

Novel Insights from Clinical Practice

An Unusual Tooth Shedding with Internal Resorption: A Case Report

Vo Truong Nhu Ngoc^a Tong Minh Son^a Le Thi Thuy Linh^a
Le Quynh Anh^a Nguyen Minh Duc^a Dinh-Toi Chu^{a, b}

^aSchool of Odonto Stomatology, Hanoi Medical University, Hanoi, Vietnam; ^bFaculty of Biology, Hanoi National University of Education, Hanoi, Vietnam

What Is It about?

This report describes an uncommon clinical case that occurred in primary molars with internal resorption and pinkish discoloration. Pink tooth is worrisome for children and parents. Children should have their teeth examined on a regular basis to detect any problems in the process of tooth shedding and eruption.

Keywords

Internal resorption · Shedding · Eruption · Primary teeth · Discoloration

Abstract

Humans have two sets of teeth, deciduous teeth and permanent teeth. When primary teeth fall out, permanent teeth erupt to maintain the chewing function and jaw development. Shedding occurs with increasing level of mobility in primary teeth as a result of root resorption. This report describes an uncommon clinical case that occurred in primary molars with internal resorption and pinkish discoloration. Pink tooth is worrisome for children and parents. Children should have their teeth examined on a regular basis to detect any problems in the process of tooth shedding and eruption.

© 2019 The Author(s)

Published by S. Karger AG, Basel

Vo Truong Nhu Ngoc and Tong Minh Son are co-first authors of this article.

Dinh Toi Chu
Faculty of Biology, Hanoi National University of Education
136 Xuan Thuy
Cau Giay, Hanoi (Vietnam)
E-Mail chudinhtoi.hnue@gmail.com

Established Facts

- There are three causes of permanent tooth eruption: root resorption, alveolar resorption, and external forces. If primary teeth do not fall out for a particular reason, the resorption will occur continuously in crowns, which causes internal resorption in crowns.

Novel Insights

- Internal resorption makes space inside the crown which allows blood vessels to fill out the chamber. Crowns that lost dentin layers will become thin and pinkish.
- The pinkish discoloration in a primary tooth might suggest the tooth needs to be removed.

Introduction

Humans, like most mammals, have two sets of teeth, deciduous teeth and permanent teeth. When primary teeth fall out, permanent teeth erupt to maintain the chewing function and jaw development. There are three causes of permanent teeth eruption: root resorption, alveolar resorption, and external forces [1, 2]. The process of root resorption consists of two phases:

- *Phase 1. Root resorption:* Roots of primary teeth are resorbed accompanied with root formation of secondary teeth (lasts around 4 years).
- *Phase 2. Shedding:* At the end of phase 1, primary teeth show signs of mobility. The sulcular epithelium surrounding the crown grows apically between the crown and junctional epithelium. In this process, sulcular epithelium is similar to gingival epithelium until succedaneous teeth exfoliate oral mucosa. This process occurs without the presence of ulcer or inflammation [1].

Several factors considered as the causes of abnormality in this process include: vital pulp, ankylosis, early loss of primary teeth, bruxism, and genes [2].

In most cases, when primary teeth are normally replaced by their successors, crowns become mobile since the roots were resorbed. Generally, resorption occurs only on roots and then crowns fall out as a result. There is no change in color, size, or shade of teeth. Nevertheless, if teeth do not fall out for to a particular reason, this process will occur continuously in crowns, which causes internal resorption in crowns.

Case Report

A 10-year-old female patient came to the clinic with the chief complaint of mobility in 4 first molars 54, 64, 74, and 84, and pinkish discoloration.

Medical History

Three months before, teeth 54, 64, 74, and 84 started showing signs of mobility and discoloration from white to pink. One month later, these teeth became stable again, and the color changed to pink with a darker shade, while gums and other periodontal structures remained normal. She had never experienced any trauma. The problem was worrisome for the girl and her parents.

