

Aesthetic Rehabilitation of Traumatized Anterior Teeth- a Case Report

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Abstract-

Statement of the problem- This case report presents a rare case of multiple dysmorphic permanent anterior teeth due to trauma to predecessor.

Purpose of the study- This article highlights conservative management of dysmorphic traumatized permanent anterior teeth leading to improved aesthetics in pediatric patients.

Case description- The reported case is of a 10-year-old girl with a complaint of pain and dysmorphic hypoplastic maxillary permanent anterior teeth. History revealed trauma to maxillary primary teeth at 1-1.5 years of age. Clinical and radiographic examination showed considerable amount of crown dilaceration.

Results- Conservative endodontic treatment followed by acrylic crowns restored aesthetics and helped achieve a functionally stable occlusion. A better aesthetic option may be considered in adulthood, once a stable occlusion is established.

Conclusion- Correction led to improved aesthetics, function, and confidence. Conservation of natural tooth structure is of utmost important at young age.

Key words – aesthetic restoration, case report, dental trauma, dilaceration

Introduction

With increased aesthetic concerns, trauma to anterior teeth in children has been gaining special attention over the years. Prevalence of anterior tooth trauma is more common than posterior teeth. Most common causes of trauma are accidental falls (82%), occurring at home (68%) out of all the accidental sites. Most commonly affected tooth being the right central incisor followed by left central incisor.⁽¹⁾

Trauma to predecessor causes significant changes in succedaneous teeth but the severity depends on the impact and time of trauma at which the injury occurred. Conservative management of such cases is required as it might affect future dentition.⁽²⁾

Case report-

A ten-year-old girl, reported in December 2019 with a chief complaint of irregularly placed maxillary anteriors with no significant medical history. Past dental history revealed history of trauma to deciduous anteriors at one and half years of age while playing with exarticulation of upper anteriors. The succedaneous teeth followed normal course of eruption. History revealed that in January 2019, patient was diagnosed with a cystic lesion in the maxillary anterior region that extended up to the premolar on the left side of the jaw. Enucleation of the cyst was done at a private hospital and the left first premolar tooth bud was sacrificed.

Clinical examination revealed hypoplastic 12, 11, 21, and 22 with dilacerated crowns and carious 63 (Figure 1).



Figure 1- Pre-Operative Photographs Showing Discolored, Dilacerated Crown and Anterior Cross Bite

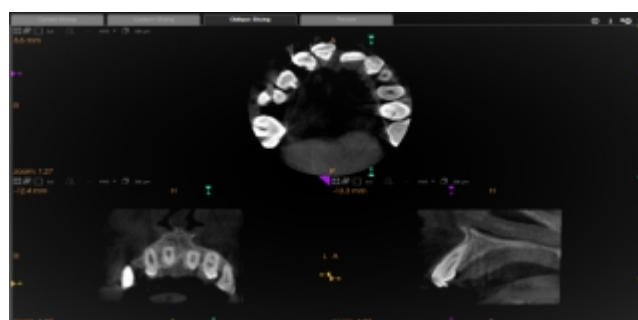


Figure 2- CBCT Image Showing Dilacerated Crown of 11,21,12,22

The dilaceration was severe with sharp palatal bends in middle third of the crown of the teeth. Pre-operative Intra-oral periapical (IOPA) radiograph showed 2 overlapping canals in 21 and 22 (Figure 3a, 3b). Because of this unusual presentation of dysmorphic crown and root part of anterior teeth, CBCT was advised. Patient's photographs and digital OPG were also taken and study models were prepared before

Case Report

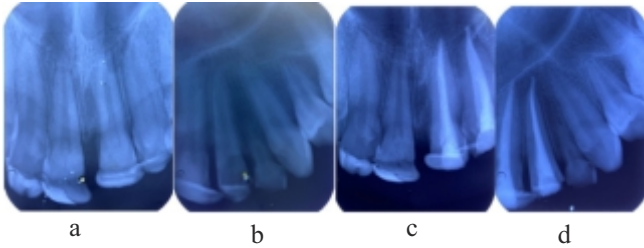


Figure 3- a, b: Pre-Operative Radiographs and c, d : Post-Operative Radiographs

proceeding for the treatment. CBCT (Figure 2) showed two roots in 21 and 22 which were merging in middle third of the roots and labially there was no traceable enamel in middle third with sharp bends indicating crown dilacerations. Dysmorphic configuration of 11, 21 and 22, presence of 63, 23 and 25 (single premolar) on the same side led to uneven occlusal forces which were causing mild discomfort and pain.

