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Case Report

Composite Strip Crown for Trauma Management in Deciduous Teeth : Case Report

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ABSTRACT

Background: Traumatic Dental Injury (TDI) in deciduous teeth is one of challenging cases that has high prevalence in children. Treatment for fracture of anterior deciduous teeth, without losing its vitality, is composite strip crown.

Purpose: This case aims to describe dental restoration for fractured deciduous teeth with composite strip crown.

Case: A 5-years-old girl came to Pediatric Dentistry Department, Indonesia and had fracture on deciduous left central incisor.

Management: Patient was treated with composite strip crown without endodontic treatment, followed up one week.

Conclusion: Composite strip crown can be used as trauma management in fractured anterior deciduous teeth.

INTRODUCTION

Traumatic Dental Injury (TDI) or dental trauma is one of the case that has high prevalence in children[1]. Dental trauma can be defined as destruction of hard tissues on teeth or periodontal tissue because of physical impacts.[2] The study suggested that with the declining prevalence of dental caries and periodontal disease, the TDI is becoming a real threat to children's oral and dental health.[3,4] As many as 5% of all trauma cases often occur in the oral cavity, and in preschool children, 40% of accidents often happen on the oral and maxillofacial area.[5,6] Areas that are often affected by injury are the upper lip, upper jaw, and four maxillary incisors.[4, 7]

The case of TDI is not a condition that is often experienced by dentists in daily practice. The outcome of treatment depends on the knowledge and skill of the operator, as well as the availability of emergency equipment. All treatment procedures in cases of dental trauma, that are carried out quickly, can reduce the loss of teeth and alveolar bone, allowing them for optimal treatment.[2]

CLINICAL REPORT

Female patient aged 5 years and 3 months came with her mother to the Dental Hospital Faculty of Dentistry Universitas Padjadjaran, Bandung, West Java, Indonesia on Monday, January 28, 2019. Patient complained of the

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left front upper teeth broke down into two parts while eating hard brittle food 1 month ago. The patient was embarrassed by the condition. The patient didn't feel pain, swelling or tenderness. Abnormalities in medical and dental history were not found. The behavior of patients before and after treatment is positive. The plaque index of the child is 1.2 (medium).

Extraoral examination on patient found no abnormalities. Intraoral examination showed the child was on the period of primary teeth, no dental anomaly, malocclusion, and premature loss. The diagnosis for this patient were reversible pulpitis on teeth 51, 61, 63, 64, 73, 75 and pulp necrosis on tooth 84. There was fracture on the 1/3 of the mesial part on tooth 61. Tests were performed and showed vitality (+), percussion (-) and palpation (-). Steps taken for this patient were described below.

1. Prepare tools and materials Intraoral mirror, tweezers, halfmoon explorer, excavator, check retractor, cotton roll, cotton pellets, high-speed handpiece, round and fissure diamond bur, 3M™ ESPE™ pediatric strip crown forms, scissors, shade guide, etch, bonding, flowable and packable composite (3M ESPE Filtek ™ Z350XT Ultimate Universal Restorative Syringe Dual Shade shade A2), light cure, composite polishing bur.

Fig 1: Intraoral Photograph on Occlusion.

Fig 2: Extraoral Photograph of Patient

2. Prepare the cavity with a high-speed round handpiece and diamond bur on tooth 61, in the buccal and palatal regions. Make a bevel on the edge of the cavity with fissure diamond bur (Figure 3).

Fig 3: Cavity Preparation with Fissure Diamond Bur

3. Adjust and cut strip crown (3M™ ESPE™ Pediatric Strip Crown Forms) to form the anatomy of the tooth 61 (Figure 4 and 5).

Fig 4: Cutting Strip Crown

Fig 5: Try In Strip Crown

4. Place a shade guide next to tooth 61, so that the composite will be applied in accordance with the original tooth color. (Figure 6).

Fig 6: *Shade Guide* on the tooth

5. Apply etch to the tooth surface for 15 seconds. Then rinse, dry and re-isolate the working area. Apply bonding for 10 seconds using an applicator tip, then light cure for 10 seconds.
6. Strip crown that had been adjusted to the tooth was filled with composite flow A2 and attached to the tooth 61. The excess composite was removed, apply the light cure on the buccal and palatal surface for 25 seconds each.
7. Remove strip crown 61 slowly with the aid of excavator (Figure 7) and polish with fine finishing diamond bur and composite polishing rubber (EVE DiaComp Plus Twist® *Disc*) (Figure 8). Result was shown in Figure 9.

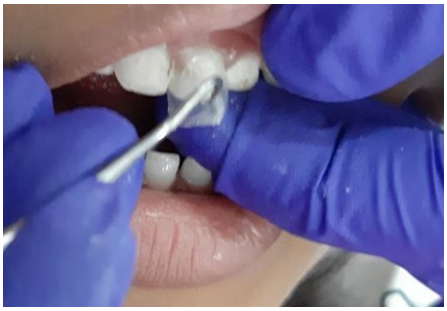

Fig 7: Removal of the Strip Crown with excavator

Fig 8: Polishing the Strip Crown

Fig 9: Intraoral Photograph After Strip Crown Application

DISCUSSION

This patient was diagnosed as reversible pulpitis 61 caused by dental trauma, referring to its history and clinical examination. The classification of trauma on teeth 61 was class IX Ellis and Davey, which the trauma occurred in primary teeth.[8] Classification of trauma according to FDI showed uncomplicated crown fracture, that involved enamel and dentin, without involving the pulp.[9] The classification of ICDAS in this tooth is D4, which was the expansion of limited and deep cavities, involving half of tooth portion and the depth of 1/3 of the dentin.[10] According to AAPD guideline[6], treatment planning for tooth 61 was making sharp parts smooth and filling with the appropriate material. The tooth was not extracted considering the age of eruption of permanent teeth was still long enough. This accompanied the fact that patient felt ashamed because her teeth was broken.

The anterior teeth required good esthetics, and there was a major structure fractured in this patient. The tooth was filled with composite resin as a material of choice. The absence of adequate proximal contact in these patients, as well as uncooperative age, made placement of the mylar strip quite difficult, so the operator used a composite strip crown (3M™ ESPE™ Pediatric Strip Crown Forms) to facilitate better closure in the proximal area. The composite resin used in this case was 3M ESPE Filtek ™ Z350XT Ultimate Universal Restorative Syringe Dual Shade, with shade A2. There was no exposed dentine, so pulp capping was not performed. The filling was checked using articulating paper, finished with a tapered finishing bur, and EVC DiaComp Plus Twist® Disc.

Patient was instructed to do Oral Hygiene Instruction (OHI), and came to control 1 week after the first visit, and observed once every six months, according to AAPD. A good prognosis would be found when the teeth remain positive for vitality test and asymptomatic until the eruption of the replacement teeth.

SUMMARY

Dental trauma in children needs special attention. Examination and proper handling can provide a better prognosis of the affected teeth. The age of trauma in primary teeth determines the disturbances that occur in permanent teeth. Composite strip crown could be used as trauma management in fractured anterior deciduous teeth.

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