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Case Report

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Complete Rehabilitation of a Patient with Multiple Post Core as Foundation Restorations for Mutilated Dentition – A Case Report

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Abstract

Tooth wear can occur through erosion, abfraction, abrasion, or attrition. Excessive wear off the teeth can cause esthetic deformity, occlusal disharmony, pulpal damage, and impaired function. Anterior guidance is lost when anterior teeth are severely lost. Such severe tooth wear and abnormalities frequently affect a patient's speech, mastication, and appearance, which in turn affects the patient's lifestyle. Rehabilitation of the compromised dentition is therefore required. Full mouth rehabilitation enhances a patient's health and function by integrating the science of restorative dentistry with aesthetics. This clinical case report discussedthe simplified systematic full mouth rehabilitation approach and management of an attrited dentition which helped the patient to adapt well to new restoration.

Keywords: Prosthetics; Fixed dental prosthesis; Restorative dentistry

Introduction

The goal of rehabilitation of a is to balance between function and esthetic, with physiologicintegrity andharmonious interaction with the surrounding soft and hard tissues, which makes it difficult one [1]. If the restorative space needed is limited, as in the scenario of a mutilated dentition, this could become more challenging [2].

An individual loses vertical dimension as a result of tooth wear.Therefore, for the best possible outcomes, consideration should be given to meticulous treatment planning utilising a multidisciplinary approach [3].

When it comes to full mouth rehabilitation, stability in the occlusion and the temporomandibular joints is the most important factor [2]. In order to satisfy all relevant factors, the goal was to restore and rehabilitate the entire dentition.

The tooth becomes weaker if the already diminished coronal structure is further reduced; in these cases, only cast restorations can strengthen the natural tooth, even if the core is smaller [4,5].

Therefore, this clinical case report illustrates complete rehabilitation of a worn-out dentition with lost vertical occlusal dimension in which multiple cast post core restorations were fabricated in maxillary anterior region and were the key to thesuccess of the treatment over the long term [6].

Case Report

A 46-year-old male reported to Department of Prosthodontics, Career post graduate institute of dental sciences, Lucknow, with a chief complaintof

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difficulty in chewing and unesthetic appearance.There was no significant medical history of the patientand there were not any symptoms of myofascial pain dysfunction or temporo-mandibular joint disease.

Clinical Findings

There was no muscle tenderness and facial asymmetry found during the extraoral examination. Intraoral examination revealed generalized attrition with 16,31,32,35,36,41 missing in upper and lower arch.Rotated teeth were presented irt13,15 and 16,24,25 were supra erupted. Restoration was noted irt 17,46. [Figure 1]

Figure 1: Intra oral view

Orthopantography (OPG) advised and the patient was explained about severe loss of tooth structure . Her history revealed habit of faulty vigorous brushing with hard brush.

Procedure

Primary impression was made using alginate, and cast was made using Type III Dental Stone.Using face-bow transfer, the maxillary cast was mounted on the semi-adjustable Arcon articulator (Hanau broad Vue), mandibular cast was mounted on articulator in centric relation through interocclusal records and tentative jaw relation was made in centric relation. Occlusal analysis was performed using a custom made Broadrick occlusal plane analyser. Interocclusal distance measuredintraorally using divider in between maxillary and mandibular anterior whenmandible is at rest. Freeway space was observed to be 6 mm. 2 mm increase in vertical dimension (VD) was planned. Mock wax-up was done to increased VD. Putty index of mockup was made using polyvinyl siloxane material for provisionalization. The patient was then given an occlusal splint as part of a reversible treatment approach to assess how well they had adjusted to the changed VDO. The patient remained under observation for 4weeks prior to the commencement of the definitive restorative phase of rehabilitation [7].

The occlusal analysis recordings were later used during fabrication of the definitive restorations. On basis of the occlusal analysis, the patient was advised that intentional RCT, crown lengthening, and tooth replacement were necessary for the successful outcome.

Following the diagnostic cast analysis, a treatment plan was presented to the patient that involved,custom made post irt 11,21,22 for restoring the remaining tooth structure followed by esthetic correction of 12,13,14,15,16,17 with crowns and fixed dental prosthesis (porcelain Fused to metal). For the mandibular arch,pre-fabricated post in the 33,34 region and surgical crown lengthening of 33,34,42,43 and followed by esthetic correction of 31,32,33,34,35,36,41,42,43 with fabricationof fixed dental prosthesis was planned (porcelainfused to metal).

The posterior teeth of the maxillary teeth were prepared first, and then a temporary restoration is constructed and luted using temporary cement (FREEGENOL TEMPORARY PACK; GC Corp, Tokyo, Japan) on the planned restorative vertical dimension.For incisors, post space was prepared and a wooden tooth pick was trimmed to check the fit in canal [8].

