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Restoring Esthetic and Functional Harmony in A Severely Worn Out Dentition with Full Mouth Rehabilitation.

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Abstract: *Tooth wear is attributed to several factors many of which often remain unidentified. Most of the problems arise from age related occlusal wear, loss of posterior support due to loss of teeth, periodontal and endodontic involvement of teeth. Patients with such condition may require extensive restorative procedures to achieve appropriate function, esthetics and comfort. This clinical report describes the full mouth rehabilitation of a severely worn out dentition in functional harmony with the stomatognathic system. Twin stage procedure was adopted to produce definite amount of disocclusion during eccentric movements.*

Key Words: *Full mouth rehabilitation, occlusal wear, twin stage procedure, disocclusion*

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I. Introduction

Loss of tooth structure has become a common pathology in modern society. Prosthodontics has given a new dimension to patient's life whose functions and esthetics are compromised because of worn out dentition. Full mouth rehabilitation should re establish a state of functional as well as biological efficiency where teeth and their periodontal structures, the muscles of mastication, and the temporomandibular joint mechanisms all function together in synchronous harmony.

Any dental procedure be it construction of fixed or removable dentures or the restoration of carious teeth maybe considered as a process of full mouth rehabilitation[1]. In this article, the term full mouth rehabilitation is used to connote a multidisciplinary approach by large scale restoration and replacement of missing teeth with fixed partial denture and removable denture.

The primary goals of occlusal rehabilitation that are: -

- Occlusal functional harmony
- Maintainance of overall health
- Esthetics
- Comfort

In general severe occlusal wear can be due to Congenital abnormalities. (Where tooth structure is weak) ,attrition,abrasion ,erosion ,Para functional habit due to stress or wearing from the opposing restorative material.

Turner and Missirlian[9] classified the patients with occlusal wear as follows:

1.Excessive occlusal wear with loss of vertical dimension but with space available to restore the vertical height.

2.Excessive occlusal without loss of vertical dimension but space available

3.Excessive wear without loss of occlusal vertical dimension but with limited space

Case Report: A healthy 48 year old male patient reported to the clinic with the chief complaint of unesthetic appearance with generalized sensitivity and difficulty in chewing food (Fig.1&2)The patient's dental history indicated extractions with 18,28,38,48,16,36,37,47. The patient had habit of clenching his teeth.

Fig.1 & Fig. 2 :
Pre operative intraoral & extraoral picture

Clinical findings:-

Extraoral findings- The TMJ movement was normal. The patient had no facial asymmetry, muscle tenderness. Mandibular range of motion was within normal limits.

Intraoral findings- Both the arches were partially dentate with all third molars and 16,36,37 were missing. Root stumps were present with respect to 25 and 47. Lips, cheeks, tongue, oral mucosa, pharynx appeared to be normal. Generalized attrition and erosion were present. GIC restorations were present with respect to 17,27 and 46.

Occlusal findings- Both canines and molars were missing with loss of vertical dimension about 3mm. the smile line was about 2mm high with moderate gingival display. Maxillary midline coincided with facial midline.

Treatment plan:-

The treatment plan was made and discussed with the patient. Patient was explained about the amount of tooth structure to be removed, need for endodontic therapy, duration of the treatment and longevity of the clinical outcome and at last the cost factor was discussed too and informed consent was obtained. In the first phase of treatment oral prophylaxis was performed and the patient was advised a 0.2% chlorhexidine mouthwash[2]. The root stumps were extracted. The prosthodontic phase of treatment began after 4 weeks.

In the second phase endodontic therapy was carried out. Crown lengthening was also done (Fig.3).

Fig.3: Crown lengthening (post operative)

In the third phase vertical dimension was increased. To achieve this maxillary and mandibular impressions were made and diagnostic casts were obtained. Maxillary cast was mounted with the help of earpiece face bow onto a Hanau Arcon articulator wide view series and mandibular cast mounted with a Lucia Jig in the anterior region and interocclusal records in the posterior. The articulator was programmed using protrusive and lateral records. It was planned to increase the vertical dimension of occlusion by 3 mm using occlusal deprogrammer made of poly methyl methacrylate for a period of 8 weeks (Fig.4).

