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Pin Retained Restoration: A Case Report

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Abstract: *Pin retained amalgam restoration are a type of amalgam or resin restoration of a complex nature requiring the placement of one or more pins in the dentin to provide adequate retention and resistance forms. The pin-retained amalgam is a valuable treatment aid in the restoration of teeth with extensive carious lesions or fractures. The pins help in binding the amalgam/composite to the tooth structure. The case report given in this article presents the recovery of fractured anterior teeth with dentinal pins and composite restoration.*
Keywords: *Retention, pin-retained, retention*

I. Introduction

Most of the teeth can be routinely restored using resin or amalgam. But when the preparation size is very extensive due to caries or trauma and the remaining tooth structure is inadequate, it becomes difficult to achieve optimal resistance and retention form for a direct restoration. Auxiliary retentive provisions, in the form of pins can be used for restoration of mutilated and broken tooth, especially in young patient's in which pulp chamber is relatively large, dentinal tubules are comparatively immature.[1] This case report throws light on the traditional methods of gaining retention with a few modern materials.

II. Case Report

A 24 year old Male patient came to Bharati Vidyapeeth Deemed University Dental College and Hospital, Katraj, Pune with a chief complaint of fracture of his front tooth. On examination there was an Ellis class II fracture of his maxillary left central incisor (figure1-Pre-operative). Also his left lateral incisor was missing. He was given the treatment options of root canal therapy of the central incisor (fracture in proximity with pulp but not involving it) followed by a fixed partial denture involving 21 22 23 or a pin retained restoration for 21 and an implant placement for 22. Patient agreed upon the second line of treatment to avoid tooth preparation on undamaged 23.

Tooth Preparation- The incisal edge was made flat using a straight flat end diamond point. This made the table for the placement of the dentinal pins. The pin channel was prepared (Figure 2-Trijet Pin system). The pin was then engaged to the driving device and threaded into the pin channel until resistance was met by the pin channel floor. The desired length of the pin was then cut with a bur. The pins were screwed in and tightened and then checked for stability (Figure 3- dentinal pins). For the buildup of the crown structure a layer of flowable composite was used first and then B2 body shade (Filtek 3M ESPE) was used according to the patients natural teeth shade (figure 4-post-operative View). The finishing and polishing was done using a – composite polishing kit (Shofu). Contacts on protrusion were checked using a 20µ articulating paper. The patient was recalled for review at an interval of 1week, 1month, 6 months. The patient did not report any history of pain and on clinical examination there was no defect around the restored tooth. In addition to that, the pulp vitality test revealed that the tooth was positive to thermal stimulation. The patient was satisfied with the esthetics of the direct restoration.

III. Discussion

A pin retained restoration is any restoration which requires the placement of pin/pins in the dentin as an adjunct to provide sufficient retention and resistance form to the restoration. Patients with large amount of hard tissue loss are commonly seen but not many options are available for recovering the lost tooth structure. A treatment strategy based on direct adhesive restorations becomes the method of choice because it is more conservative, quick and provides reversible restorative oral rehabilitation for expensive tooth loss of vital teeth.[2]

The principles for the cavity preparation for a pin-retained amalgam restoration are based on extension for prevention, that is conservation of the remaining tooth structure and secondly, the removal of all carious / weakened tooth structures. Incorporation of the Pins within the dentin itself incorporates stresses within the tooth structure. Hence, a balance between minimal number of pins and cavity features are required to have the maximum of the retention and the resistance features. For an ideal retention, the existing facial and lingual walls should be parallel rather than converging.

The area that has to receive the pin should be flat and perpendicular to the long axis of the tooth, and it should present a zone of dentin which is sufficiently wide for the placement of a pin. In general, any area which is designed to receive a pin should be reduced enough to allow a pin length of 2.0 mm and an amalgam /resin covering of at least 0.5 mm around the pin and 2.0 mm occlusal to the pin.[3]

The position of a pin depends on several factors, such as the internal morphology of the cavity, the external morphology of the tooth and the bulk of the amalgam which will be used for restoration must be considered, since the pins which are placed in areas of greater bulk are less likely to weaken the amalgam. Finally, the areas of occlusal load must be considered, since a vertical pin which is positioned directly below an occlusal load tends to weaken the amalgam significantly.

Use of self-threading dentinal pins is a suitable method to increase the long-term stability of resin-based restorations. This simple and low-cost procedure increases the retention of adhesive materials, reducing the risk of fracture failures. Additionally, this therapeutic approach preserves the tooth structure and requires simple clinical procedures. Although positive outcomes of the direct resin restorations were found in the reported case, further research and clinical studies on the restoration of mutilated teeth using pins and composite resin needs to be validated. This forgotten technique is useful for young patients who suffer lost of crown structure. Significant number of downsides of these pin retained restorations exists such as loose pins, heat generation, dentinal cracks, pin breakage etc.

IV. Conclusion

Pin –retained restorations are a simple and cost –efficient means of managing mutilated teeth which require additional retention form for a restoration. It is necessary for the clinician to weigh the pros and cons of the technique for a successful long term restoration.

V. Figures

Figure 1 – pre-operative View

Figure 2 – Trijet retention pins

Figure 3 – retention pins in place

Figure 4 – final restoration

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References

[1]. Parul Metha, Divya Batra,Artinder Kaur et.al.Restoration of tooth with Pin Retained Amalgam – A Case Report.I J Pre Clin Res 2014;1(3):84-86

[2]. Dler A Khursheed, Didar S.Hama Gharib, Hawzhen M. Mohammed Saeed et.al. Pin-Retained Restoration with Resin Bonded Composite of a Badly Broken tooth. IOSR-JDMS 2015;14(9):48-50.

[3]. Utpal kumar Das, Aditya Mitra, Nabanita Bose. IOSR-JDMS 2013;8(2):16-22