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Full Mouth Rehabilitation in an Occupationally Stressed Bureaucrat

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Abstract
Full mouth rehabilitation of natural dentition that is worn severely with pseudo maintenance of vertical dimensions of occlusion pose challenge in diagnosis and need to be identified for treatment varies with different conditions of vertical dimension alterations. As more number of patients turn up in a dental clinic seeking treatment for their grossly non carious destroyed dentitions, this case of a 58 year old patient presents a case of a full mouth rehabilitation with metal-ceramic crowns where existing vertical dimensions were not altered since one sided palatal incline of canine was untouched by wear and it was thus easy to reestablish the previous anterior guidance. The article also highlights the issue of occupational stress among bureaucrats in developing nations like India.
Keywords:*occlusion, metal - ceramic, retainer, attrition, occupational stress.*

Introduction

Severe attrition is normally observed when underlying teeth have certain developmental disturbance either in the form of amelogenesis or dentinogenesis imperfecta. Natural normal teeth may also undergo severe attrition when an individual has an abnormal parafunctional habit like bruxism or clenching. Such conditions are usually related to stress, especially due to the occupation of an individual. An occupation like law enforcement has been associated with work stressor and is considered to be stressful because of the job of patrolling and policing.[1] Some of the other occupational stressors observed in various occupations are non-scheduled duty hours, family negligence, irregular eating and sleeping habits, absence of entertainment and leisure activities, issues with seniors and below average living and working conditions.[2, 3] Since such studies have been mainly done in law enforcement officers elsewhere,[4] there are little scientific studies that show the stressor effects among various professions in a developing country like India, where bureaucratic practices and policy implementations are inherently political in nature. Pressures on bureaucrats by politicians are based on the logic of electoral politics.[5] This case report highlights the outcome of such occupational pressures, wherein the patient working as a high ranking bureaucrat sought dental rehabilitation of his severely worn, non-functional and non-aesthetic natural dentition. A multidisciplinary approach towards occlusal rehabilitation was done and the treatment was done in four different phases.[6]

Case Report

An adult male patient aged 53 years, was pursued by his daughter (a dental student) to seek dental treatment since her father regularly sought her opinion about his fast deteriorating natural dentition. After much deliberation, the female student finally was able to seek dental opinion for her father on one condition. The patient being a permanent resident of the college locationwas posted around 700 Kilometers away due to which he demanded appointments according to his convenience (only weekends). The patient was a high ranked government officer, who was posted two and a half years back,in an area where political pressures on the officer had led to the development of severe occupational stress. This was evident from his dental history and its relation to the current clinical situation of natural teeth. Medical history was non-contributory while social and drug history was non relevant. Clinical examination disclosed maxillary and mandibular natural dentition severely worn especially on the right side **(Fig.1 a)** while the maxillary left canine was spared of being worn **(Fig.1 b)**, since it had maintained its original height due to the right sided forced clenching by the patient. Wear of the teeth presented as category 2 (Turner and Missirlain classification). [7] Occlusal view **(Fig.1 c)** presented a picture where in some teeth, the wear process had reached to the level of gingiva on the palatal side **(Fig.1 d)**.

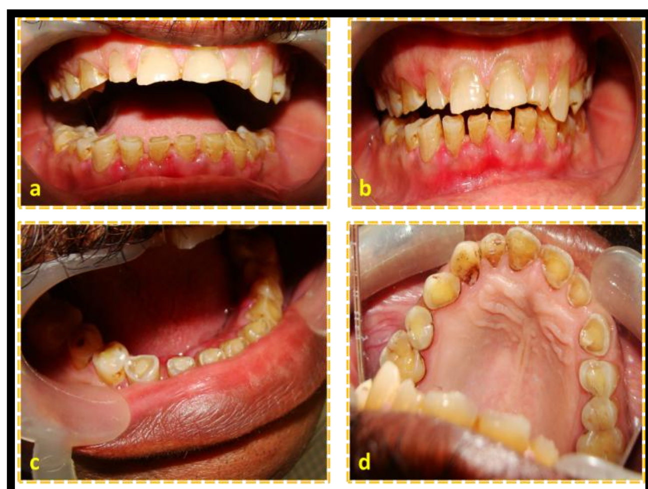

Figure 1: Severe attrition affecting canine guidance on the right side (a) while sparing on left side (b). Occlusal view of mandibular (c) and maxillary (d) teeth.