Due to COVID-19 pandemic, patient could not follow up for almost a year. Patient reported back in December 2020 with pain in upper anteriors. Pulp vitality test was performed. 21 and 22 gave no response, hence root canal treatment was planned. Before starting the procedure, Parent consent and child assent were obtained. Under proper isolation and aseptic condition, root canal treatment was initiated. Both the canals of 21 as well as 22 were negotiated and biomechanical preparation was done followed by gutta percha and calcium hydroxide-based sealer. Post-operative IOPA was taken (Figure 3c, 3d) and to reduce unnecessary radiation exposure to the child, CBCT was not advised post-operatively. A dilacerated portion of crowns were removed meticulously by sacrificing minimal natural tooth structure, composite build-up was done for 12, 11, 21, 22 and 63 (Figure 4). Crown cutting (Figure 5) followed by an acrylic bridge was given for 11, 21, 22 and 63 (Figure 6). As there was no root resorption in



Figure 4- Dilacerated Portion was removed and Composite Built-Up was done



Figure 5- Crown Cutting



Figure 6- Post-Operative Photographs Showing Restoration of Smile with Conservative Approach

63, and one premolar was missing in second quadrant, we preserved the same to avoid unwanted spacing in the dentition and advised periodic recall. Patient was followed up at 1 month, 3 months, 6 months, 1 year and recalled for next visits. Patient is under fluoride treatment for hypoplastic 13,14 and 23. More definite treatment was advised once occlusion establishes in adulthood.

Discussion

Trauma to deciduous teeth causes deleterious changes in permanent teeth due to the close proximity of the apices of primary teeth and the developing permanent tooth buds, with a prevalence of developmental disturbances in permanent teeth ranging from 12% to 74%.⁽⁹⁾

Crown dilaceration is more frequent following an intrusion or avulsion of primary teeth in the age group of one and half to three and half years, at the time of injury.⁽⁴⁾ As observed in the present case, the trauma at the age of one and half years had led to crown dilacerations of upper permanent anteriors causing sharp palatal bends in middle third of the teeth. This made the instrumentation as well as conservative crown preparation quite challenging. For better aesthetics, sectioning of the bent portion was necessary and at the same time, considering the age of the child, conservative rehabilitation approach was mandatory. As the occlusion was not completely established, acrylic bridge was the choice of treatment with intent to preserve natural tooth structure.

Acrylic resin crowns have been a treatment of choice in children where occlusion is not fully established. Besides having acceptable aesthetics, they have a good retentive property. Reviews show, acrylic crowns can be used safely in children and later replaced by more esthetic and superior options.⁽⁶⁾ Improvisation at every stage is required so that child does not have negative psychological impact.

The treatment of developmental defects of enamel involves a multidisciplinary approach. Proper diagnosis and awareness of the different treatment modalities in each case may impact the treatment outcome. In the present case, the patient's smile was the reason of her low self-esteem. The parents were worried about their daughter's mental distress, as she refrained from socializing because of her dental deformity. Correction of her smile with this conservative rehabilitation approach brought back her lost confidence. We, as pediatric dentists, can certainly contribute to enhance confidence

levels in patients, as the hidden psychological impact is more damaging than the deformity.

Conclusion-

Conservative endodontic treatment followed by acrylic crowns restored aesthetics and helped achieve a functionally stable occlusion. A better aesthetic option may be considered in adulthood, once a stable occlusion is established.

Clinical significance-

An unusual presentation of dysmorphic hypoplastic anterior due to the trauma to predecessors.

Correction led to improved aesthetics, function, and confidence.

Conservation of natural tooth structure is of utmost important at young age.

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