23). Then a bisque trial was also carried out (Figure-24) and the final prosthesis was delivered to the patient (Figure-25). The patient's esthetics and functions were verified. A post-treatment OPG was also taken (Figure-26).

DISCUSSION:

The concept of complete mouth rehabilitation is dependent basically upon three proved and accepted principles. These are; the existence of a

physiological rest position of the mandible which is constant, the recognition of a variable vertical dimension of occlusion and the acceptance of a dynamic, functional centric occlusion. Many clinical studies indicate that, vertical dimension of occlusion is maintained even with rapid wear. As the occlusal surface wears, compensatory alveolar process elongates by progressive remodeling of the alveolar bone.⁶ As a result there is no loss of vertical dimension unless tooth loss occurs. However, occlusal wear may occur more rapidly than continuous eruption depending on the etiology of the wear. The three prime requirements of full mouth rehabilitation are healthy TMJ, harmonious anterior guidance and noninterfering posteriors. These three factors are interrelated and any disharmony between these will affect the stomatognathic system. Anterior guidance plays a very important role in full mouth rehabilitation following centric relation.⁷ The three main things to be taken care of, while replacing posterior teeth, are achieving posterior disclusion, establishing the plane of occlusion and deciding the type of occlusal scheme. Disclusion refers to separation of opposing teeth during eccentric movements of mandible, as reported by Christensen.⁸ Posterior occlusion should have equal simultaneous contacts so that it does not interfere with either the TMJs in the back or the anterior guidance in the front. Occlusal interference can be detrimental to the health of the patient. Deflective occlusal interference can cause painful symptoms in the muscle, teeth or other orofacial structures. A proper plane of occlusion must permit disclusion of all the teeth on the balancing side when the mandible is moved laterally. The provisional restorations play a critical role in the successful treatment of the full mouth rehabilitation patient. The provisional restorations should be esthetic and also fulfill the functions so that the effect can be followed in the temporary before making the final restoration. In previous literature, the wearing time of provisional crown are various. The trial period of intensive fixed provisional prosthesis is 2 - 6 months.^{9,10,11,12}

CONCLUSION:

Severe tooth wear is frequently multifactorial and variable. Restoration of worn dentition is a challenge to a prosthodontist. A combination of mechanical, biological, esthetic factor is

mandatory, for full mouth rehabilitation Successful management is a subject of interest in dentistry. A detailed diagnosis and treatment planning is necessary to achieve predictable success. The restoration of normal healthy function of the

masticating apparatus is the ultimate aim of full mouth rehabilitation. Full mouth rehabilitation by Pankeymann-Schuyler philosophy is a successful approach. Patient was satisfied with esthetic and masticatory efficiency.



