

From Single Discolored Tooth to a Full-Mouth Reconstruction

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Abstract

A full mouth reconstruction and rehabilitation is a reality. predictability and success can be achieved if the golden rules of healthy, functional, dynamic occlusion are tested and implemented in a structured, orderly manner to secure the multiple intricate phases of treatment.

How do you address healthy, functional occlusion to a person who doesn't have any pain, discomfort, or concern? This is the greatest challenge that facing dentists who try to achieve and provide optimum dental care for all their patients.

Keywords: Single Discolored Tooth; Full-Mouth Reconstruction

Introduction

A majority of dentists cannot articulate and present the benefits and value of optimal care to their patients, especially if the patient doesn't have any symptom like pain or discomfort. Accordingly, these dentists provide patch-up dentistry, which doesn't last and leaves the patient unhappy with the outcome and the dentist professionally dissatisfied with his/her performance due to failing to transfer the benefits of achieving their end goals

of proper treatment: health, aesthetic, beauty, function, longevity and stability.

Case Report

A 62-year-old male presented to our office with the chief complaint of a discolored tooth #8: "I don't like the color of my front tooth". What transpired was a journey from a single discolored tooth to a full mouth reconstruction.



Figure 1

As the first step, a full comprehensive oral-muscular examination was performed: full mouth x-rays and full upper and lower diagnostic models were taken. Additionally, face bow record

to mount the upper cast and CR records were taken by the bimanual manipulation technique with the first point of contact to record any deviation, deflection or fremitus in occlusion.

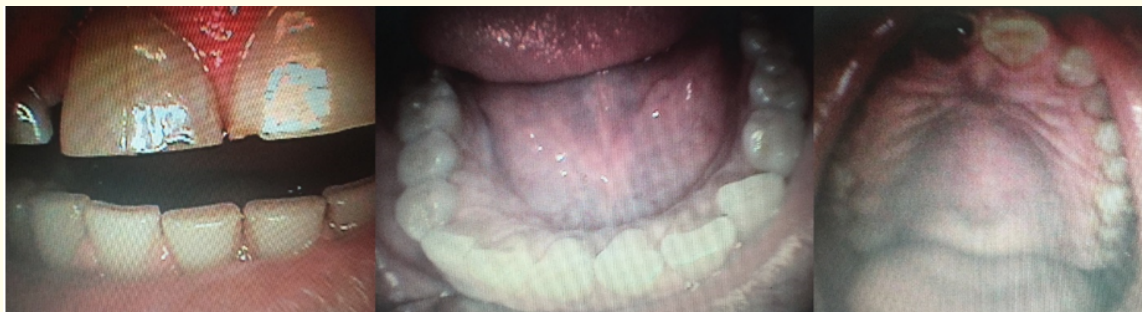


Figure 2

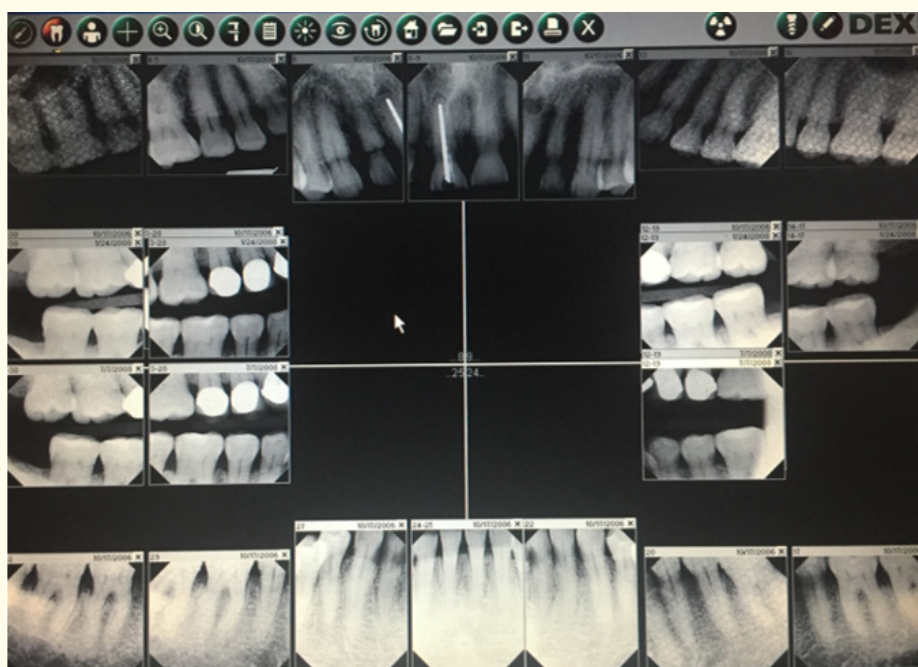


Figure 3

Before starting any prosthetic work, as a diagnostic methodology it is of a great importance to make sure the condyles are completely seated in CR position without any pain or tenderness and to remain stable for a few months. In order to achieve this, an orthopedic physiological occlusal splint (deprogrammer) was constructed on the lower jaw on CR records mounted on the articulator, establishing four points of even contact on the left and right side simultaneously. The splint was then utilized to relax the mastication muscles as the first step of occlusal therapy and to differentiate between occlusal muscular disorder or true internal derangement of the joint.



