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Case Report **Dentistry**

Interceptive Management of Dilacerated Maxillary Incisor: A Case Report

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Abstract

Because of the intimate physical link between the primary tooth and the permanent tooth germ, traumatic dental injuries in the primary dentition might impair the development of permanent teeth, particularly in the maxillary front region. Dilaceration is a condition that is commonly encountered as a result of dental trauma and is defined as an abrupt deviation along the long axis of the tooth that can be visible between the crown, root, or both. Due to their location within the esthetic zone, such teeth present a special difficulty to the pediatric dentist. This article aims to describe a case of a 09-year-old female patient with an ectopic permanent maxillary central incisor, which was diagnosed as dilacerated after the radiographic examination. The case was managed with an interceptive approach using a Hawley palate.

Keywords: Dental trauma, dilacerations, maxillary incisor, pediatric dentistry, management, interceptive.

INTRODUCTION

Dental injuries have been identified as an oral public health issue [1].

Children are particularly prone to oral injury, particularly during the first two years of life, when they are learning to walk and socialize. The average incidence of trauma varies between 4% and 10% to 33% [2]. The most common effects of primary tooth trauma on the development of permanent teeth are enamel discolouration, enamel hypoplasia, coronal dilaceration, root dilaceration, odontoma-like abnormalities, and eruption changes.

The dilaceration is distinguished by an angulation in the crown and root of the tooth. This is frequently associated to trauma from the primary central incisors during the early stages of the permanent central incisors' development [3].

The mechanism is nonaxial displacement of the previously calcified section of the permanent tooth germ while the remaining noncalcified portion of the permanent tooth germ continues to form at an aberrant angle [4].

This article presents a case of a 09-year-old female patient with impacted permanent maxillary central incisor, which was diagnosed as dilacerated after the radiographic examination. The case was managed with an interceptive approach using a Hawley plate allowing the tooth to continue its eruption in the correct alignment, without recurring to any orthodontic or surgical approach.

CASE PRESENTATION

A healthy 9-year-old girl consulted at the department of preventive and Pediatric Dentistry, La rabta Hospital, Tunisia. The chief complaint was the delayed eruption of the first right maxillary incisor #11 (figure 1).

Figure 1: Ectopic eruption of 11 associated with marginal gingivitis

Clinical investigation revealed an anterior traumatic injury at the age of 3 to its primary incisors. Intraoral examination revealed ectopic right central incisor. A panoramic radiograph was performed and showed an horizontal position of the tooth (figure 2).

Figure 2: The panoramic radiograph shows an horizontal position of the tooth #11

To assess the detailed three-dimensional positioning of the root in orthogonal and oblique planes, cone-beam computed tomography (cbct) was advised.

Sagittal section of our patient's cbct revealed atypical morphology of the tooth: the dilaceration was less than 90° toward the crown, which was directed labially (figure 3).

In the present case, the root was mildly dilacerated with incomplete root formation; giving the tooth an eruption potential.

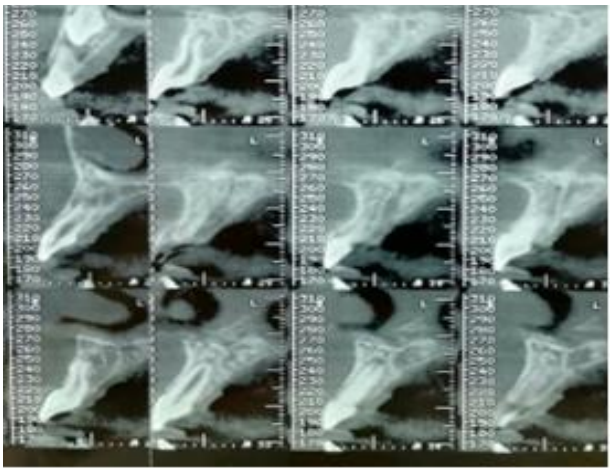

Figure 3: Cone beam in sagittal section: Coronoradicular dilaceration with persistence of eruptive potential

The therapeutic decision for this dilacerated incisor was a soft interceptive management with Hawley palate straightening its axis by progressive activation of the vestibular band. (figure 4). The band was activated once monthly as the tooth continued progressively its eruption.

Figure 4: Hawley palate with active vestibular band

The panoramic section of cbct after 5 months of using the Hawley palate revealed the beginning of the straightness of the axis of the tooth #11 (figure 5).

Figure 5: The panoramic section of cbct after 5 months of using the Hawley palate

After 10 months of follow-up, the patient was aesthetically satisfied with the result (figure 6).

Figure 6: Clinical view after 10 months of follow-up

The follow-up panoramic radiograph revealed the Straightening of the axis of the #11 tooth (figure 7).

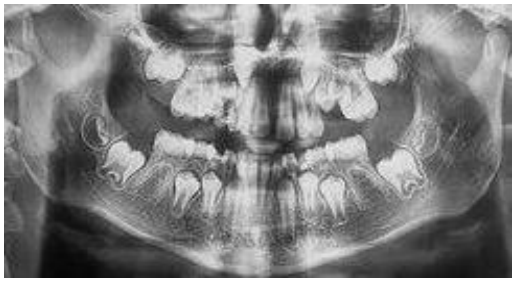

Figure 7: The follow-up panoramic radiograph

A gingivectomy was scheduled to correct the tooth neck level.

