

Post Traumatic Impaction of Maxillary Deciduous Central Incisor: A Case Report

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ABSTRACT

Background and Objectives: Primary tooth impaction is a rare phenomenon when compared to permanent teeth impaction, particularly in upper front teeth. The problem could be either a physical blockage of the eruption or a malfunction of the eruption process.

Methods: This case study describes a 4-year-old girl who experienced incomplete eruption of her upper right baby front tooth due to an injury. The unerupted tooth was surgically removed. Regular check-ups were recommended to monitor the development of her teeth and ensure sufficient space for her permanent front teeth.

Results: This case study describes an unusual situation where a baby's upper front tooth failed to erupt. that associated with trauma. That caused delay in progression of the permanent successor compared to the contralateral permanent central incisor. And by extracting the impacted primary tooth a path of eruption opened for the permanent successor tooth so it will accelerate the progression of erupting the permanent successor and mostly may erupt in the same time of the contralateral tooth.

Conclusions: It's crucial to closely watch the eruption of permanent and deciduous teeth to spot and address any issues with tooth eruption early on.

Keywords: Primary incisors, Childhood trauma, Impacted tooth.

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INTRODUCTION

Tooth eruption is the natural process where a tooth moves from its development site to its final position in the mouth.¹ Tooth impaction occurs when a tooth fails to erupt into its correct position and remains unerupted past its normal eruption time.² Tooth eruption failure can be either primary or secondary. Primary failure occurs when a tooth doesn't erupt due to a problem with the eruption process itself. Secondary failure happens when a tooth erupts partially but then becomes stuck or blocked, the potential for continuous eruption is lost and the eruption becomes ankylosed.³

Injuries to the mouth and face are a common problem, especially in young children, and can have serious consequences for both physical health and emotional well-being. Studies show that about 30% of children under age 7 injure one or more baby teeth, with most serious injuries occurring between ages 1 and 3. The most common type of injury to baby teeth is intrusion, where a tooth is pushed deeper into the gum due to a direct blow.⁴

The deciduous front teeth are pushed deep into the jawbone, where they can damage the developing permanent teeth that are located very close to the roots of the baby teeth. In fact, the baby teeth and the developing adult teeth are very close together, separated by only a thin layer of tissue.⁵ Therefore, injuries to deciduous teeth can disrupt the development of adult teeth. Depending on the location and severity of the injury, various problems can occur, ranging from minor enamel damage to complete destruction of the developing adult tooth.⁶ This can lead to abnormal eruption patterns of the permanent teeth, potentially causing them to become impacted (stuck) or erupt in the wrong position.⁷ The percentage of developmental problems in permanent front teeth that may be linked to injuries to the baby teeth ranges from 12% to 74%.⁵ Early diagnosis is crucial for monitoring and preventing complications.⁷

Unerupted upper deciduous front teeth are a concern for both dentists and parents as they can impact dental and facial appearance, as well as cause psychological distress. These teeth can also interfere with chewing and speaking, making early detection and treatment essential.⁸

CASE PRESENTATION

A four years old girl attended the pedodontics department at Tishik International University. Ex-

pressing concern about an unerupted upper right front tooth after trauma of falling down that happened when she was two years old which had made the appearance unattractive and phonetic problems. The girl had no medical problem, not taking any medication and a normal medical family history. Upon extraoral examination, no lymphadenopathy, asymmetry, or abnormal signs were found.

A dental exam of the deciduous teeth showed that all teeth were present except for the upper right front tooth (Fig. 1). While during intra oral examination, the incisal edge of maxillary right central incisor was found in the region of mucogingival junction (Fig. 2). The deciduous tooth on the left side of the upper jaw had erupted normally and also there was localized space loss between the erupted maxillary left central incisor and maxillary right lateral incisor due to tipping of those two teeth to the edentulous space of the maxillary right central incisor (Fig. 1).

Panoramic radiograph (Fig.3) and periapical radiograph (Fig.4) were taken to complete clinical evaluation and making sure that the permanent succes-



Figure 1: Absence of primary maxillary right central incisor and localized space loss between erupted maxillary left central incisor and right lateral incisor.

sor tooth is present and for seeing the relation between primary and permanent tooth. A panoramic X-ray showed that all permanent teeth were devel-

oping, but the unerupted baby front tooth was blocking the path of the permanent front tooth, causing it to become impacted.

Given the child's age, the position of the unerupted baby tooth, and the development stage of the permanent tooth, it was decided to surgically remove



Figure 2 : Presence of incisal edge of primary maxillary right central incisor at the mucogingival junction region.

the baby tooth after consulting with an orthodontist. There was no hope for the baby tooth to erupt naturally, and it was likely to interfere with the development and eruption of the permanent tooth.