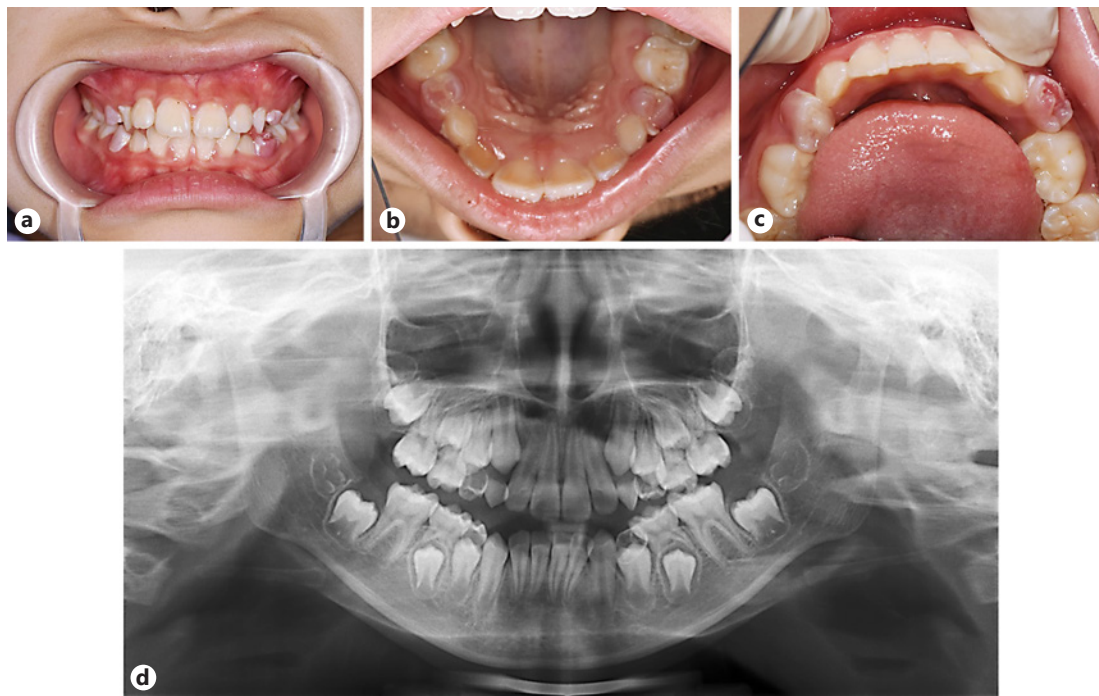


Fig. 1. Clinical features. **a–c** Pinkish discoloration in teeth 54, 64, 74, and 84. **d** Panoramic image.

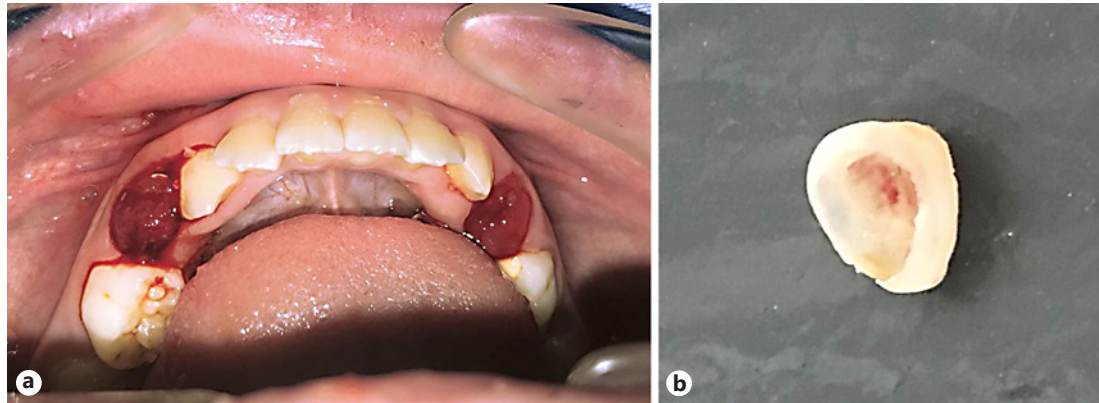


Fig. 2. Tooth extraction. **a** Excessive bleeding after extraction. **b** Tooth 84.