Radiographic evaluation revealed adequate amount of dentin protection to the pulp except in the right maxillary canine and first premolar for which an intentional endodontic treatment was advised to minimize pulp damage in the near future. Evaluation of the mounted diagnostic casts on a programmed semi adjustable articulator revealed vertical dimensions of occlusion maintained at the level of first and second molar on both sides. The treatment plan as consented by the patient included an oral prophylaxis followed by endodontic treatment of right maxillary canine and first premolar followed by single metal-ceramic crowns with full porcelain coverage in the maxillary and mandibular anteriors while metal occlussal on the maxillary and mandibular posteriors except maxillary right first and second molars and all maxillary left posteriors which were maintaining vertical dimensions of occlusion.

Materials and Methods

Primary diagnostic impressions were made in irreversible hydrocolloid (Thixotropic, Zhermach, Italy) from which diagnostic casts (die stone) were prepared which were mounted on a Hanau Widevue semi adjustable articulator (Waterpik, Ft Collins, CO, USA). The maxillary diagnostic cast wasmounted using a compatible face bow while themandibular cast was mounted using a centricinterocclusal record obtained using the technique of

bilateral manipulation of mandible. The vertical pin was adjusted after removal of centric interocclusal records and a need for occlusal equilibration was analyzed at this stage. Since vertical dimensions were maintained by the molars, this vertical dimension was not considered as the original one as all posteriors had undergone some degree of occlusal wear. Duplication of diagnostic casts was done followed by diagnostic wax up preparation of the planned teeth. A new occlusal scheme was developed which emphasized on development of static coordinated occlusal contacts of maximum number of teeth in centric relation with harmonized anterior guidance that would allow posterior

disclusion and canine protection while loading all teeth axially in a cusp tip to fossa contact occlusion.

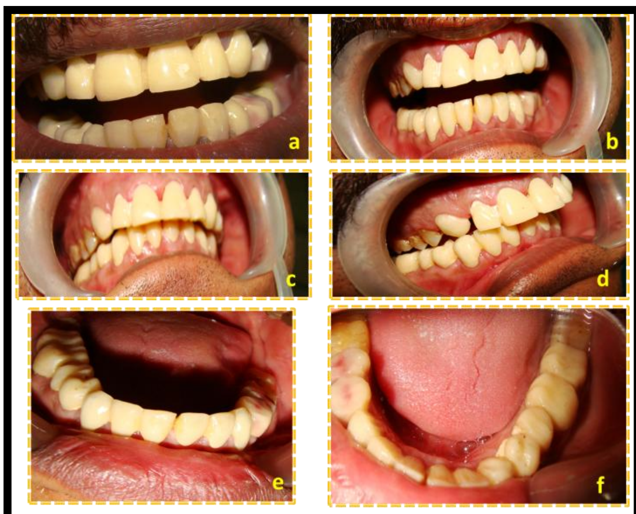

Figure 2: Temporary crowns formed from the diagnostic wax up on programming articulator (a, b) showing respective canine guidance at right lateral movement (c) and extreme right lateral movement (d). occlusal view of maxillary (e) and mandibular (f) temporary restorations after two months use

