

## Case Report

### AESTHETIC REHABILITATION OF GROSSLY CARIOUS MULTIPLE TEETH USING PRE -FABRICATED FIBRE POST –A CASE REPORT

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#### ABSTRACT:

Excessive loss of dental hard tissues creates difficulties for the aesthetic outcome of subsequent prosthetic restorations. In such instances, an interdisciplinary approach is necessary to evaluate, diagnose & restore aesthetic problems using a combination of endodontic and prosthetic treatment. A large variety of materials, techniques to restore structurally compromised endodontically treated teeth. This case report describes aesthetic rehabilitation of grossly carious multiple teeth conservatively using post and core which provides strength to the root structure and also helps in proper build-up of the coronal tooth structure.

**Key words:** Aesthetic, Rehabilitation

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#### INTRODUCTION

Excessive loss of dental hard tissues creates difficulties for the aesthetic outcome of subsequent prosthetic restorations. In such instances, an interdisciplinary approach is necessary to evaluate, diagnose & restore aesthetic problems using a combination of endodontic and prosthetic treatment. A large variety of materials, techniques to restore structurally compromised endodontically treated teeth.<sup>[1]</sup> In earlier days, extraction was the suggested treatment of choice for most teeth that were grossly carious, but today, the focus of dental therapy has shifted to a more conservative approach. The techniques and guidelines of how and when to restore endodontically treated teeth has evolved from clinical tradition and anecdotal descriptions.<sup>[2]</sup> The goal of prosthodontic and restorative dentistry is to replace missing tooth structure, maintain function and aesthetics and protect against fracture or infections.<sup>[3]</sup>

Reconstruction of endodontically treated teeth is a great challenge in restorative dentistry since the tooth crown is usually totally or partially lost by caries, erosion, abrasion, previous restorations, trauma or endodontic access. If more than half of the coronal structure has been

lost, a root canal post is required to provide retention for the restoration [4].

Following satisfactory endodontic therapy, the periapical bone shows no histologic evidence of infection and will reveal definite repair. Under such circumstances, these teeth can be safely retained in the dentition.<sup>[5]</sup>

This case report describes aesthetic rehabilitation of grossly carious multiple teeth conservatively using post and core which provides strength to the root structure and also helps in proper build-up of the coronal tooth structure.

#### CASE REPORT-

A 50 year old female reported to department of dentistry in Shri Sai Multi speciality Hospital and Trauma Centre, Nahan (H.P) with chief complain of grossly carious multiple teeth in upper front region with unesthetic appearance. On examination 11,12,13,21,22,23,25 were grossly carious with adequate root support, sound 27 and missing teeth were 14,15,16,17,24,26 in maxillary arch and 34,35,36,37,44,45,46,47 in mandibular arch

Keeping in mind the criteria below for the selection of specific materials and technique for the restoration of endodontically treated teeth and post and core treatment plan was made.

- The amount of remaining tooth structure
- Physical changes in tooth structure
- The anatomic position of the tooth
- The occlusal forces on the tooth
- The restorative requirements of the tooth
- The esthetic requirements of the tooth
- Vitality or any periapical infection

On vitality testing using cold test and electric pulp tester, the teeth tested non-vital and no periapical lesion was seen on radiographic examination with adequate teeth support and favourable occlusal forces with good periodontal support. The patient was advised root canal treatment of 11,12,13,21,22,23,25 followed by post and core build up for all severely damaged teeth followed by fixed prosthesis and removable prosthesis for mandibular arch and maxillary arch. (Fig1,2).



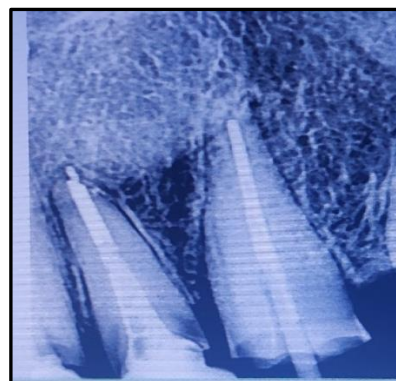
(Fig 1. Intraoral view pre-op.)



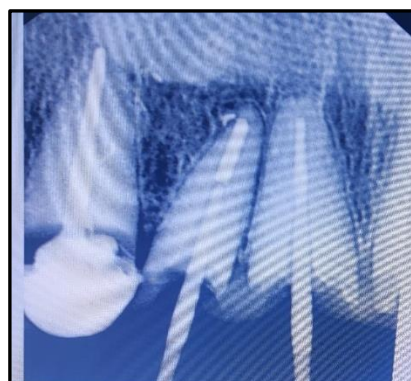
(Fig 2. Intraoral view of maxillary arch)

#### CLINICAL PROCEDURE

- Root canal treatment procedure was performed on 11,12,13,21,22,23,25.
- After root canal obturation, their 2/3 was cleared with peso reamer to create post space in order to place post and core.