Examination

This patient had 24 teeth with 14 permanent teeth. Dental hygiene was good, GI (Gingival Index) was 0. The characteristics of 4 primary first molars were as follows:

- Tooth mobility was level 1 (Grace and Smales Mobility Index).
- Crowns were pinkish (Fig. 1a–c).
- No pain was reported.
- Gums and other periodontal structures were normal.
- The panoramic image (Fig. 1d) showed that roots of these teeth were almost resorbed, and the crowns were thin and translucent (Fig. 1c).

We diagnosed internal resorption in primary teeth, which resorbed almost the dentin layer of the crowns.

Treatment

In step 1, local anesthesia with lidocaine 2% was given. In step 2, forceps were used to extract teeth 54, 64, 74, and 84. All these crowns were internally resorbed, which left 4 crowns as thin and translucent layers. Hence, 3 out of 4 crowns were broken during extraction, except tooth 84. Underneath these crowns, granulation tissue bled easily and excessively after extraction (Fig. 2). In step 3, laser was used for hemostasis. After 1 month of follow-up, the permanent successors exfoliated.

Discussion

Resorption is defined as a condition of associated loss of dentin, cementum, or bone due to a physiologic or pathologic factor [3]. According to Andreasen, resorption is classified as internal (inflammatory, replacement) and external (surface, inflammatory, and replacement) [4]. The panoramic image shows radiolucent area around the pulpal cavity, usually of incisors and lower molars.

Primary molars become mobile as a result of root resorption. Interestingly, in this case, these teeth became stable again after a condition of mobility 1 month later on. That might be because the eruption of secondary teeth pushed deciduous crowns tightly between its two lateral teeth. Moreover, the development of blood vessels inside crowns as granulation tissues could play a part in preventing these crowns from falling out. Internal resorption made space inside the crown, which allowed blood vessels to fill out the chamber. Crowns that lost dentin layers became thin and translucent, which can be seen clearly on the panoramic image. The combination of a very thin crown and excessive development of blood vessels made these teeth pinkish in appearance. The hemorrhage after extraction was also due to the excessive development of blood vessels inside the crowns.

Internal resorption is observed in several individual teeth and is often asymptomatic due to trauma, orthodontic treatment, pulp necrosis, or tooth shedding [2]. A case report by Vinayachandran and Saravanakarthykeyan [5] also reported a case with only tooth 84 affected. However, in our case, the phenomenon occurred in 4 first molars at the same time. This could occur coincidentally or for an unknown reason that needs to be reported in the future.

Conclusion

Children should have their teeth examined on a regular basis to detect any problems in the process of tooth shedding and eruption. In this case, primary teeth were not mobile but showed pinkish discoloration. These features suggested the teeth needed to be removed; thus, dentists have to carefully examine patients of tooth-shedding age to detect these signs and remove primary teeth in a timely manner. After the tooth extraction, hemostasis must be properly performed because of the easy bleeding condition.

Acknowledgement

We would like to thank our colleagues, especially Ms. Ngoc-Quynh Hoang (Jaxtina English Center, Hanoi, Vietnam) for critical reading and checking to improve the revised manuscript.

Statement of Ethics

All study protocols were approved by a local ethics committee of the School of Odonto-Stomatology, Hanoi Medical University, and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments. Informed consent was obtained from the patient's parents included in the study.

Disclosure Statement

All authors have no conflicts of interest or financial ties to disclose.

Funding Sources

No funding was received.

References

- 1 Bath-Balogh M, Fehrenbach MJ. Dental Embryology, Histology, and Anatomy. 2nd ed. Amsterdam: Elsevier; 2006.
- 2 Dean JA. [McDonald and Avery's Dentistry for the Child and Adolescent](#). 10th ed. St. Louis: Mosby; 2015.
- 3 Ne RF, Witherspoon DE, Gutmann JL. Tooth resorption. [Quintessence Int](#). 1999 Jan;30(1):9–25.
- 4 Tronstad L. Root resorption—etiology, terminology and clinical manifestations. [Endod Dent Traumatol](#). 1988 Dec;4(6):241–52.
- 5 Vinayachandran D, Saravanakarhikeyan B. 'Pink Tooth': An Obvious Manifestation of Insidious Pathology - A Case Report. [Acta Sci Dent Sci](#). 2018;2(8):106–7.