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Aesthetic Restoration of Traumatized Anterior Teeth

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Abstarct : *Traumatic dental injuries occuring in anterior teeth is a frequently seen condition in children and adults. The patients are both affected physically and psychologically due to trauma. The traumatized permanent tooth is characterized both as functional impairments for the patients and as a fundamental aesthetical probleme, especially in young patients. The traumatized teeth are generally treated with fiberpost, composite build-up and crown restoration techniques just after the endodontic treatment. In these kinds of cases, the treatment method alone is not sufficient; the case should be approached in a multidisciplinary manner. By this case report, the treatment of comlicated enamel-dentin crown fracture resulting from pulp expansion due to traume that occured in a 18-years-old male patient was aimed. The fractured parts of teeth were restored with self-threading pins ((Self - Threading pins - TMS (Thread-Mate system)). The around of pins was enclosed with fluent composite. Afterwards, a transparent matrix band was adopted to mesial and distan edges of the teeth and was restored using composite resin (Arabesk, Voco, Germany) by layering technique. Finally, the restoration surfaces were polished with finishing discs (Sof-lex,3M ESPE,USA). The patient was evaluated 6 months later and not any fractures or discoloration were observed aesthetically. The prognisis of crown fractures is firstly depend upon periodontal ligament injury status; secondly the duration in which the pulp is left open depends upon dentin surface width and root-growth phase. The optimum treatment results depend upon urgent evaluation and care.*

Key Words: *Aesthetic Restoration, Trauma, Conservative Treatment*

I. INTRODUCTION

In teeth with excessive material loss depending on cleaning a big cavity or as a result of a trauma, in order to ensure adequate adhesion and durability, one or more pins can be applied to dentine.

The dentin pins is a system which is not only used to enhance the adhesion of large restoration in conservative treatment, but also it is used to enhance the adherence of core structure to natural tooth structure in protetic treatment. [1-4]

Self-threading pins are directly in touch with dentin and are screwed to dentine slot. The diameter of dentine space is smaller than pin diameter between 0.0038 nad 0.10 mm. The dentine flexibility tolerates the pin to fit into dentine space which is smaller than itself. The more the pin fits into, the more the grooves on the pin and dentin hold each other and the self-threading provides the best adherence. But in addition, these pins can form vertical and horizontal stresses on dentine.

The pins are fit into the space with anguldruva or hand tool and the pin is felt with hand sensitivity that it reached the bottom of space. One of the advantage of standard pin is that it reduces the stress in apical of pin space by reversing in quarter or half. When the pin reaches the bottom of space, the plastic head of the pin inside dentin is broken due to pressure and the plastic part is thrown away.

In various researches done, the adherence values of pins on dentine and core material was examined [5-8]. In these researches, generally the adherence values of composite resin and amalgams to dentine pins were examined and were compared with each other.

The fillings held by pins have some advantages such as being applied at one session and enhancing the durability of restorations.

II. CASE REPORT

An 18-years-old male patient consulted Inönü University Dentistry Faculty Restorative Dental Treatment Clinic and the anamnesis taken from this patient proved that the patient hit his head on the ground while playing ball.

A swelling, redness, hemorrage and ecchymosses were determined in extraoral treatment of patient by visual inspection (Pic.1). But, not any fractured pieces of teeth were determined on inner side of the lips, on tongue and sublingual parts in intraoral examination of patient. The teeth were evaluated in terms of discoloration and the pink discoloration was determined just because of exposed pulp. The teeth were determined to be mobile and a sensitivity in percussion was identified. A swelling on palpation, soft tissue and mucosa was determined. Vitality tests can be misleading in the early stages of treatment. The transilümination was used in order to understand whether the tooth is necros or not. Two detine pins for each tooth were placed on dentine surfaces. The pins were enclosed with fluent composite. Then, the transparent matrix band was

adopted to mesial and distal edges of teeth and were fastened with appropriate wedges. Afterwards, phosphoric acid gel and bonding agent (Clearfil SE Bond, Kuraray, Japan) were applied to enamel surfaces and restored using composite resin (Arabesk, Voco, Germany) by layering techique. Finally, the restoration surfaces were polished with finishing discs (Sof-lex,3M ESPE,USA). The materials used during the treatment were listed in Table 1.

Pic 1. A: Swelling, Redness, Hemorrage And Ecchymosses Were Determined İn Extraoral Treatment Of Patient By Visual İnspection. **B:** Palatinal View Of Teeth **C:** Labial View Of Teeth **D:** Two Pins Was Placed İn Dentin For Each Tooth **E:** After Treatment

MATERIALS	PRODUCER FIRM	THE PURPOSE OF USE
Transparent Matrix Band	Kerr Hawe Stopstrip,China	Proximal Adaptation
Kama	Fixing Wooden Wedges,E.U	Excellent Filling Without Overflow
The Phosphoric Acid Gel of %37	Etching Gel, Kerr, USA	Roughen the Surface of the Enamel
Bonding ajan	Clearfil SE bond, Kuraray, Japan	Increase Retention
Composite Resin	Voco Arabesk Composite Resin, Germany	More Resistant Aesthetic Restoration
The Finishing Discs	3M ESPE Sof-Lex,U.S.A	Smooth Surface
The Finishing Fresis (ankansas)	FG Diamond Bur Composite Finishing Kit	Smooth Surface Form
Self - Threading pins	JTC-FULLDENT Pin Kit, Switzerland	More Resistant Aesthetic Restoration

Tab. 1: Materials used in this case

The treatment is supplied with all aesthetic, functional and economic expectations of patient (Pic. 1E). In addition, the patient has been given the oral hygiene that he should care about.

III. DISCUSSION

The dentin pins are mechanicaly fastened to materials with the help of screws. If the adoptation of restorative material to dentine pin is unedequate, then it causes the restoration to weaken. If the expansion coefficient between pin and restorative material or polymerization contraction of restorative material are not the same, if there exists a leakage which is abrasive and corrosive between pin and restorative material, it may cause connection strength to reduce. [9-11]

In pinned restorations, amalgam and composite resin materials are generally used. While some researchers stated that there is no a fundamental distinction between the values of adherence of amalgams and composite materials to pins [12-14], the others stated that pin reinforced composite resin core structures had lower fracture resistance when compared to pin reinforced amalgam core structures [15-16].

Lugassy et al [17] stated that the three composite resins polimerized chemically don't have a fundamental dinstiction among each others statistically in terms of pulling resistance. In another research, three different composite resins and three different dentine pins were used and as a result, it was informed that the pulling resistance force is higher in dentine pins of 2 mm lenght than in composite resins polimerized with appearing rays [18].

IV. conlusıon

What is important in practice of pins is that the selection of the appropriate pin should be done according to preference and experience of the physician, and those factors like appropriate pin size, appropriate distance remaining between the arc should be taken into account when making choice. Developments in materials brings different dimensions to researches. In recent years studies, various adhesive resins are used to increase the retention of pins.

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