Pre-Fabricated Posts Placement And Core Build Up With The Help Of Everstick Post And Tenax Fiber Post-Essential Component Of Endodontic Therapy-(A Clinical Case Report)

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Abstract:

The longevity of endodontically involved teeth has been greatly enhanced by continuing developments made in endodontic therapy and restorative procedures. These devices vary from a conventional custom cast post and core to one visit techniques, using commercially available prefabricated post systems. Recently another system Patented IPN technology is at the heart of everStick fibres.Ever-Stick fibre bundles have up to 4000 individually silanated E-glass fibres that are fully impregnated with resin.

EverStick-POST is an ideal solution for curved, oval and large root canals, offering the advantages of a cast post but with superior bonding ability. Adapts to the morphology of the canal to maximize the adhesive surface and the strength in the most critical part of the tooth.

Keywords: Ever stick posts, IPN technology, Silanated E-glass fibers

Introduction

Post endodontic restoration plays an important role in the success of root canal treated teeth. Many in-vivo studies have highlighted endodontic treatment as the major etiological factor for tooth fracture. Restoring non vital teeth represents a major challenge for clinicians. Endodontically treated teeth are more prone to fracture than vital teeth, particularly in the posteriors where the stress generated by normal functional forces can lead to fracture of undermined tooth structure.

Cast post-and-core has been the most commonly used post type. Unfortunately, several disadvantages are associated with conventional cast post-and-cores, such as loss of post retention ,root fractures and risk of corrosion. During the preparation of teeth to receive cast post-and-core, larger amount of root dentin is removed, increasing the risk of tooth fracture.

Stress concentration in the post and higher dentin strain have been verified in teeth restored with cast post-and-core and other metallic posts. The introduction of carbon or glass fiber post systems provided an alternative to cast or prefabricated metallic posts for the restoration of endodontically treated teeth . These post systems present similar mechanical properties to those of dentin, resulting in similar stress patterns as those of intact teeth . Additionally, root canal preparation for these types of post systems is more conservative. There are many factors that affect post selection and this case study focus on the following:

1. Canal configuration and post adaptability
2. Coronal tooth structure

Case- Report:

A 48 year old patient reported to the department of conservative dentistry and endodontics in Divya Jyoti Dental College with the chief complain of pain with respect to upper front tooth region specifically irt to 11 and 21.upon clinical examination it was revealed that the tooth was in a state of severe attrition and the inciso cervical dimension of the tooth was reduced and was very fragile with reduced contact irt to 11 and 21. Medical history of the patient was recorded and was totally non-significant with no prevalence and presence of any medical disorders.**(Pre-Operative View)**

Procedure:

STEP 1:

Access opening was done under local anaesthesia with respect to tooth no 11 and 21 and working length was determined with the help of radiovisiograph.**(Working length irt to 11 , Working length irt to 21)**

STEP 2:

After determination of the working length, thorough biomechanical preparation was done with help of NEO-ENDO FLEX rotary files with 6% taper, irrigation was done with saline and 3% sodium hypochlorite, and master cone was inserted in the prepared canal irt to 11 and 21. **(Master cone placed irt to 11 and 21)**

STEP3:

After adequate placement of gutta percha,the process of obturation was done with the use of resin based sealer and excess gutta-percha was seared off till the coronal orifice of the tooth structure irt to 11 and 21.**(Obturation done irt to 11 and 21)**

STEP4:

Post space preparation is done with the help of peeso-reamers and gates glidden drill. 5mm of residual gutta-percha is left intact at the apical region of the tooth structure to maintain the apical seal. **(Post space preparation irt to 11 and 21)**

STEP5:

After the preparation of post space, prefabricated esthetic posts such as tenax fiber post and patented IPN technology based ever-stick fiber post is adapted in the canal with the help of dual core cement. (PARACORE-COLTENE). [**EVER-STICK POST(Patented IPN technology], (Placement of ever-stick post and tenax fiber post)**

STEP- 6:

After Placement of tenax fiber post and everstick post was done, core build of 11 and 21 was done with the help of dual core cement. Ever stick post and tenax fiber post were stabilized in the canal with the help of paracore dual core cement.[**Dual core resin cement (Paracore-Coltene)], (Core build up)**

STEP7:

Elastomeric impression was taken with respect to upper and lower arch and abutment tooth was prepared for all ceramic zirconium prosthesis.

