Case Report

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Endoesthetic Management of Abraded Discolored Maxillary Central Incisors with single visit endodontic (SVE), Custom Metal Post & Core followed by Porcelain Fused to Metal (PFM) Crown: A Case Report

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ABSTRACT

Background: Smile designing is a manual or digital technological creativity nowadays, but it depends on clinical knowledge and expertise in their field for providing esthetics. Maxillary central incisors are more challenging for restoration to maintain facial symmetry and morphology. Esthetics also has a psychological impact on patient behaviour, like self-confidence, emotional, and social health. PFM, Metal-free zirconia crown, a veneer can help for more esthetics correction such as colour shading, deformities of the tooth, abraded and discolored tooth, to correct anatomy and morphology. The metallic custom post systems help in the proper inclination for anterior maxillary teeth by a change in angulations in severely proclined teeth.

Keywords: Endoesthetic, Post & Core, Maxillary Central Incisors.

INTRODUCTION

The facial surface of the maxillary central incisor is a prone area for trauma or noncarious cervical lesions (NCCLs) that affect the hard tissue enamel, restorative material except ceramics does not withstand in the facial or cervical surface. Abrasion is the pathological wear of tooth substance through repeated frictional processes caused by external mechanical means, for example, tooths brushing.

Erosion is the dissolution of tooth structure due to intrinsic or extrinsic chemical attack by acids. Abfraction is a pathological loss of tooth substance due to the concentration of stresses in the cervical region caused by excessive biomechanical cyclic nonaxial loading forces.[1, 2] Now a day's esthetics play a major role while restoring natural teeth. Modern dentistry aims to restore the abraded proclined teeth with function harmony and better esthetics. It is proved that the successful treatment of a compromised tooth which needs prosthodontic treatment post & core and PFM crown depends on endodontic therapy. Quality knowledge of contemporary endodontics have marked dominating effect on successful SVE includes, access opening, cleaning, and shaping, irrigation, obturation are milestones for treatment.[4, 5]

Various factors affect the outcome of treatment like patient education, and the prevention of further dental disease, diagnosis, periodontal status, operative skills, occlusal considerations, and correct the coronal alignment by the fabrication of post-core followed by PFM are necessary for success.[6, 7] This case report article aims to describe the esthetic management of abraded discolored maxillary central incisors with SVE, custom metal post & core followed by PFM Crown.

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CASE REPORT

A 36-year old male patient reported in the Department of Conservative Dentistry And Endodontics. The patient complains of proclained and discolored in his upper region of the jaw for 15 years. Diagnose a noncarious lesion with chronic facial abrasion without any apical pathology. We suggested two options for correction treatment 1) Orthodontic and 2) Endodontic with SVE, Custom post& Core followed by PFM crown correction. Patient choice is endodontic correction because of time duration and cost. Intentional SVE started under rubber dam isolation with a foldable frame, and access opening (# 11, 21) was done under local anaesthesia (Lignox *2% Adrenaline). Working length was measured as 20.50 mm in #11, and 21mm #21with 15 size K-file (Sybron Endo, Korea) using an apex locator(Aped ID, Sybron Endo, Korea) with radiographic and electronic apex locator (Apex ID) and confirmed with a radiograph. Cleaning and shaping were done with the crown down technique, and the master apical file was #25 6%. Disinfection Using 3% sodium hypochlorite (Parcan, Septodont health LTD), followed by Ethylene diamine tetraacetic acid (EDTA) (Metabio) in between each file size. Final irrigation was done with 2% chlorhexidine (Parcan, Septodont health LTD). Sterilized Paper points 25 6% was used for drying the canal; obturation was done with 0.06 tapered gutta-percha and Seal Apex (Sybron Endo, Korea) by cold lateral condensation and same time Post space preparation done with pesos # 2,3,4. After that core was prepared with a crown preparation kit for shoulder margin 1.2-1.5 mm and ferrule preparation. Facially bulk tooth preparation than the palatal to correct the inclination of the teeth. Green inlay wax was used for post and core wax pattern and sent for casting procedure. Cementation of post and core with glass ionomer luting cement in the canal space of the anterior maxillary teeth 11 and 21 followed by the cementation of the PFM crown. (Figure1, Figure2)

DISCUSSION

Orthodontic treatment is the first-line strategy for the esthetic management of proclined or rotated teeth, but treatment depends on patient attitude towards time duration, cost, and treatment difficulty in that case-patients agree, the only other option for the satisfactory esthetic restoration of such teeth is the change in angulations of the coronal portion of the tooth with intentional SVE, post and core followed by the PFM of the crown.[8-11] With recent advances, SVE is modern and more effective therapy than multiple visit root canal treatment.[12]