Figure 1- Intraoral View



Figure 2- Pre-operative OPG



Figure 3- Post-extraction OPG

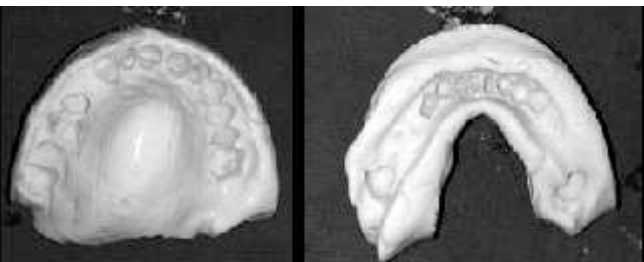


Figure 4- Maxillary and mandibular Diagnostic Impressions

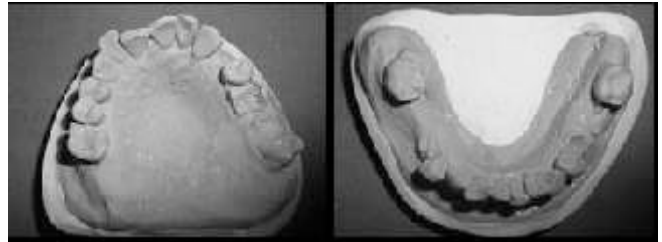


Figure 5- Maxillary and Mandibular Diagnostic casts



Figure 6- Pre-op CBCT for Implant Placement



Figure 7- Implants placed



Figure 8- Post-implant placement OPG



Figure 9- Maxillary and mandibular anterior teeth prepared

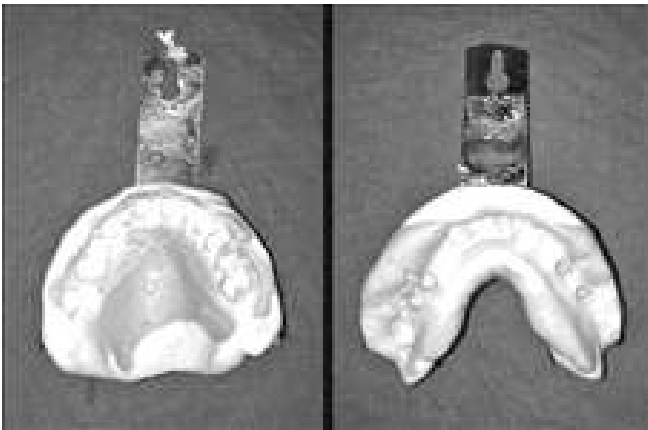


Figure 10- Closed tray Impressions taken

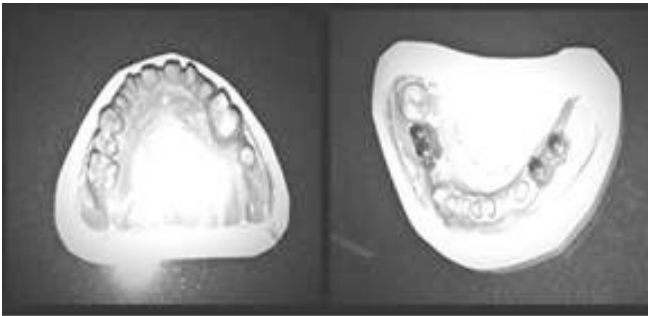


Figure 11- Casts fabricated

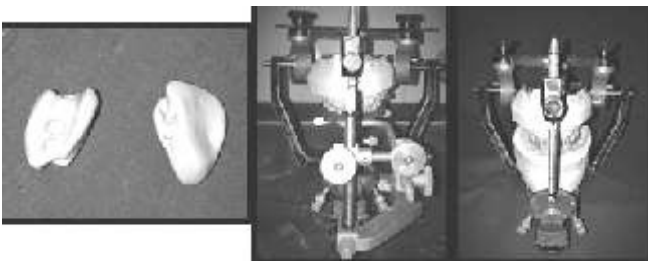


Figure 12- Centric records taken; facebow transfer done; mounting done on Hanau Wide Vue Articulator