After lubricating the canal and surrounding structure, pattern resin (GC) was mixed and coated on wooden tooth pick and inserted in the canal. The core portion is built up with same material andmoulded (Figure 2). After setting it was removed and send to the lab for casting and cementing the cast post cores with zinc phosphate cement [Figure 3]. Two mandibular teeth were restored with prefabricated fibre posts, while the remaining maxillary and mandibular teeth were restored with conventional composite and preparation was done. Surgical crown lengthening was performed irt 33,34.42,43 (Figures 4 & 5)

Figure 2: Impression for cast post

Figure 3: Cementation of cast post

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The interim prosthesis was made at an increased vertical dimension and was luted using temporary cement, and its function, comfort, phonetics, and aesthetics had been evaluated intraorally (Figure 6). Three months later, the patient's comfort level and the TMJ joint's clicking or tenderness were assessed.The patient found the new restorative vertical dimension to be comforting.

Gingival retraction was done using braided cord (Ultrapak 000). Final impression of the maxilla and mandibular arch was done using addition silicone putty and light body by dual impression technique and casts were poured in die stone

Face bow transfer was done again to orient master cast after tooth preparation in Hanau Wide-Vue articulator and an inter occlusal record was made to mount mandibular cast with previously determined restorative vertical dimension in centric relation

A wax mock-up was done for maxillary arch and mandibular arch in established vertical and centric record.All the wax patterns were casted and metal copings were tried in the patients mouth and adjusted as needed (Figure 7).

PFM crowns were used as definitive restorations that had proper contour and shade and looked vital and natural. GIC type I luting cement was used for permanent cementation (Figure 8).

Figure 4: Maxillary tooth preparation

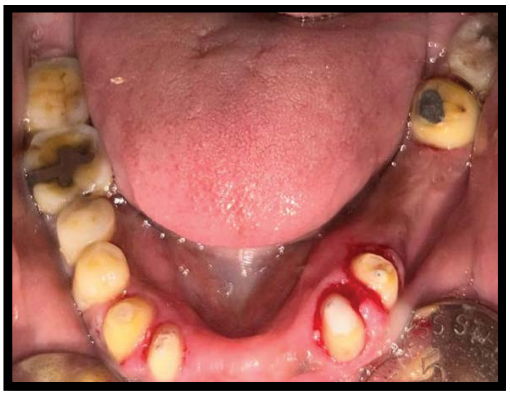

Figure 5: Mandibular teeth preparation & crown lenghen

Figure 6: Provisional restoration

Figure 7: Coping trail

Figure 8: Final prosthesis

Occlusion on both sides was evaluated before giving home care instructions to the patient. The patient was cooperative and demonstrated good oral hygiene maintenance during follow up period of six months.The patient expressed great satisfaction with the outcome of the treatment, especially with the improved masticatory efficiency and enhanced aesthetics.

Discussion

It has always been difficult for prosthodontists to recreate a perfect occlusion from worn-out dentition(9).A healthy TMJ, harmonic anterior guidance, and non-interfering posteriors are the three primary requirements for full mouth rehabilitation.(10).

Any imbalance among these three interrelated components will have an impact on the somatognathic system. Following a centric relation, anterior guiding is crucial to full mouth rehabilitation.(11).When posterior teeth are being replaced the three primary considerations are determining the type

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of occlusal scheme, establishing the plane of occlusion, and attaining posterior disclusion(12,13).To evaluate the patient's adaptability to the removable occlusal overlay splints, the patient in the present case underwent close observation for a month. (14).

To attain a suitable crown-root ratio, cast post and core was carried out(15). Additionally, for three months, the patient's adaptation to the temporary restoration was monitored. (16).Occlusal equilibration and interferences eliminated during this period and The definitive rehabilitation was guided by these provisional restorations(17).For maxillary and mandibular teeth, a final complete arch impression was taken using addition siliconand casts were poured in die stone.As a definitive treatment plan, metal-ceramic individualcrowns were preferred. Mutuallyprotected occlusal scheme was planned. . The objective was to achieve the optimal occlusion conditions for the somatognathic system to function harmoniously (18).The patient had only a very few adjustments at the time of delivery and good occlusal contacts established.During that time, there was no wear, discomfort, or muscular fatigue noted (19).In order to assure longevity of the treatment outcomes, regular maintenance and follow-ups were recommended(20).

Conclusions

It is difficult to restore form, function, and aesthetics in mutilated dentition; it ought to be performed only in severe instances. A proper diagnosis and interdisciplinary treatment planning with adequate knowledge and discretion are vital for the successful outcome of such treatment.

According to this clinical study, complete mouth rehabilitation for severely worn-out dentition was successful when the vertical dimension of the occlusion was restored using a removable occlusal overlay splint and followed by post and core with a fixed provisional based on an accurate diagnosis. The use of custom made post core as foundation restorations is an inevitable choice when remaining tooth is weak and requires strength from the restoration

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