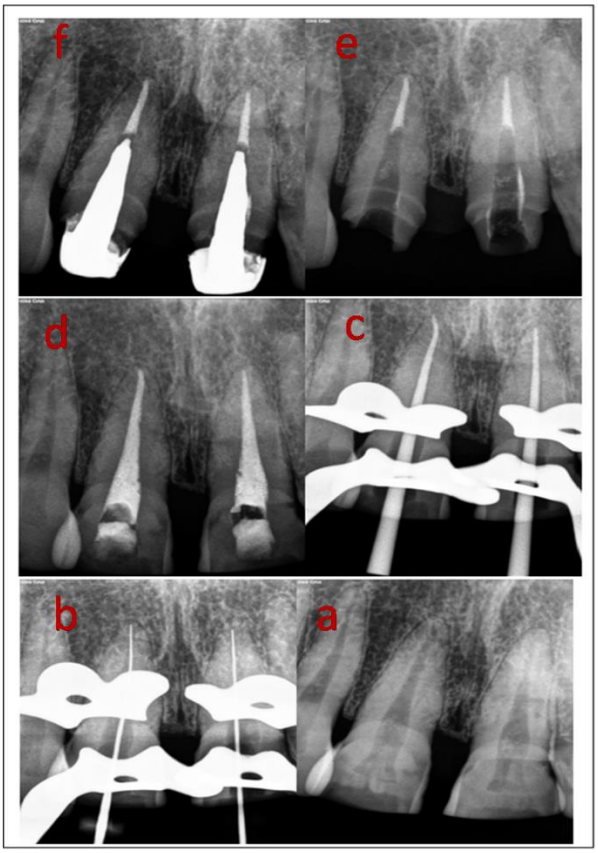

Figure 1 (a) Preoperative radiograph, (b) Working length, (c) Master Cone, (d) Obturation, (e) Post Space Preparation, (f) Post cementation

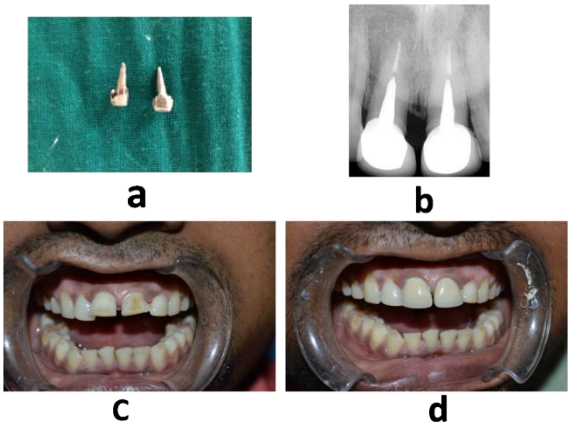

Figure 2 (a) Photograph of posts, (b) PFM crown cementation IOPAR, (c) Pre Treatment Photograph, (d) Post Treatment Photograph

The second treatment option for an abraded discolored anterior tooth is to restore it with a custom made cast post and core or prefabricated posts followed by full coverage crowns. The fabricated anatomical cast post and core provide better adaptability in canal space, less stress on a dentinal wall, inclination designing possible to produce a more anatomical and morphological shape for the crown of the proclined teeth and high fracture resistance in compare to prefabricated post. The advantage with anatomical cast post and core is core was an inbuilt and single-piece metal part that does not require any mechanical support like a prefabricated post. Prefabricated posts are depending on cement for retention because of their ease of placement, ready to use, less time consuming, lower cost, and the ability to restore a tooth for immediate crown preparation, therefore, more popular these days.[4, 5, 13] Golden rule for post and core apically to maintain good seal 5mm of gutta purcha with dead space between >0-2 mm for better prognosis.[14]

Many reasons for the failure of post retained restorations like secondary caries, endodontic failure, periodontal disease, post dislodgement, cement failure, post-core fracture, crown core separation, loss of post retention, and loss of crown retention, post distortion, post-fracture, tooth fracture, and root fracture. Also, corrosion of metallic posts has been proposed as a cause of root fracture.[5]

Now a day's diagnostic aids like a cone-beam computed tomography (CBCT), radiovisiography (RVG), and to improve visualization like endodontic microscopes, surgical loupes have played an esteemed role in contemporary endodontics.[12] To fulfilled the patient's esthetic demand as well as functional rehabilitation and to improve clinical knowledge of dental professionals, this is my purpose in reporting these cases.

CONCLUSION

In this case report, it can be concluded and highlighted that the main indications of customized cast post and core for abraded and discoloured are in a case where the angulations of both maxillary central incisors need to be corrected, to improve the strength and durability of the teeth and to achieve retention and esthetics of the restoration. The esthetic management of this above case report is simplified and effective to fulfil the patient's expectations concerning the esthetic and functional requirements of the patients.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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