Figure 13- Anterior wax mock-up done

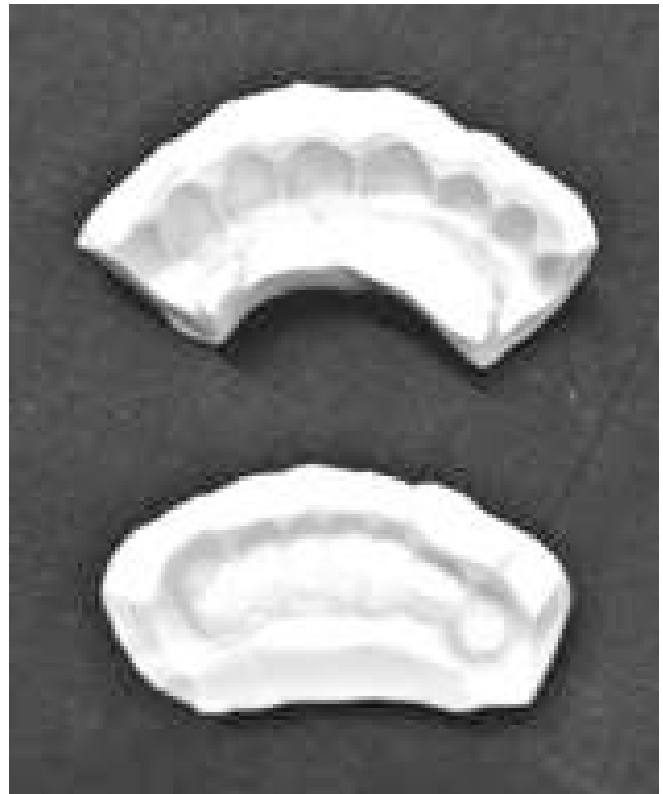


Figure 14- putty index prepared

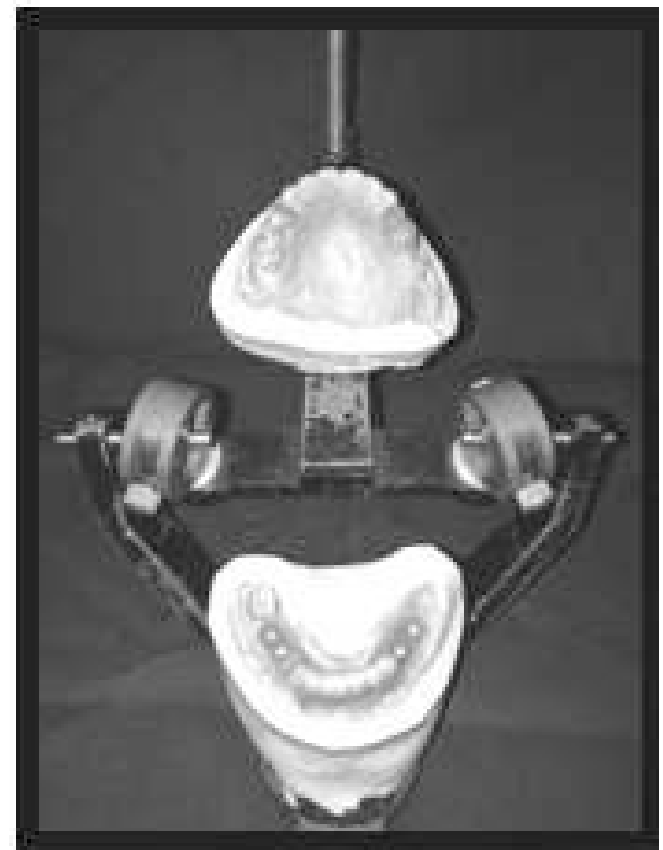


Figure 15- Temporary anteriors prepared



Figure 16- Anterior guidance developed with temporary crowns

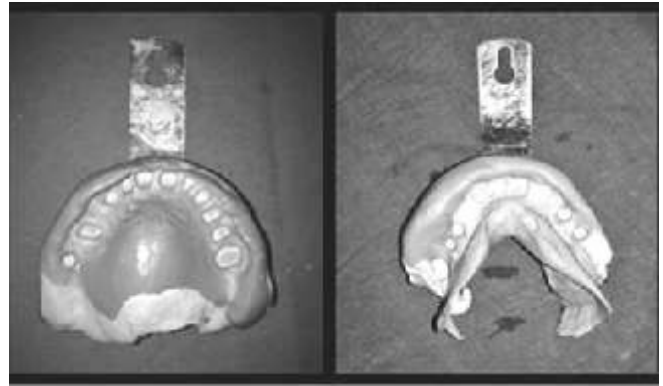


Figure 19- Maxillary and mandibular Final Impression made with closed tray impression copings



Figure 17- Occlusal Plane analysis done with SOPA technique

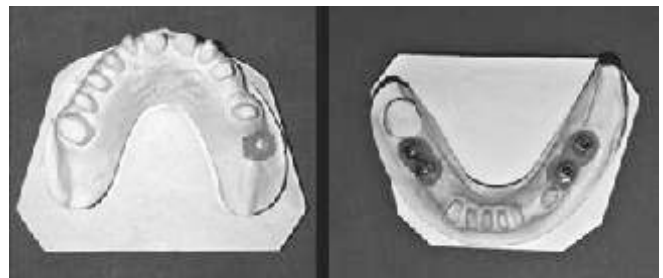


Figure 20- Maxillary and Mandibular Master casts prepared



Figure 18- All remaining posterior teeth prepared

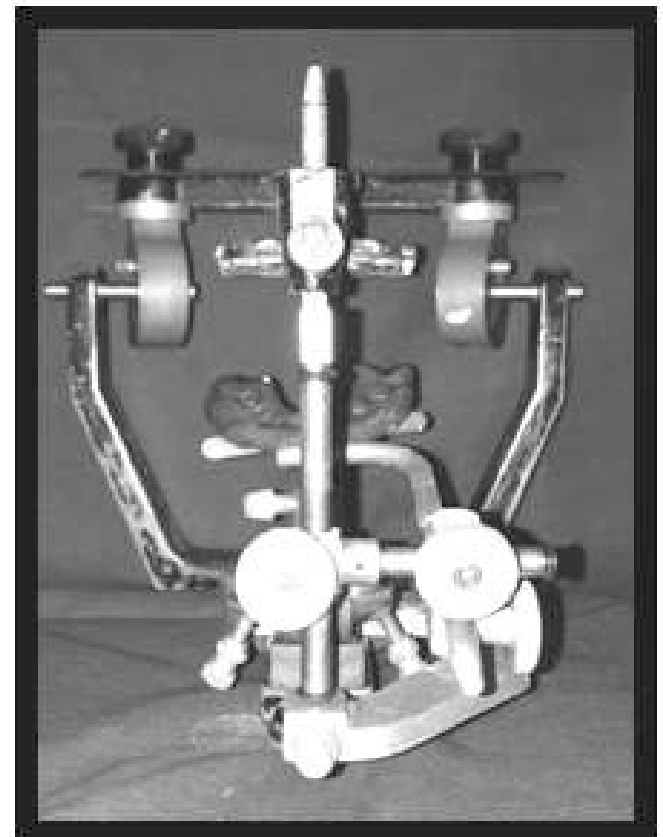


Figure 21- Facebow transfer done for final prosthesis



Figure 22- Posterior temporaries luted in patient's mouth



Figure 23- Metal try-in done



Figure 24- Bisque trial



Figure 25- Final prosthesis inserted in patient's mouth



Figure 26- OPG taken after Final Prosthesis delivery

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