The orthodontist advised the parent of the patient that after 6 months of extraction they should come back for constructing an orthodontic removable appliance for expansion and gaining more space in the area of space loss and then space maintainer for preventing more space loss until the permanent tooth will erupt. The parents of the patient were informed that they should come back every six months for the follow up to see the progression in erupting permanent right central incisor.

The patient cooperated well, so the surgery was performed under local anesthesia after application of topical anesthesia. At the beginning a small size elevator was used to make mobility in the tooth and then root forceps was used to grasp the tooth but there was not enough access for grasping the tooth. Elevator didn't used again to avoid traumatization of the permanent successor. Therefore the patient transferred to the oral surgery room and had gingivectomy procedure was performed (Fig. 6) around the crown of the primary tooth by using a dental laser by Quick Lase from United Kingdom (Fig.5) for obtaining a better access and better grasping of the tooth. After that elevator was used and mobility obtained in the tooth(Fig.7), Finally the crown of the tooth grasped by root forceps (Fig. 8) and surgical extraction was performed. Sterilized gauze was placed over the socket and advised the patient to keep it for 45 minutes, keep fingers and tongue away from the extraction area, do not spit excessively, do not rinse the mouth for several hours, do not drink through a straw and do not drink worm things today. After that Amoxicillin



Figure 3 : Preoperative OPG.

250mg and paracetamol 250 mg were prescribed three times daily. A postoperative OPG was taken (Fig. 9) for making comparison of progression of the eruption of permanent successor later after six months between the follow up appointments. Finally the parents of the patient advised that they come back after six months for orthodontic treatment and follow up every six months for monitoring progression of erupting the permanent tooth.



Figure 4 : Preoperative periapical radiograph.



Figure 5 : Dental laser unit and safety glasses by Quick Lase from (United kingdoms).

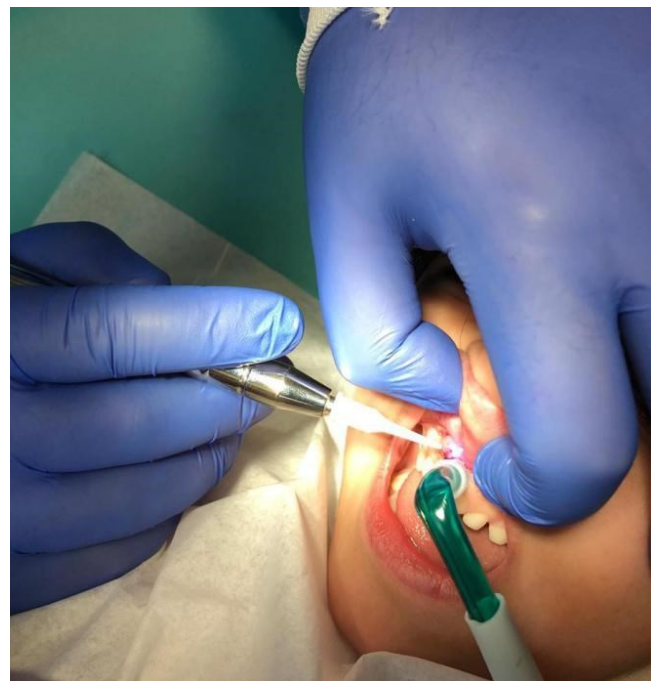


Figure 6 : Gingivectomy around the tooth crown by using a dental laser.



Figure 7 : Gaining mobility by using an elevator.

