

## A Simple Approach To Preserve Remaining Natural Tooth Structure With Post And Core System

Aditee Apte<sup>1</sup>, Seema Sathe (Kambala)<sup>2</sup>, Rewa Kawade<sup>3</sup>, Mithilesh Dhamande<sup>4</sup>

<sup>1</sup>Post graduate student, Sharad Pawar Dental College, Datta Meghe Institute of Higher Education and Research, Sawangi Meghe, Wardha, India. (Corresponding author)

<sup>2</sup>Professor and Head, Sharad Pawar Dental College, Datta Meghe Institute of Higher Education and Research, Sawangi Meghe, Wardha, India.

<sup>3</sup>Post graduate student, Sharad Pawar Dental College, Datta Meghe Institute of Higher Education and Research, Sawangi Meghe, Wardha, India.

<sup>4</sup>Reader, Sharad Pawar Dental College, Datta Meghe Institute of Higher Education and Research, Sawangi Meghe, Wardha, India.

### Abstract:

Replacement of missing tooth structure, preservation of function and aesthetics, and defence against infection and fracture are the aims of prosthodontic and restorative dentistry. Endodontic therapy eliminates the tooth pulp and any important canal contents, leaving behind teeth with calcified tissues and substantially less moisture than healthy teeth. It was believed that doing so would drastically weaken the tooth's structure and increase the likelihood that it would break when subjected to masticatory stresses. A detailed treatment plan is created by taking into account the variations between teeth that have had endodontic therapy and healthy, untreated teeth. The clinical situation of severely damaged teeth using the post and core technique is described in this case report.

**Keywords:** post and core, cast post, endodontically treated teeth.

### Introduction

The first stage in recovering a tooth that has undergone endodontic treatment is to determine how predictable the restoration will be. Understanding the physical and biomechanical characteristics, anatomy, endodontic, periodontal, restorative, and occlusal concepts is the first step in properly restoring endodontically treated teeth.<sup>1</sup>

With the abundance of options, choosing the perfect post requires a thorough comprehension of them. In order to achieve long-term clinical success, the choice of the base material and the ultimate

restoration are crucial. Posts shouldn't be used frequently in endodontically treated teeth because they don't strengthen them. If there is not enough tooth substance remaining to sustain the coronal final restoration, the basic purpose of a post is to sustain a core.<sup>1</sup>

### Case Presentation

A 24-year aged male presented to the prosthodontics department with the main issue of an unsightly appearance brought on by the dislodgment of the upper front prosthesis for the past 10 days. When examined inside, the crown structures of teeth 11 and 12 were severely damaged. (Figure 1)



**Figure 1: Severely damaged 11 and 12**

However after endodontic treatment, it was discovered that the teeth had strong periodontal

support. The radiographs revealed no evidence of periapical disease, and the root canal obturation was determined to be suitable. The patient's medical and

dental histories had little bearing on his or her general state of health. A comprehensive clinical assessment was followed by the design of the treatment.

### Procedure

1. With Peeso reamers, the canals were defined in accordance with 11, 12, and the tooth

preparation. The depth of the post space was determined using a calibrated probe after leaving 3 to 5 mm of gutta-percha in the canal.

2. Pattern resin material was used to produce the post and core patterns. Future artificial teeth were taken into consideration when shaping the core of the crown. (Figure 2)



**Figure 2: Pattern resin used to build the post and core patterns for 11 and 12**

3. The casting was done using these post and core patterns after they had been sprued and invested. The final finishing was carried out intraorally after the retrieval of castings and were inserted to the patient's mouth. (Figure 3)



**Figure 3: Cast post with 11 and 12 tested intraorally**

4. The ultimate imprint was created using 'poly vinyl siloxane impression material utilizing a two-stage double mix process after cementing these posts to the corresponding teeth.
5. The try-in was completed after the fabrication of metal copings for individual crowns. The completed artificial crowns were luted. (Figure 4)



**Figure 4: Cementation of final restoration**

## Discussion

Most teeth that were severely carious in the past were advised to be extracted; however, modern dental care now places more of an emphasis on a conservative approach. In addition to being restored, such teeth have been reinstalled as a protracted functional unit within the oral cavity thanks to the resounding success of endodontic therapy.<sup>1</sup>

In order to make it easier to restore the teeth later with the help of indirect extracoronal means, the maximum coronal region of a highly damaged tooth is mended with a post-and-core restoration.

But, Cast posts and cores offer distinct benefits, such as maintaining the greatest amount of tooth-structure because the post is made to match the radicular area with an improved adaptability to the root canal.<sup>2</sup>Core does not need to be preserved by the post because it is an inherent component of the post. Another benefit is that it has anti-rotational properties.<sup>3</sup>The fact that it necessitates many visits is a drawback. Whereas, prefabricated cylindrical posts mostly rely on cement for retention. This kind of post's drawbacks include a lower core retention rate and the possibility of rotation.<sup>4</sup>because each patient's unique needs must be taken into account while setting treatment objectives. The condition of the root that needs to be rebuilt is regarded as critical.<sup>5</sup>If a post is going to be utilised to restore an endodontically treated tooth, a quick overview of the main issues with radicular anatomy is necessary. The internal anatomy of the root canal should only be slightly altered by the post preparation. Dentine must be left with enough remaining for support and stress distribution.

By attaching posts to the residual root, the aforementioned approach assists in creating internal reinforcement, which gives stability and retention to the prosthesis.<sup>6</sup>

## Conclusion

In addition to effective endodontic care, the effective therapy of teeth with significant tooth structural

damage also requires on rapid prosthodontic rebuilding of the tooth after the endodontic care is complete.

The main goal of the article is to preserve a core that can be used to preserve a permanent prosthesis. When there is very little tooth structure left, a post and core aids avoid breakage. An individual cast post and core is advised when a significant amount of tooth structure has been removed. Using full veneer crowns following custom cast posts, it takes an interdisciplinary pathway to remake the function as well as the aesthetics of highly damaged treated teeth. A good outcome and patient satisfaction depend on the coordination of endodontic and prosthetic therapies while carefully taking into account the patient's expectations and needs.

## Acknowledgements

None

## References

1. Kalra Dr. H, Sukhija Dr. U, Rassawet Dr. R roy, et al. A Review on Post and Core. *SJDS* 2020; 07: 51–56.
2. Goerig AC, Mueninghoff LA. Management of the endodontically treated tooth. Part I: Concept for restorative designs. *J. Prosthet. Dent.* 1983; 49: 340–345.
3. Sivers JE, Johnson WT. Restoration of endodontically treated teeth. *Dental Clinics of North America* 1992; 36: 631–650.
4. Christensen GJ. The coming demise of the cast gold restoration? *J Am DentAssoc* 1996; 127: 1233–1236.
5. Gutmann JL. The dentin-root complex: Anatomic and biologic considerations in restoring endodontically treated teeth. *J. Prosthet. Dent.* 1992; 67: 458–467.
6. Uniyal S, Aeran H, Kwatra B, et al. Post & core: an easy and effective treatment modality for severely damaged teeth. *Int J Oral Health Dent* April-June; 1: 99–104.