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Full mouth rehabilitation of a patient with severely worn out dentition with ceka attachments.

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Abstract: Severely worn out dentition needs to be given definite attention as it not only affects aesthetics and can cause psychological distress to the affected individual. The basic goal of rehabilitative dentistry is to increase the life span of the functioning dentition, just as the goal of medicine is to increase the life span of the functioning individual. Management of patients with a badly mutilated dentition is a complex situation and a challenge to dentist's skills. The mutilated dentition due to grossly decayed, tilted, drifted and rotated teeth results in an unaesthetic appearance, alteration in phonetics and difficulty in mastication. This article presents a multidisciplinary approach in rehabilitating mutilated dentition with multiple crowns, fixed partial dentures and a removable partial denture with ceka attachments to enhance retention and stability.

Key words :Ceka attachment, Fiber posts, Worn dentition, Esthetics

Introduction

Esthetics has become a main priority for patients these days. Severe tooth wear or attrition is a potential threat for dentition and masticatory function. Many factors may combine to result in the worn dentition, and the etiology often remains unidentified [1]. Full mouth rehabilitation requires efficient diagnosis and elaborate treatment planning to develop ordered occlusal contacts and harmonious articulation in order to optimize stomathognathic function, health and esthetics which then translates to patient's comfort and satisfaction. In striving to target this goal, a prosthodontist uses his knowledge, skill and all the resources at his command to achieve an optimal, long-lasting positive outcome. The techniques of full mouth rehabilitation have created new dimensions in providing esthetic and functional rehabilitation for patients with severely worn out dentition which enhances the appearance of the patient and corrects imperfections in the occlusion [2]. The complexity in treating full mouth rehabilitation cases is not only because of its long treatment time but also at times unique treatment needs and also the lack of clarity in the holistic treatment objective [3].

Contemporary interdisciplinary approach to dental treatment envisages salvaging a greater number of teeth than in the past. This case report describes case of full mouth rehabilitation of severely compromised dentition managed by multiple fixed partial dentures and removable denture with ceka

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attachments to produce definite aesthetic and occlusal scheme favorable to the patient.

Procedure

A 28 year old female patient reported to our Dental Center with the chief complaints of unsightly smile and difficulty in chewing since past two years. Clinical examination revealed multiple missing and carious teeth both in the maxillary and mandibular arch [Fig. 1].

Fig. 1: Pre-operative intraoral view.

Maxillary and mandibular diagnostic impressions were made with irreversible hydrocolloid (Plastalgin, Septodont, France) and poured in dental stone (Kalstone, Kalabhai, India). Analysis of the articulated casts revealed that there was no need to alter the vertical dimension of the patient. It was therefore decided to rehabilitate the patient using multiple crowns and fixed partial dentures in the maxilla and for the mandible however, it was planned to fabricate a fixed partial denture in right quadrant and a removable partial denture with ceka attachments on the other side to enhance retention.

The full mouth rehabilitation in this patient was aimed to simulate the natural profile of the patient and simultaneously provide a satisfactory functional occlusion to aid in mastication. Mouth preparation procedures were carried out prior to prosthodontic treatment. Extraction of 48 was done as it was grossly decayed and could not be salvaged. Multiple root canal procedures were carried out in 12, 13, 14, 22, 23, 24, 25, 42, 43, 44 and 45. Post and core build up was done in 12, 13, 14, 22 and 23 using fiber posts (Parapost$^{(R)}$ Coltene, Whaladent, Germany) followed by teeth preparation procedures in the maxillary teeth [Fig. 2].

Fig. 2: Post and Core procedures of maxillary arch.

Two stage definitive impression was obtained with addition silicone putty and light body impression material (Aquasil, Denstply) and secondary models were prepared. Die preparation was carried out over which the wax patterns were made and casting was done in a centrifugal induction casting machine. The casting was retrieved, finished and tried in the patient's mouth. After necessary adjustments, porcelain was applied over the metal frameworks. The permanent maxillary restorations were cemented with Type 1 GIC cement (GC Fuji, Tokyo) [Fig. 3] under standard prosthodontic protocol and oral hygiene instructions and maintenance were given to the patient.

