



SMILE AESTHETICS AND FUNCTIONAL REHABILITATION – A CASE REPORT.

Medical Science

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ABSTRACT

Smile enhancement or restoration of appropriate aesthetics and function in anterior aspect plays a very important role to the patient. Internal or external stains, midline diastema and proclination in anteriors can low down patients confidence, depressed and turn patient socially inactive. A 22 year age female patient came with the chief complain of diastema and, discoloration with upper anterior teeth, sought dental treatment because she was not satisfied with her facial appearance. The patient started with appropriate radiographic investigations drawn diagnosis of complete root canal obturations and clinically it was seen that there was incomplete and wrong attempt for tooth preparations with respect to 12, 11, 21 and 22. This case report deals with the prosthetic restorative management of the anterior teeth which provides an excellent esthetic result.

KEYWORDS

Zirconia ceramics, aesthetics, FDP fixed dental prosthesis, polyvinyl siloxane impression.

INTRODUCTION:

Special importance is given to restore aesthetics and function in smile zone of a patient. It is a known fact that an individual turns psychologically depressed and socially inactive if his/hers smile is dissatisfactory due to discoloration, proclination or Diastema. Multiple options are available to treat problems arising in the zone of high esthetic sensitivity. Every treatment modality has some advantages as well as disadvantages. Porcelain veneers are considered much more conservative in terms of requirement for preparation as well as they provide satisfactory and long-lasting esthetic results [1].

This confirms the importance of the upper central incisors in evaluating smile esthetics, it also highlights a question: what is the most attractive vertical position of the upper central incisors, with respect to gingival contour and incisal edge, in the smile analysis? The methodology to clarify this question is difficult because when the vertical position of the upper centrals is altered, one not only evaluates the position of the gingival margins but also the incisal edges. It was found that laypeople did not perceive a smile in which the gingival margins of the upper centrals were 1.5 mm below the line of the canines as unattractive. When the incisal edges were evaluated, many studies found that a smile in which the central incisor edges are above the canine cusps, creating a reverse smile arc, are considered unattractive [2].

Case Report:

A female patient age 22 years reported to 32 Dental Bites and Implant Center (mumbai), with the chief complaint of diastema and discoloration of upper anterior teeth. She came to seek dental treatment because she was not satisfied with her facial appearance. On intra oral examination, patient had a crooked and ill shaped 12, 11 21, 22, an appropriate radiographic investigations showed complete root canal obturations and clinically it was seen that there was incomplete and wrong attempt for tooth preparations with respect to same. [Figure 1]



Figure 1, pre-operative photograph.

Restorations planned was Zirconia based dental ceramic restorations for same. At the first appointment facebow jaw relation was recorded, transferred to Hanau™ Wide Vue Arcon articulator and wax mock-up was initiated with 12 to 22 on the mounted maxillary cast. Right after mockup was completed a putty index was made. [Figure 2]

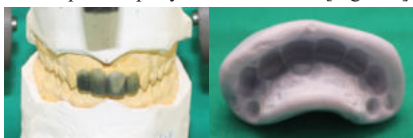


Figure 2, wax mock-up and putty Index.

With the help of this index, composite build-up was done and appropriate tooth preparations with 12 to 22 with shoulder margins all over were made. Gingival retraction cord was tugged in and final impression was made with double mix single step impression technique with polyvinyl siloxane impression was made in upper arch using Aquaseal®. [Figure 3]



Figure 3, Gingival retraction with 12 to 22.

Splinted temporaries were fabricated intraorally using protemp™ with the same putty index made previously for mockup. Next ceramic copings were approximated on the prepared tooth and checked for any hindrance in centric and eccentric occlusion. [Figure 4]



Figure 4, all ceramic copings with 12 to 22.

Later four fabricated zirconia based dental ceramic crowns 12, 11, 21, 22 were tried, inspected for marginal fit and cemented on the prepared tooth with self-cure resin cement and post-operative instructions were given to the patient. The post-operative view of the cemented restorations is illustrated in [Figure 5].



Figure 5, zirconia based dental ceramic crowns with 12 to 22.

DISCUSSION:

High expectation of patients and dentists for esthetic restorations has resulted in a trend to substitute metal-ceramic restorations with metal free restorations. The ceramic systems offer improved esthetics, biocompatibility, and long-lasting restorations and are an excellent alternative for the rehabilitation of anterior teeth, having been increasingly used with high success rates.[3] Dental ceramics represent a great part of aesthetic rehabilitative treatments. They are reliable materials and provide satisfactory clinical results, as they reproduce the characteristics of natural teeth. Metal-ceramic crowns have been used for more than 50years. The evolution of research on the development of ceramics presented a new option, in which the metal infrastructure was eliminated; producing crowns that were more precise and resistant to fracture and these were better known as metal-free prostheses [4]. To achieve esthetic and functional harmony, treatment planning is usually realized using waxups for diagnosis[5].

Ceramic restorations are widely used in the rehabilitation of anterior and posterior teeth, and many ceramic systems have been developed for clinical use [6]. Zirconia-based dental ceramics are stronger than conventional glass-ceramic restorations and have excellent mechanical strength properties. [7] They can be used to fabricate single crowns and three-unit fixed-bridge frameworks, considering that zirconia flexural strength is approximately 900-1100 MPa.[8].

Zirconia resistance is questioned in high masticatory forces areas, it can be considered the most suitable substructure ceramic in rehabilitation for anterior-free contact teeth [9], [10].

After a year the cementated FDP's were checked, it was observed that it was stable, without any modifications, and the patient was happy and comfortable with the rehabilitation.

CONCLUSION:

All-ceramic use in prosthetic restorations is increasing with maximum patient acceptability and this trend will increase in coming years. Modifications in strength of ceramic materials have proved promising for all-ceramic restorations. But simply using an all-ceramic restoration will not ensure predictable esthetic success. Precise look out for over all detailing with regard to tooth preparation, cervical margin design and location, soft-tissue is equally important.

Impressions making are crucial to success. Proper selection of materials with proper knowledge of using the techniques also is essential. Following correct shade matching procedures, Correct luting protocols are important in long-term success.

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