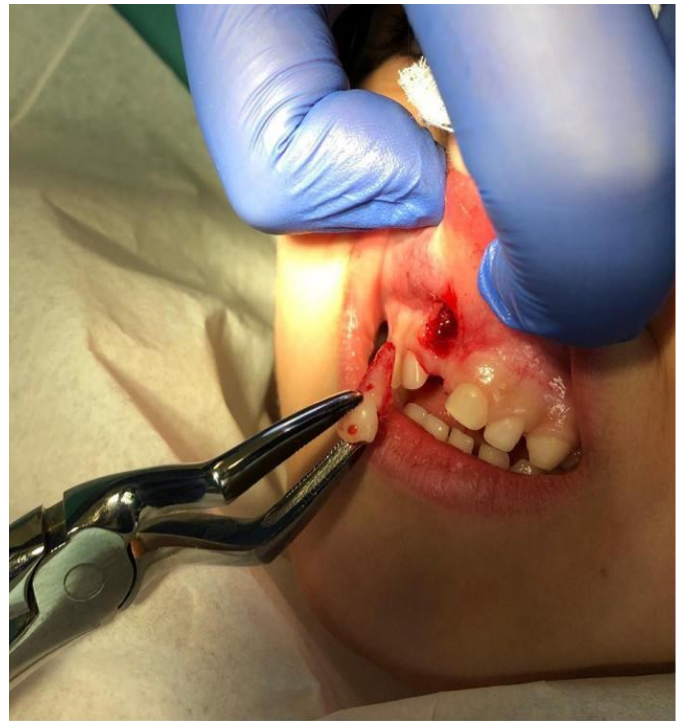


Figure 8 : Grasping and extracting the tooth by root forceps.



Figure 9: Postoperative OPG.

RESULT AND DISCUSSION

Unerupted deciduous teeth are uncommon, while unerupted adult teeth are more frequent. Unerupted adult teeth can arise from various reasons, including physical obstructions like odontomas, tumors, fused teeth, trauma, and cysts. Misalignment of the tooth germ, either due to injury or unknown causes, can also lead to impaction due to lack of space or primary failure of the eruption process.⁹

This case study describes an unusual case of a baby's upper front tooth failing to erupt due to a trauma that caused delay in progression of the permanent successor compared to the contralateral permanent central incisor. And by extracting the impacted primary tooth a path of eruption opened for the permanent successor tooth so it will accelerate the progression of erupting the permanent successor and mostly may erupt in the same time of the contralateral tooth.¹⁰

Also still there is localized space loss problem and it will cause anesthetic eruption of the permanent successor so the parent of the patient informed that orthodontic treatment after six months is necessary for regaining the space by orthodontic removable appliance and after that constructing space maintainer for preventing space loss after regaining space and also for esthetic concern of the child.¹¹

CONCLUSION

In order to detect and treat any anomaly in tooth eruption early on, it is crucial to closely watch the progress of deciduous and permanent teeth. Central incisor impaction can be caused by childhood trauma both temporarily and permanently. Unerupted deciduous teeth should be removed at the right time, keeping in mind how the successor tooth will develop and how the spaces in the permanent teeth will be arranged.

REFERENCES

1. Suri L, Gagari E, Vastardis H. Delayed tooth eruption: pathogenesis, diagnosis, and treatment. A literature review. *American Journal of Orthodontics and Dentofacial Orthopedics*. 2004 Oct 1;126(4):432-45.
2. Bodner L, Horowitz I. Impacted primary incisor: report of case. *ASDC journal of dentistry for children*. 1987 Sep 1;54(5):363-4.
3. Proffit WR, Vig KW. Primary failure of eruption: a possible cause of posterior open-bite. *American journal of orthodontics*. 1981 Aug 1;80(2):173-90.
4. Altun C, Cehreli ZC, Güven G, Acikel C. Traumatic intrusion of primary teeth and its effects on the permanent successors: a clinical follow-up study. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology*. 2009 Apr 1;107(4):493-8.
5. Diab M, ElBadrawy HE. Intrusion injuries of primary incisors. Part III: Effects on the permanent successors. *Quintessence international*. 2000 Jun 1;31(6).
6. ANDREASEN JO, Sundström B, Ravn JJ. The effect of traumatic injuries to primary teeth on their permanent successors: I. A clinical and histologic study of 117 injured permanent teeth. *European Journal of Oral Sciences*. 1971 Jun;79(3):219-83.
7. Cozza P, Mucedero M, Ballanti F, De Toffol L. A case of an unerupted maxillary central incisor for indirect trauma localized horizontally on the anterior nasal spine. *Journal of Clinical Pediatric Dentistry*. 2005 Apr 1;29(3):201-3.
8. Shakra KA. Management of Unerupted Maxillary Deciduous Central Incisor: A Case Report. *International Journal of Clinical Pediatric Dentistry*. 2014 Jan;7(1):58.
9. Becktor KB, Bangstrup MI, Rølling S, Kjær I. Unilateral primary or secondary retention of permanent teeth, and dental malformations. *The European Journal of Orthodontics*. 2002 Apr 1;24(2):205-14.
10. Huber K, Suri L, Taneja P. Eruption disturbances of the maxillary incisors: a literature review. *Journal of Clinical Pediatric Dentistry*. 2008 Apr 1;32(3):221-30.
11. Chinthan G, Nagarahalli K. Maxillary central incisor impaction due to childhood trauma and orthodontic intervention. *African Journal of Trauma*. 2015 Jul 1;4(2):57.