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CASE REPORT

Esthetic crown lengthening for maxillary anterior teeth: an interdisciplinary case report

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ABSTRACT
Dentists are called on to provide restorations that are harmony with the lips, the face, the adjacent teeth, and a healthy periodontium. Periodontal theraphy plays an important role in the esthetic rehabilitation of the maxillary anterior segment, especially if the periodontal disease is present. This case report describes an interdisciplinary approach to the management of upper central incisors and application of Turkom-Cera all-ceramic fixed partial denture.Turkom-Cera all-ceramic fixed partial denture provides adequate aesthetics and function.
Keywords: Crown lengthening, all-ceramic restorations, Turkom-Cera.

INTRODUCTION

Dental esthetics has become a main topic among all disciplines in dentistry. Careful technique should lend objective esthetics to the entire orofacial complex, involving unity, form, structure, balance, colour, function, and display of the dentition. On the other hand, the creation of subjective beauty may enhance cosmetic value. [1,2]

The esthetic value of a cosmetic restoration may be compromised by other factors contributing to the composition of a pleasing smile, such as amount of gingival architecture, clinical crown dimensions, and tooth position.[3]

An interdisciplinary approach is necessary to evaluate, diagnose, and resolve esthetic problems using a combination of periodontal, and restorative treatments.[3]

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Until recently, the scope of esthetic rehabilitation was limited to a close replication of tooth structure on a healthy periodontal foundation. In the past, periodontal theraphy, was aimed primarily at the elimination of disease, sometimes at the expense of esthetics. However, the scope of periodontal theraphy has expanded. The primarily goal remains to maintain dentition with a healthy intact dentogingival unit. Periodontics has now entered the age of periodontal plastic surgery.[4]

A thorough knowledge of the normal anatomy and the interplay between the restoration and the periodontium is essential to achieve a predictable successful esthetic rehabilitation of the smile when prosthetics are planned in the maxilarry anterior region. Communication between the prosthodontist and periodontist is essential in these cases. Periodontal theraphy plays an important role in the esthetic rehabilitation of the maxillary anterior segment, especially if the periodontal disease is present. If the periodontium is healthy, the role of

periodontics in smile rehabilitation is limited to crown lengthening. These include caries removal, increasing crown length for the retention of the restoration, restoration of the tooth without violating the biologic width, and eshetics via an alteration of the gingival labial profile.[4]

With an increased demand for esthetics and concerns about toxic and allergic reactions to dental alloys, full coverage all ceramic crowns have become very popular with both patients and clinicians because of their highly esthetic results and biocompatibility. Furthermore, metal-based crowns have other disadvantages, such as galvanic reaction, and the darkline which can be seen through the metal underlying the veneer's porcelain.[5]

The high strength all ceramic materials that are currently used in dentistry consist of alumina, zirconia, pressed, castable or machinable glass ceramics.[5]

A new all ceramic alumina core material, Turkom-Cera (Turkom-Ceramic (M) Sdn. Bhd.,Puchong, Selangor, Malaysia) is being introduced in an attempt to provide a high quality, high strength, cost-effective coping that will result in improved clinical success. This high strength all ceramic core material contains primarily aluminum oxide (99.98%).[5]

This case report describes an interdisciplinary treatment philosophy designed for developing the foundation for optimal esthetics.

CASE REPORT

A 33-year-old woman who was complaining about her unesthetic crowns on her upper central incisors, was referred to Ankara University Faculty of Dentistry Department of Prosthodontics and she desired to improve her dental appearence. Her medical history was noncontributory without contraindications for dental treatment. Clinical examination of the patient revealed functional Angle Class 1 dental relationships. There was gingival display on smiling. Diagnoses included incompatible porcelain fused to metal crowns due to the gingival recession on the right central incisor. The gingival margins of the central incisors were not at the same level (Figure 1). Because of the range of conditions that had to be addressed for optimal esthetic results, an interdisciplinary approach was followed. The proposed treatment was crown lengthening surgery and all ceramic restorations.

Figure 1. Initial presentation. Note the gingival recession on the right central incisor.

Periodontal surgery was performed for the upper left central incisor. Inverse bevel, submarginal incision was made. A facial full thickness flap with elevation of the mucogingival junction was made. The new gingival level of the upper left central incisor was established relative to the gingival margin level of the upper right central incisor. Postoperative healing was uneventful, and soft tissue levels remained stable throughout the healing and restorative phases. During the healing period of two weeks the patient used provisional crowns in accordance with the new gingival height.

After two weeks, tooth preparation was performed with a chamfer marginal design. Because of the esthetic concerns, a high strength all ceramic core material Turkom-

Cera was chosen as the final restoration (Figure 2). Turkom-Cera was preferred due to its high quality, high strength and cost-effective copings.

Figure 2. The high-strength all ceramic copings of Turkom-Cera.

Final treatment outcomes in terms of function and esthetics satisfied the expectations of both the patient and the interdisciplinary group (Figure 3). The completed prosthesis was luted with a resin cement (Clearfil SA Cement, Kuraray America, Inc., New York).

To date, the restorations have been in function for one year without any complications (Figure 4).

Figure 3. Final result.

Figure 4. Labial view of the restorations after one year.

DISCUSSION

This case report outlines a comprehensive interdisciplinary treatment philosophy designed to enhance and improve a patient's anterior esthetics. The management of an anterior gingival display requires adequate treatment planning. A multidisciplinary planning approach, including periodontics and prosthodontics has an important role in the final outcome of the treatment.

A common mistake that many dentists make is initially focusing on the teeth without regarding to the surrounding soft tissue frame. Our choice for the treatment of this patient was a combination of periodontal therapy and esthetic crown lengthening surgery. Restorative dentistry has seen a tremendous evolution in the quality of dental materials. Natural-looking restorations are now possible. Turkom-Cera is one of these dental materials. In order to provide satisfactory all ceramic restorations, strong alumina cores have been produced. Recent studies have shown that Turkom-Cera demostrated equal to or higher loads at fracture than accepted all ceramic materials.[5-7] It would seem to be acceptable for fabrication of esthetic anterior ceramic crowns.

CONCLUSIONS

This presented clinical report demonstrates that the use of Turkom-Cera crowns after periodontal surgical procedure is effective for esthetic reconstruction of the upper anterior teeth. This alumina core material has functioned favourably without any fracture or colour degradation for 1 year. In addition, clinical crown lengthening surgery can develop an esthetic soft tissue profile and sufficient tooth structure for preparation and restoration.

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