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SMILE DESIGNING BY FIBER REINFORCED POST CORE AND PRESSABLE CERAMIC CROWN: A CASE REPORT.

Dental Science

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ABSTRACT

Esthetic restorations involving anterior teeth are highly demand of the patients. Increasing patient expectations and the search for metal-free restorations have led to the birth of all-ceramic restorations. Enhancing esthetics by pressable ceramic restorations must combine the mechanical properties of metal and optical properties of ceramics to be accepted as alternative to porcelain-fused to metal restorations. Pressable ceramic crowns require all ceramic post and core as foundation restoration, as they help to bring about the best possible esthetic outcome. This article presents clinical case report of old porcelain fused jacket crown replaced with fiber reinforced post and core followed by Emax Ivoclar pressable all ceramic crown.

KEYWORDS

Pressable ceramic crown, fiber reinforced post and core.

INTRODUCTION

Increasing patient expectations regarding the appearance of restorations test the skill of clinicians and total patient satisfaction is still a challenge in each and every case. Porcelain fused to ceramic (PFM) restorations has their own esthetic limitations. The introduction of improved pressable ceramic systems makes it possible to achieve optimal esthetics along with the necessary mechanical properties to withstand functional stresses. The potential of these materials to be bonded to enamel and dentin has also contributed to the increased application of metal-free crowns in recent years. Endodontically treated teeth and fractured teeth often need a post and core as foundation for the final restorations. The restoration of anterior nonvital teeth with metal post and cores will defeat the very purpose of all-ceramic crown by compromising on the esthetics. Metal posts may shine through the all-ceramic crowns and thin gingiva or at the least decrease the depth of translucency of the restoration. Presently, improved ceramic materials and porcelain bonding systems have resulted in successful metal-free restorations. This has created a need for a post-and-core system capable of combining the optical properties of ceramics and the good mechanical properties of prefabricated fiber posts. Fiber reinforced posts are gaining popularity as an ideal pressable ceramic crowns as they provide optical properties for post/cores similar to that of all-ceramic crowns.[1-4] Fiber reinforced posts are highly esthetic, bond satisfactorily to dentin and to build-up resin through adhesive resin-based cement. They are highly radio opaque in comparison to other metal-free posts, and they are compatible with composite and ceramic. [5,6]

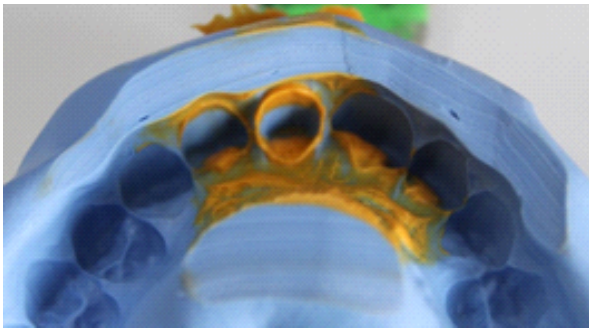
CASE REPORT

A 18 year-old girl reported to Dept. of Prosthodontics with cervical gingival recession in upper left incisor of PFM crown [Figure 1].

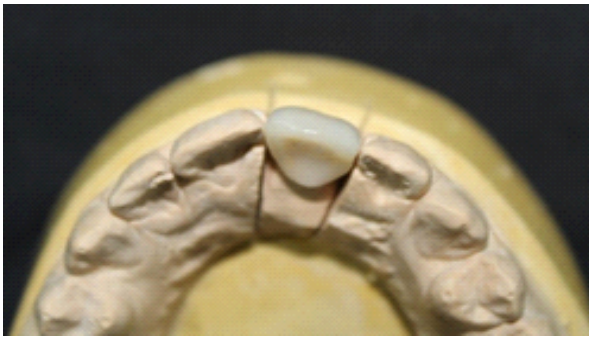
After a diagnostic intraoral periapical radiograph was exposed, it was shown root canal of 21 was done and PFM was given. We have formulated an optimum treatment plan which is suitable for this case. The treatment plan includes removal of old PFM crown [Figure 2] followed by fiber reinforced Post and core restoration by resin followed by pressable ceramic crown (IPS Empress Esthetic, Ivoclar/ Vivadent).

Accordingly Post space was prepared using the Pesso & Gates Glidden drills provided by the five millimeter of gutta purcha was maintained apically. The length was verified by means of an intraoral periapical radiograph. Fiber reinforced post was cemented by resin cement followed by core build up done [Figure 3].

Tooth preparation for receiving a crown was completed with deep chamfer as the finish line. Gingival retraction was performed using cord #00 size (Ultradent Products, Utah, USA). Impression was made using poly vinyl siloxane. A two-step putty wash technique was followed [Figure 4].



Provisional restoration was fabricated using light activated acrylic resin and luted. The pressable ceramic crown was fabricated in the laboratory (IPS Empress Esthetic, Ivoclar/Vivadent) [Figure 5].



In the next visit, the pressable ceramic crown was tried on the core and checked for marginal fit, occlusion and esthetics. Gingival retraction was performed before cementation to enable the removal of the excess luting agent. Final cementation was carried out using dual cure composite resin (Variolink, Ivoclar/Vivadent) [Figure 6].

Patient was happy with final outcome of the treatment [Figure 7].

DISCUSSION

Facial esthetics plays crucial role in individual's personality especially natural dentition. Poorly restored PFM crowns occasionally pose black line and gingival recession in cervical region of the tooth which creates lots of problems when individual smiles. Replacement of poorly restored PFM crown followed by highly esthetic all ceramic crowns is the ideal and most suitable treatment plan for enhancing esthetics of an individual. Post and core is needed when the crown structure is very less. Fiber reinforced post is recommended in anteriors where esthetics is prime concern. Type of finish line has to be deep chamfer and Placement of the finish line should be sub gingival. Deep chamfer finish line will give adequate bulk to all ceramic restoration which will be helpful in enhancing esthetics. Sub gingival finish line will be helpful in hiding the margins of all ceramic crowns especially when an individual smiles. Provisional's should be advised for three weeks for creating natural architecture surrounding the temporary cap. These protocols are helpful for enhancing esthetics when it is required.

CONCLUSION

All-ceramic systems (posts and cores and crowns) offer a promising alternative to the restoration of anterior teeth with metallic cast posts and porcelain fused to metal crowns. The esthetic results obtained by the use of all-ceramic systems are exceptional.

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