Fig. 3: Finished maxillary prosthesis in situ.

Subsequently post and core build up procedures were done in 44 and 45 and a five unit fixed denture was fabricated involving 44, 45, 46, 47 and 48 [Fig. 4].

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Fig. 4: Fixed denture replacing missing 46 and 47.

Teeth no. 42 and 43 were prepared for receiving the male components of Ceka attachments (Ceka Preci Line, Belgium) [Fig. 5].

Fig. 5: Ceka attachments wrt 42 and 43.

Following the cementation of male components, a definitive mandibular impression was made using dual impression technique and secondary cast was retrieved over which a heat cure acrylic partial denture was fabricated using the conventional techniques to replace the remaining mandibular teeth. The female components were incorporated on to tissue surface of the denture by using pick up impression technique with auto polymerize resin [Fig. 6].

Fig. 6: Removable partial denture in situ.

A snap on effect was achieved for the mandibular denture amounting to increased retention and stability. Bilaterally balanced occlusion was achieved to attain maximal masticatory efficiency for the patient in addition to an aesthetic profile and pleasing smile [Fig. 7].

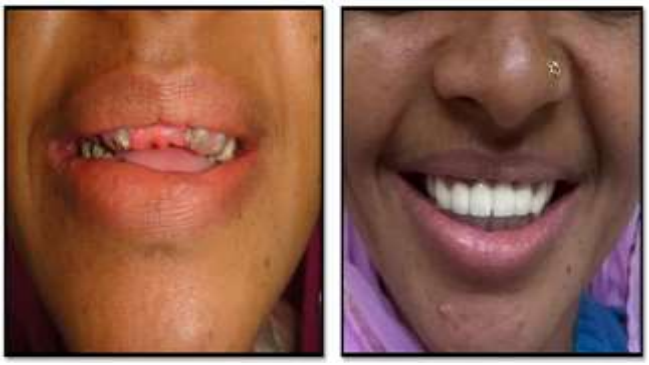

Fig. 7: Comparative evaluation of pre and post-operative photographs.

Discussion

All patients requiring rehabilitation of mutilated and severely worn out teeth have one major problem in common i.e stress and strain, due to malfunction or compromised relation among the parts of the oral mechanism. The best way to prevent such problems is to distribute the stresses evenly over as great area as possible, over as many teeth and as much tissue as possible [4]. Tooth tissue loss has been demonstrated to be associated with various dental problems such as tooth sensitivity, excessive reduction of clinical crown height, possible changes of occlusal relationship and loss of masticatory efficiency. Rehabilitating a patient with tooth tissue loss to an acceptable standard of oral health is clinically demanding and requires proper diagnosis and meticulous treatment planning [5].

The approach of using attachments is reserved for selective candidates having increased amount of bone loss desiring significant improvement in retention. In our case we zeroed in for the Preci-Clix type of attachments which consists of male stud part that usually is a post extending into the

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endodontically treated tooth and a female component in the form of ring placed on the tissue side of the denture. The main reasons for selection of this type of attachments are its simplicity, easy servicing, ability to rotate in all directions and single visit application of the attachment, therefore, an achievable increased patient comfort [6].

Dental implants have replaced the removable partial dentures in the recent times [7]. But in many compromised situations it is difficult to place implants, they are also time consuming in treatment completion and thus removable partial dentures are the alternative to restore the function. Moreover patient was not very comfortable with the idea of bone augmentation surgeries. Removable denture was the prosthesis of choice in this scenario which fulfilled all the requirements of the patient.

Conclusion

This case report demonstrates successful rehabilitation of a female patient who had been affected by severely worn out and multiple missing teeth by using fixed and removable partial dentures with ceka attachments. Most patients with severe wear of teeth can be managed by restoring the occlusion and without increasing the vertical dimension [8]. The provision of active restorative care for a patient presenting with severe worn out teeth can be considerably demanding even for more experienced dental operators. There is an obviously profound prerequisite for the latter to have a very clear perspective of the planned outcome, which in turns requires a very good working knowledge of the principles of occlusion and an appreciation of the shortcomings of available materials and techniques available to the contemporary practitioner.

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