COMPLICATIONS AFTER POST AND CORE TREATMENT

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ABSTRACT

Rehabilitation of worn dentitions is a big challenge. To save badly damaged teeth after endodontic treatment, provision of post and core restoration is very effective treatment option. The aim of this study was to observe common complications associated with provision of post and core treatment for the badly damaged tooth.

In this study 95 patients reported to Oral Diagnostic Departments of Hamdard University Dental Hospital (HUDH), Karachi and Nishtar Institute of Dentistry (NID), Multan were randomly selected. Sixty two females and thirty three males were included in this study with age range from 18-47 years. After taking consent, patients were evaluated by using self designed proforma after six month from provision of post and core restorations. Statistical Package for Social Sciences (SPSS) version 16 was used for data analysis to find common complications linked with post and core restorations. The most frequent complain was gingivitis which was reported in 21 patients (22.1%) followed by loss of retention/ requirement of re cementation which was found in 15 (15.7%) patients respectively.

Key Words: Endodontic treated tooth, complications, post and core restorations, post and core failure.

INTRODUCTION

With advent of aesthetics dentistry, every individual despite having compromised dentition wishes to have both functional and esthetically effective restorations in their mouth. It is difficult to restore tooth with conventional crown once sufficient tooth structure is lost. For restoration of such tooth multiple approaches can be employed. In many such cases restoration will be provided after completion of successful endodontic treatment. One of the very viable treatment options is post and core restorations. If following basic guide lines then post and core restorations can have longevity of more than 20 years. Numerous varieties of posts depending upon type of material (metal, fiber post), shape of post (parallel or tapered), mode of action (active or passive) or mode of preparation (prefabricated or custom made) are readily available, each having its characteristics advantages and disadvantages.

Provision of specific type of post depends upon various factors like type of occlusion, presence of any parafunctional habit, location of tooth in the arch, amount of coronal structure remains after endodontic treatment, socioeconomic status. Radiographic assessment is also of significant value as it provides valuable information regarding root length, shape of canal, quality of root canal treatment, presence of any periapical pathology, periodontal status. All these factors have significant role on the success of post and core restorations.

After placement of post, next step is core build up, numerous materials like glass ionomer materials including resin modified glass ionomer, cermet, amalgam, gold, composite are available on which preparation has been done for provision of crown. Provision of post reinforce the mechanical strength of the restored tooth, the onlay/crown component protects the endodontically treated premolar from splitting under compressive loading while post will not only provide adequate retention but also protect the tooth from tensile (horizontal) stresses.
Provision of post is associated with many complains like caries, gingivitis, tooth fracture, post fracture, core fracture, prosthesis fracture, loss of retention and need for recementation. These problems must be properly evaluated and should be corrected accordingly. The aim of this study was to find out the common complications after provision of post and core restorations in patients visited Hamdard University Dental Hospital (HUDH), Karachi and Nishtar Institute of Dentistry (NID), Multan.

**METHODOLOGY**

Initially one hundred patients reported to Oral Diagnostic Departments of Hamdard University Dental Hospital, Karachi and Nishtar Institute of Dentistry, Multan were selected randomly for present study. The study was started in 2013 and was spread over 18 months.

After taking consent patients were advised to visit one week, one month and six months after provision of post and core restoration. Self designed proforma was used to record all relevant details after six months extra oral and intra oral examinations were carried out to find any complication linked with post and core restoration.

![Fig 1: Teeth selected in different age groups for Post and Core Treatment](image1)

![Fig 2: Common Complications after Post and Core Treatment](image2)
As five patients did not visit on subsequent follow up visits, so they were excluded from the study. Therefore total ninety five patients were finally selected. Of the selected patients, 62 (65.2%) were females while 33 males (34.7%). Age of the patient varies from 18-47 years.

Those patients who did not get any fixed prosthodontic treatment for the same tooth in past were included in this study. Those patients who have established uncontrolled diabetes or unable to maintain good oral hygiene due to local or systemic reasons were also excluded from the study. Statistical Package for Social Sciences (SPSS) version-16 was used to find common complications linked with post and core restorations.

RESULTS

The most frequent complain was gingivitis which was reported in 21 patients (22.1%) followed by loss of retention / requirement of re cementation which was found in 15 (15.7%) patients respectively. While in 06 (6.3%) patients post fracture was also reported.

DISCUSSION

Rehabilitation of anterior dentition often requires multidisciplinary approach, provision of post and core restoration followed by crown is still very effective treatment. Various factors like location of tooth, shape of root, root length, amount of coronal portion remains after tooth preparation have strong influence for the selection of particular type of post.9

In this study pre fabricated metal posts were used which is similar to the study conducted by Akbar.10 Similarly Memon et al also reported a case where they used prefabricated metal post to restore badly damaged tooth.11

In a study reported by Schmidlin et al12 majority of the patients (64%) were females while 24% males. These results are similar to the present study, as frequency of females and males were 62 (65.2%) 33 (34.7%) respectively.

In this study all impressions were made with polysiloxane impression material which is similar to the study by Rashid where same impression material was used during provision of post and core restoration.13

In the study the most common complain was gingivitis (22.1%) which is similar to the results obtained in a result in a study by Jung RE et al14 where the frequency of gingivitis was 28.6%. This is contrast to the study conducted by De Backer H et al15 where caries (32%) was the most significant complain.

Gbadebo et al16 reported 2.5% cases of decementation in their study while in this study, rate of decementation was 15.7% which was significantly higher. In this study all teeth are restored with porcelain fused to metal (PFM) crowns. Ratnakar et al17 in his survey found that majority of the endodontically treated were restored with PFM after placement of cast post.

Fracture of post is also commonly associated complain after provision of post and core restoration. Various factors like material, type, shape, length, diameter of the post will determine the success of the post. In this study, 06 patients reported with complain of fracture of post. Pereira et al18 in their study also noticed that incidence of post fracture was double if prefabricated metal post was used in comparison to studies where cast metal post was used.

Fracture of tooth itself after provision of post and core restoration is also reported in the literature. In the present study three cases were reported having fracture of tooth. Use of prefabricated metal post enhanced the fracture of tooth as compare to the cast post system. This fact was also observed by Figueiredo et al19 in their study that incidence of tooth fracture was double if prefabricated metal post was used in comparison to studies where cast metal post was used.

The age of the patient is also a very critical factor in determination of successful post and core restoration. The need of recementation requirement was more in younger age group which is linked with presence of large number of teeth opposing arch and heavy masticatory forces which is generally low in older age group. In the present study 09 patients from younger age group were need recementation while for older age group recementation was done for only 01 patient. Mentink et al20 in their study reported that in 45% of the patients after 10 years required recementation.

The cause of failure must be identified, complete assessment of the restoration, remaining tooth, patient’s functional and aesthetic demands are very critical in order to formulate a successful treatment plan.21

CONCLUSION

To restore endodontically treated teeth with post and core restoration is linked with multiple complications. Every patient should be critically evaluated to minimize the incidence of various complications associated with post and core restoration.

REFERENCES

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CONTRIBUTION BY AUTHORS

1 Muhammad Imran: Collection of data & biostatistics.
2 Rehman Shahid: Collection of material for writing introduction.
3 Mehmood Hussain: Data collection of patients, helped in writing introduction.
4 Muhammad Jawaid: Data collection of patients from Multan & bibliography writing.
5 Moin Khan: Biostatistics.