STEP8:

Radiograph was taken after cementation of the all ceramic zirconia prosthesis irt to 11 and 21. **(Radiograph taken irt to 11 and 21)**

Discussion

Utilization of contemporary post and core systems has facilitated the esthetic restoration of endodontically treated teeth. Light transmission and biocompatibility have been enhanced by the

introduction of metal free post systems. However,the periodontal and endodontic status, root length and histological structures of the endodontically treated teeth must be considered in order to achieve successful restoration following endodontic treatment. The use of bondable materials allows the practitioner to unify the structure and morphology of root systems to provide creative solutions to challenges here to meet.

Mannocci et al. presented a study that proved that restorations with fiber posts and composites were more effective than amalgam in preventing root fractures and also stated that Fiber posts, regardless of brand, are anisotropic and have a modulus of elasticity similar to that of dentin (~20 GPa), which allows the post to flex slightly (microscopically) with the tooth and dissipate stress,thereby reducing the likelihood of damage to the root.

Fiber posts are not susceptible to galvanic or corrosion activity; the latter of which is responsible for a high percentage of failures with cast posts which, in turn,fail twice as often (clinically) as do prefabricated metal posts

Ever-Stick posts Individually formable glass fibre root canal posts.ever-Stick posts readily adapts to the shape of the root canal, high strength after light curing.The perfect fit Maximal support for the crown by filling the root canal completely with fibres .With everStickPOST you can create the perfect fit and strength.

Soft and flexible, thus adaptable, polymer (PMMA) and resin-impregnated (bis-GMA) unpolymerized glass fibre post. High flexural strength after light curing, Elasticity very similar to the natural elasticity of dentine. The stress of occlusion will be evenly distributed on the root structure.Reduced risk for root fractures. Adhesive and micromechanical bonding to both composite cement and core composite ensures a strong bond to the root canal and the composite core.

Conclusion

Ever-stick fiber post have interpenetrating polymer network which has 1000 embedded bundles of polysilanated fibers which adapts to the anatomy of the canal and shows increased flexibility in the canal than in comparison with pre-fabricated esthetic posts such as fiber posts and zirconium posts.pre-fabricated esthetic post needs the canal preparation and the post space needs to be prepared according to the size and dimension of the post as it does not show any flexibility due to its high rigidity, but in everstick post the fibers are resilient and polymerized which enables each tuft of silanated fibers to merge with the interior anatomy of the canal there by occupying entire space of the canal with the curvatures.

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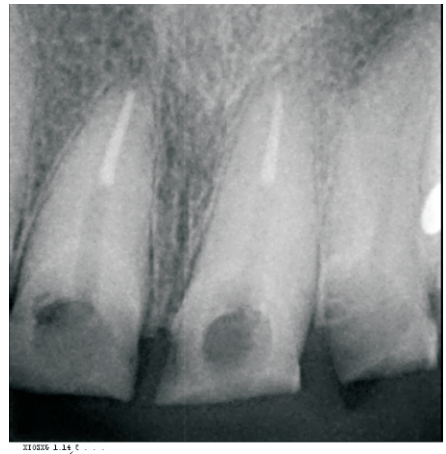
(Pre-Operative View)

(Working length irt to 11)

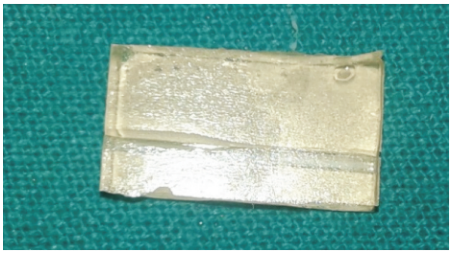
(Working length irt to 21)

(Master cone placed irt to 11 and 21)

(Obturation done irt to 11 and 21)



(Post space preparation irt to 11 and 21)

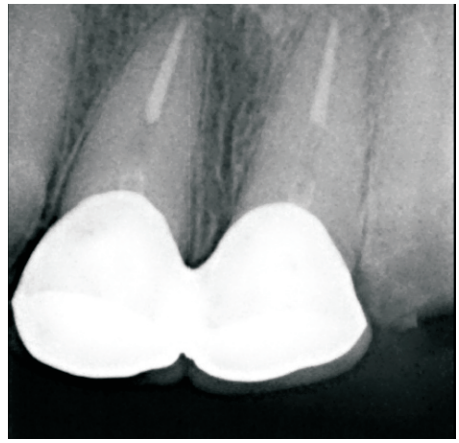


EVER-STICK POST(Patented IPN technology)

(Placement of ever-stick post and tenax fiber post)

[Dual core resin cement (Paracore-Coltene)]

(Core build up)



(Radiograph taken irt to 11 and 21)