(Fig3. Radiograph with post and core 11,12)



(Fig4. Radiograph with post and core 21,22,23)

- Post space preparation was done in the canals using peso reamers size 1 and 2 ,leaving 4-5 mm apical gutta percha intact to maintain the periapical seal.
- The apical seal and post-space preparation were evaluated with the help of radiograph (RVG) .(Fig.3,4)
- Prefabricated fibre posts was marked to desired length based on opposite arch contact area and trimmed to that length and checked for the snugged fit of the post in the prepared post space.
- Post was cemented using dual cure resin cement (COLTENE PARACORE) in the post space and the core build up was subsequently done. (Fig 5.)



(Fig.5 Core build up intra oral view)

- Tooth preparation was done for crown and bridge preparation and impression was made using addition silicon impression material.

(Fig.6)



**(Fig 6. Tooth preparation for bridge fabrication)**

- Shade selection was done using shade guide (Vita 3D Master Shade Guide).
- Metal try in is done to check for marginal fit and



**(Fig 7. Metal try in done)**

- Porcelain fused metal crown and bridge were cemented using dual cure cement and glass-ionomer cement respectively. Any excess cement is removed. (Fig.8)



**(Fig 8. Post -op after bridge cementation)**

- Occlusal evaluation is done for any occlusal interferences using articulating paper. (Fig 9)



**(Fig. 9 Extra oral view after cementation)**

#### DISCUSSION

Endodontics & Prosthodontics go hand in hand to retain pulpless, badly broken down teeth that would have been otherwise seemed fit for extraction & thereby reinstating them as a functional member of the masticatory system<sup>[6]</sup>

When the remaining tooth structure cannot provide adequate support and retention for restoration, endodontically treated teeth are usually restored with posts. Restoring these teeth using materials with a similar elastic modulus to dentine appears advantageous due to the reduced risk of root fracture. The fracture resistance of endodontically treated teeth has been reported to be principally dependent on the amount of remaining tooth structure and adhesive surface, the quality of adhesion, and the type of post because posts increase the fracture resistance of the root, especially in the absence of a full crown.

Prefabricated metal posts have been widely used for the past 20 years. They can be placed easily and quickly, and a core can be added and prepared at the same appointment. They are quite strong which allows for the placement of thin posts. They can usually be removed if retreatment is necessary. Prefabricated posts are available in active or passive forms. Passive forms are recommended in most cases.<sup>[7]</sup>

Some glass fiber posts transmit curing light to the internal area of the root, which allows the use of dual-cure adhesive cements. Fiber posts are adhesively bonded to the root. Carbon fibre and fiber-glass reinforced composite posts with bonded retention therefore, may not need to be as long as traditional posts. Retrievability is an important feature of endodontic posts, and fiber posts are easily removed for endodontic retreatment.<sup>[8]</sup>

Also, fiber reinforced composite resin post-and-core system offers several advantages: a one appointment technique, no laboratory fees, no corrosion, negligible root fracture, no designated orifice size, increased retention resulting from surface irregularities, conserved tooth structure, and no negative effect on aesthetics<sup>[9]</sup>

Oliveira and colleagues concluded that the greatest factor influencing the strength of endodontically treated teeth was the amount of remaining tooth structure <sup>[10]</sup>. Because of these properties, fiber post was used in this case to restore the fractured teeth. Freedman stated that the main function of the post is to anchor the post-and-core complex within the radicular portion of the remaining tooth. A post that can be bonded to tooth structure improves its ability to retain the entire foundation <sup>[11]</sup>.

The above technique helps in achieving the internal reinforcement by posts to the residual root that provides retention and adds stability to the prosthesis.

### CONCLUSION

When restoring an endodontically treated tooth, the first step is to assess the level of predictability involved in the restoration.

The amount and quality of preserved tooth structure, esthetic requirements, as well as their indications, advantages, and disadvantages, should all be taken into consideration when choosing the best post and core systems. There is a vast collection of research that compares the effectiveness and application of various post kinds and the various materials that are used to make them. Although more such studies are required to support the method described in the case report, it is simple, effective, and provides a potential alternative for saving severely damaged or decaying teeth. This process of creating a unique post and core has produced effective outcomes. The correct

treatment choice can be made with the correct equipment available and the proper skills, adequate knowledge about armamentarium and experience.

The treatment described in the case reports is simple and effective also represents a promising alternative for rehabilitation of grossly destructed of fractured teeth.

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