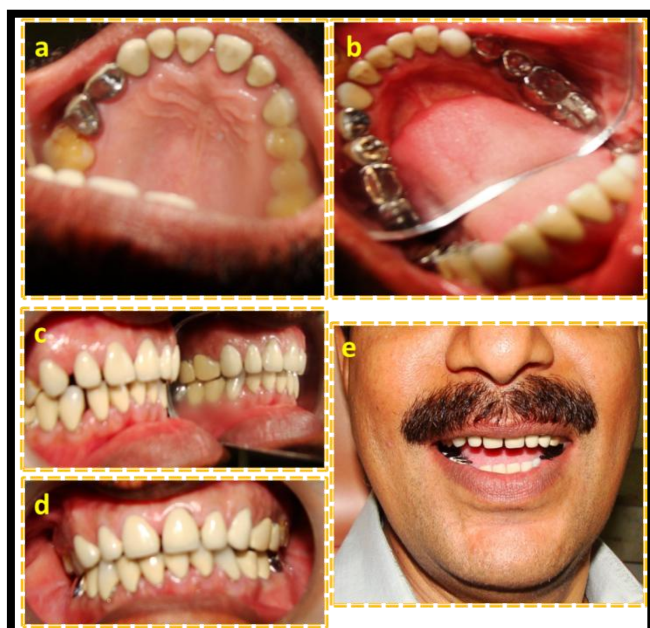

Figure 3: Definitive restoration of maxillary anterior arch (a) and mandibular arch (b). Restored canine guidance (c) and anterior guidance (d) that affected a mutually protected occlusal scheme. Patients extraoral appearance after complete occlusal rehabilitation (e).

At this point, an anterior stop was created on articulator which was followed by a fabrication of customized jig (Lucia). A diagnostic occlusal splint was fabricated on the casts of the existing natural dentition which served as a muscle deprogrammer as well as a future guide to verify vertical dimensions.[8]

Tolerance towards any vertical dimension increase along with the optimum development of right side canine guidance was achieved with temporary restorations (**Fig 2 a to f**).

Definitive full mouth rehabilitation was based on the principles given by Pankey Mann Schulyer while following Dawsons arch approach.[9]During the course of the temporary teeth trial, the functioning of mutually protection occlusion that was developed over a period of time was duplicated into the final restorations. Once the wearing of the temporary was stable, the temporary occlusion was observed for a period of one month following which definitive restoration fabrication was initiated. Maxillary arch was restored first against mandibular opposing occlusion in temporary crowns (**Fig 3 a)** followed by restoration of mandibular arch against definitive maxillary restorations and remaining natural teeth (**Fig 3 b)**. The final occlusal scheme in definitive restoration was thus similar to those of stable temporary crowns. The patient was highly satisfied with the aesthetic and functional outcome of the occlusal rehabilitation (**Fig 3 c, d, e**).

Discussion

In the current era of human civilization where urbanization is rapid, individuals prefer jobs over agriculture or a village life. Since social competition is in all sectors, one should learn to cope with the stress rather than allow it to affect one's health. Occupations like law enforcement officers are life threatening and expectations of risking lives are stressful on an individual.[10]Although, the profession of a doctor is also life threatening and involves risks but social understanding of such risks is non-existent. Occupational stress may manifest in the form of depression, irritability, impulsiveness, lack of focus[12]and may result in the development of non-functional masticatory habits as in this case. Inadvertent occupational stress also results in consumption of alcohol and tobacco, which in turn affect general health. Stress is also a risk factor to develop hypertension. [11]Attrition of natural teeth is perhaps one of the first warning signals to an individual under stress, since the human body is protected by such mechanisms where it reacts

adversely when exposed to abnormal stimulus. However, attrition of the teeth being a first warning signal to stress has not been scientifically established yet. The patient was sure of the fact that his dental condition became worse during the last few years, which was well supported by his daughter and his wife.

Complete rehabilitation of the mouth is an arduous task and the first task of such rehabilitation procedure should be to determine whether there is a need to increase the vertical dimensions of occlusion or the same dimensions is enough to accomplish occlusion. It gets even sensitive if the wear is rapid and lags behind the continuous eruption process as in this case. The decision to undergo an intentional endodontic treatment should be taken to keep the long term objectives of the treatment in mind. Other treatment options like implant supported prosthesis should be given consideration if existing occlusion permits. [13] Presence of an existing vertical stop between the opposing teeth may lure many to think that the vertical dimensions of occlusion are maintained. However, this is not the case if the teeth maintaining the vertical dimensions of occlusion have undergone cuspal wear. Cuspal wear of posterior teeth is an indication that the vertical dimensions of occlusion have been lost. Any posterior tooth, which has lost cuspal inclinations should be included in the full mouth rehabilitation process since it affects the development of cuspal anatomy of the remaining natural teeth.

Conclusion

There has been an increase in the number of patients that need full mouth rehabilitation of their natural dentition which otherwise is destroyed or damaged by non-carious causes. Whenever such cases are encountered, the need for restoring of vertical dimensions must be gauged first since treatments of such cases require a different approach.

Acknowledgement

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Disclosure

Authors have no conflict of interest with any individual, representative or agent of any company while publishing this case report

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