DISCUSSION

Dilaceration is an angulation that can occur anywhere throughout the length of the tooth, such as the crown, cementoenamel junction, along the root, or solely at the apex. The disorder is most usually caused by trauma or extraction of a deciduous tooth when the creation of the permanent tooth is incomplete [5].

The precise etiological reasons for the impacted incisors are unknown, It can be because of trauma, mechanical obstruction by supernumerary teeth, developmental disturbances [7].

Diagnosis of dilacerated teeth is clinical, although radiographic imaging is crucial. Radiographic examinations of dilacerated teeth are necessary for effective diagnosis and treatment planning. However, due to probable distortion or poor positioning, 2-dimensional (2D) photographs may not provide enough detail [8].

Cone beam computed tomography allows clinicians to determine the exact placements of the apex and crown, as well as the degrees of root development and dilaceration, in a central incisor with dilacerated root.

The most frequent presentation of a dilacerated incisor is for the crown to be horizontal and the root to be vertical, with the tooth root pointing labially when properly positioned. Which is detailed in our case study [9].

The treatment of an impacted dilacerated tooth is assumed to be dependent on the stage of root formation, the degree of dilaceration, and the tooth's position [10].

Extraction of dilacerated incisors followed by reimplantation, surgical extraction and repositioning the lateral incisor to imitate the central incisor are all treatment options for dilacerated teeth. If the patient is completed growing, extraction will be followed by implant implantation. Extraction followed by prosthesis implantation Dilacerated tooth surgical exposure and orthodontic traction [11].

In this case, the progressive straightening of the dilacerated tooth by a Hawley's plate proved its effectiveness due to the persistence of the eruptive potential of the tooth

CONCLUSION

Oral and facial trauma is a major issue that can have substantial medical, aesthetic, and psychological repercussions for both children and their parents.

In young patients, a dilacerated maxillary permanent central incisor has an effect on aesthetics, phonation, and psychology. Early diagnosis, the position and orientation of the impacted tooth, the degree of root formation, the number of dilacerations, the availability of space for the impacted tooth, and patient motivation all influence prognosis.

The pediatric dentist faces everyday obstacles in making the correct diagnosis and therapy decision for each clinical setting.

REFERENCES

1. Soares, F. C., Cardoso, M., & Bolan, M. (2014). Association between Trauma to Primary Incisors and Crown Alterations in Permanent Successors. *Braz. Dent. J., 25*, 332–335.
2. Mendoza-Mendoza, A., Iglesias-Linares, A., Yañez-Vico, R. M., & Abalos-Labruzzi, C. (2015). Prevalence and Complications of Trauma to the Primary Dentition in a Subpopulation of Spanish Children in Southern Europe. *Dent. Traumatol., 31*, 144–149.
3. Andreasen, J. O., Jens, O., & Andreasen, Frances M. Andreasen, Lars Andersson. (1994). Textbook and color atlas of traumatic injuries to the teeth. Copenhagen: Munksgaard; p. 457-94.
4. Topouzelis, N., Tsaousoglou, P., Pisoka, V., & Zouloumis, L. (2010). Dilaceration of maxillary central incisor: a literature review. *Dental Traumatology*, *26*(5), 427-433. DOI: 10.1111/j.1600-9657.2010.00915.x.
5. Hamasha, A. A., Al-Khateeb, T., & Darwazeh, A. (2002). Prevalence of dilaceration in Jordanian adults. *Int Endod J, 35*, 910-2.
6. Ruellas, A. C. D. O., & Mattos, C. T. (2012). Multidisciplinary approach to a traumatized unerupted dilacerated maxillary central incisor. *Angle Orthod, 82*(4), 739–747.
7. Deshpande, A., Prasad, S., & Deshpande, N. (2012). Management of impacted dilacerated maxillary central incisor: A clinical case report. *Contemp Clin Dent, 3*(Suppl 1), S37-40. doi: 10.4103/0976-237X.95102. PMID: 22629064; PMCID: PMC3354783.
8. Hui, J., Niu, Y., Jin, R., Yang, X., Wang, J., Pan, H., & Zhang, J. (2022). An analysis of clinical and imaging features of unilateral impacted maxillary central incisors: A cross-sectional study. *Am J Orthod Dentofacial Orthop*, *161*(2), e96-e104.
9. Ruellas, A. C. D. O., & Mattos, C. T. (2012). Multidisciplinary approach to a traumatized unerupted dilacerated maxillary central incisor. *Angle Orthod, 82*(4), 739–747.
10. Topouzelis, N., Tsaousoglou, P., Pisoka, V., & Zouloumis, L. (2010). Dilaceration of maxillary central incisor: A literature review. *Dent Traumatol, 26*, 335-41.
11. Swe, Y. E., & Naing, S. *Management of an Impacted Permanent Maxillary Left Central Incisor with Angular Root Dilaceration: Case Report* (Doctoral dissertation, MERAL Portal).