Figure 4

In 1983, it was determined by Williamson and Lundquist [1], via electromyographic activity, that the muscles of mastication were shown to be at rest during canine guidance more than during group function, suggesting that canine protected occlusion reduces muscle strain.

The goal is to find and locate the centric relationships ("CR"), regardless of the teeth's position-CR is the relationship between the upper and lower jaws which is the condyles to be seated in the glenoid fossa without strain or force. The CR is considered a great reference point on how to start and end up with a healthy and stable bite. A complete charting, periodontal examination revealed moderate horizontal bone loss. However, occlusal exam revealed attrition, abrasion, clenching, grinding. Additionally, the teeth were flattened and significantly worn down, with further occlusal analysis we found the following occlusal scheme:

- 1. No cuspid protected occlusion was found
- 2. Slight bilateral group function and considerable deflection from the third molar in protrusive movement which predicts the lack of anterior guidance. As it shows in figure one, it's edge to edge in class III malocclusion.

Wiens, *et al.* provides a discussion on occlusal equilibration. The definition of occlusal equilibration is, "the elimination of prematurities or deflective occlusal contacts or [creating] harmonious gliding tooth contacts, which reduces off-axis loading or atypical wear patterns" [2]. Specifically, on those patients who are symptomatic or those who will be undergoing. They also argue for a mutually protected occlusion and that the goal of occlusal therapy is to create stability and harmony by which ever means is appropriate for the patient in each specific case. There should not be any balancing interfering contacts during any movement in all cases in a natural and prosthetic dentition. Wines, *et al.* also including support for a canine protected occlusion because of its effectiveness in eliminating occlusal interferences during laterotrusive, mediotrusive, and protrusive excursions.

The master treatment plan and the blueprint was constructed as follows:

- 1. Redo RCT on tooth # 8, cast post, and all porcelain crowns on teeth #'s 4 → 13 and cast gold on all upper molars.
- 2. The proposed and approved treatment plan by the patient is to lengthen the clinical crowns of teeth #'s 4 → 13 and teeth #'s 20 → 29.
- 3. Removal of lower teeth #s 17 and 32.
- 4. Complete perio-osseous surgery for four quadrants to remove all diseased bone and reducing pocket depth and establishing a better, healthier perio environment for the more definitive prosthetic work.
- 5. Construction of lower porcelain veneers on teeth #'s 22 → 27, PFM on premolars #'s 20, 21, 28, 29, and complete cast gold crowns on tooth #'s 18, 19, 30, 31.

Due to severe grinding and attrition, the patient lost all his posterior holding contacts. Therefore, the mandible slide forward and gave a pseudo class III impression.

A diagnostic wax-up was made and presented to the patient. Then this was transferred to a set of acrylic provisionals. By utilizing the models, copying the diagnostic wax up, and having a plastic tray made on the models, they served us as a guide during the surgical crown lengthening procedure to determine how much we needed to remove from the soft and hard tissues to achieve appropriate length of the upper and lower anterior teeth.

- Lower anterior teeth #'s 22 → 27 was prepared for veneers. Luxatemp was used as a temporary restoration.
- Upper anterior and bicuspid teeth #'s 4 → 13 were prepared for full porcelain crowns, acrylic crowns were used as a temporary restoration.
- All bicuspid were prepared for PFM.
- All molars were prepared for full casted crowns.
- It's noteworthy that temporary restorations will chip and wreck for 2 - 3 times during 2 - 3 months of being temporized by acrylic which is considered normal for adjusting to a new normal bite. From deprogramming to reprogramming, the muscles will accept and adopt to the new muscular position.



Figure 5

Discussion and Conclusion

The patient was very cooperative and receptive to a full mouth rehabilitation treatment although it took 12 months to finish the entire treatment. Additionally, the patient continues to wear the occlusal splint to protect the restorations from possible damage and to provide reasonable guidance during the night in case of any non-conscious excursive movement.

The patient reported no muscle pain or discomfort and appreciated the outcome by elevating the dental IQ of the patient. Moreover, by creating a form of simple steps to a complete occlusal rehabilitation and breaking it into small procedures, we can test drive the outcome of every phase of the treatment before getting

to the next phase and making more definitive changes if needed for long-term success.

Very often manipulation of occlusion can be tough and acceptance is never guaranteed; however, predictability was achieved and accomplished by providing education to the patient and creating the proper form and function to assure the cardinal goals of successful treatment which are:

1. Function
2. Health
3. Beauty
4. Longevity
5. (and most importantly) Stability.



Figure 6

A significant amount of time was spent educating and demonstrating the benefits of the therapy to the patient; both risks and rewards were addressed as well as.

Canine protected occlusion was the occlusal scheme of choice for restoring the patient's dentition due to:

1. The canine has a good crown and root ratio capable of tolerating high occlusal stress and it is the patient's strongest tooth to bare the lateral excursion forces.
2. The upper canine root has a greater palatal surface area which is suitable for guiding lateral movement

3. The canine is the best tooth to play a pivotal role in cross-over movement (extreme lateral – protrusive to protect the four incisors).
4. The canine provides the best proprioception in the anterior region.

Below are the before and after pictures of this patient's full-mouth rehabilitation treatment. Please note the transformation from pseudo-Class III occlusion to Class I occlusion.



Figure 7

Bibliography

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