Fig.4: Occlusal deprogrammer in situ

Phonetics and Niswonger's technique were used to confirm the new vertical dimension of occlusion. Maxillary and mandibular posterior teeth were prepared first. Provisional restorations were fabricated from the diagnostic wax up and cemented. Definitive impressions of the prepared maxillary and mandibular posterior teeth were obtained using polyvinylsiloxane impression material. After the final casts were obtained they were mounted on the articulator using the interocclusal record obtained from the patient. Articulator was programmed according to condition I of the twin stage procedure (as in table 1)[3] and posterior wax build up was completed to achieve balanced articulation which helped in achieving a standard cusp angle of 25º. The all metal crowns with porcelain facings were fabricated and then cemented. Subsequently anterior maxillary and mandibular teeth were prepared and definitive impressions were obtained. After the final casts were obtained they were mounted on the articulator. The anterior wax build up done after the values had been adjusted according to the condition II of twin stage procedure (as in table 1) to achieve an incisal guidance of 40º which produced a standard amount of disocclusion. Crowns were fabricated and cemented. All the restorations were temporarily cemented at first. Patient was followed up for 2 months and adjustments were done. After that the crowns were permanently cemented by glass ionomer type I cement(Fig 5).Instructions were given to maintain meticulous oral hygiene.

Fig.5: Crowns in Situ

Table 1: Articulator adjustment values for the twin stage procedure

Condition	Condylar path		Anterior guide table	
	Sagittal condylar path inclination	Bennett angle	Sagittal Inclination	Lateral wing angle
Condition 1:without anterior teeth	25	15	25	10
Condition 2 : with anterior teeth	40	15	45	20

II. Discussion

The objective of esthetic and restorative dentistry is to treat diverse problems and achieve natural appearing results. The different materials and methods for the procedures currently available have made it both exciting and confusing for dental practitioners. D'Amico stated that cuspid protected occlusion and disocclusion were natural adaptations for preventing destructive occlusion[4]. Stuart and Stallard in 1957 proposed the scheme of mutually protected occlusion, which has been widely accepted today[5]. It is dependent on the clinician to choose an appropriate occlusal scheme for a particular reconstruction case after reviewing the existing clinical condition so as to achieve predictable long term results and a functional occlusion .After reviewing the various occlusal concepts[6], it was found that it is best to achieve posterior disocclusion in full mouth rehabilitation to avoid harmful lateral forces as was suggested by Hobo. Hobo and Takayama studied the influence of condylar path, incisal path and the cusp angle on the amount of disocclusion. They concluded that the cusp angle was the most reliable and was used as a new determinant of occlusion[7]. Twin-stage procedure proposed by Hobo and Takayama was adopted for wax build-up because studies have proved that it is possible to accurately control the amount of disocclusion on the restoration without measuring the condylar path[8]. Twin-stage procedure helps in

achieving a standard disocclusion of 1mm on protrusion, 1 mm on non working side and 0.5 mm on working side in eccentric movements at 3 mm protrusion from centric relation.

For the patient described above, enhanced esthetics was possible because the clinical crown and root form were favourable for complete coverage restorations. All metal crowns and metal ceramic crowns with facings were given because of the inability of the patient to afford all ceramic restorations. However, both marginal fit and esthetics were satisfactory.

Post operative photograph

References

[1]. Chase W. Appraisal of full coverage and mouth rehabilitation. J Prosthet Dent 1964;14:87-90.

[2]. Neelakantan P., John S, Subbarao C.V. Restoring function and esthetics in a pair of twins with amelogenesis imperfecta. J Indian Prosthodont Soc 2009;9(2):105-108.

[3]. Hegde C., Krishna D.P., Jacob S.J. and Shetty M. Full mouth rehabilitation of a severely worn out dentition to functional harmony. J Indian Prosthodont Soc 2009;9(3):164-166.

[4]. Damico A. Function occlusion of teeth natural teeth in man. J Prosthet Dent 1961;11:899-915.

[5]. Stuart CE. Good occlusion for natural teeth. J Prosthet Dent 1964;14:716-724.

[6]. Tiwari B, Ladha K and Lalit A. Occlusal concepts in Full Mouth Rehabilitation: An Overview. J Indian Prosthodont Soc 2014;14(4):344-351.

[7]. Hobo S, Takayama H. Twin stage procedure, Part 1: A new method to reproduce precise eccentric occlusion relations. Int Periodont Rest Dent 1997;17:113-123.

[8]. Hobo S, Takayama H. Twin stage procedure, Part 2: A clinical evaluation test. Int Periodont Rest Dent 1997;17:457-463.

[9]. Kenneth A.Turner,DonaldM.Missirlian;Restoration of the extremely worn dentition.JPD1984;vol 52:467-474