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Clinical Management of Persistent Eruption Bulge Causing Delayed Eruption of Permanent Central Incisor: A Case Report

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ABSTRACT

Tooth eruption bulge is a localized swelling in the gingiva that forms during tooth emergence into the oral cavity. It may present as a normal phenomenon of teething or accompany delayed tooth eruption. The appearance depends upon the amount of fluid or blood present in the engorged organ. It poses an aesthetic, psychological, and functional concern in children. It may resolve spontaneously during tooth eruption; however, intervention is indicated if it is associated with pain, discomfort, or results in delayed eruption of the permanent tooth. Constant monitoring for infection or impaction may be needed, especially in cases of permanent dentition. This case report aims to demonstrate the clinical diagnosis and intervention done for management of a persistent eruption bulge causing delayed eruption of the permanent maxillary central incisor, and to emphasize the importance of periodic dental examinations in monitoring the sequence of eruption in mixed dentition.

Keywords: Children; swelling; tooth eruption.

INTRODUCTION

Tooth eruption is the process by which teeth emerge into the oral cavity.[1] When its timing deviates (delays) from the normal chronology, the eruption is considered to be delayed. Delayed eruption is experienced by 4.3% of the patients. Delayed eruption might be caused by local factors such as dense fibrous gum tissues, minor trauma or injury to the area, physical obstruction by supernumerary teeth, and pulp necrosis of the primary tooth.[2]

A tooth eruption bulge is seen when an erupting tooth causes localized swelling of the gingiva, with typical color and texture. It might be a natural aspect of the eruption process or may accompany delayed eruption, mostly due to local obstruction.[3] It may resolve on its own but if it impacts esthetics, mastication or psychology of patients, surgical exposure of the affected tooth crown is considered.[4,5] This case report highlights the diagnosis and intervention of persistent eruption bulge accompanying delayed eruption of permanent maxillary central incisor.

CASE PRESENTATION

A nine-year-five-month-old male patient reported to the Department of Pedodontics and Preventive Dentistry with the chief complaint of swelling of gums in the upper front teeth region for one year.

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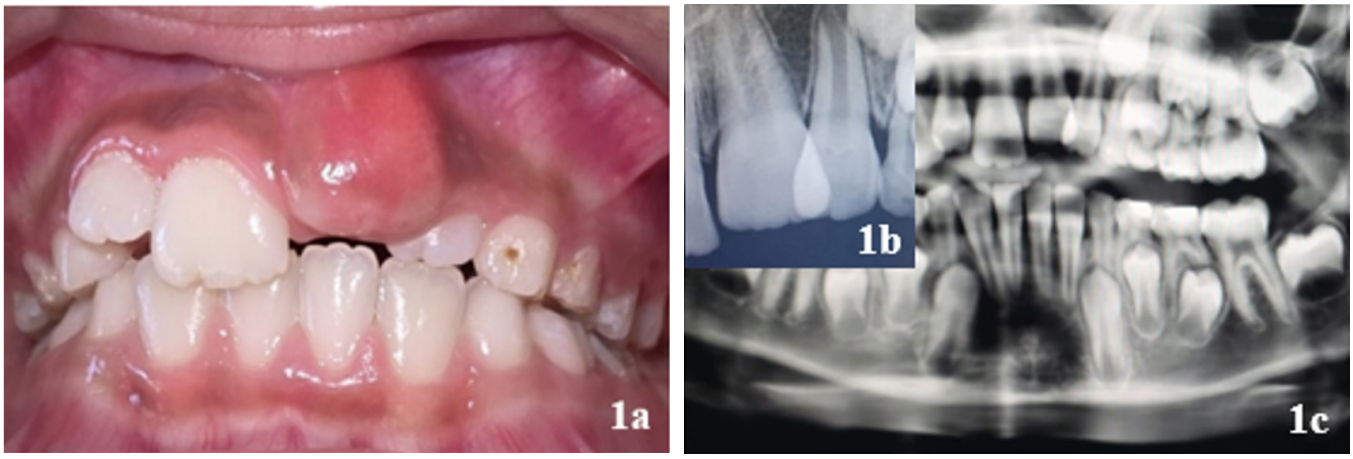

Figure 1. (1a) Pre-operative frontal view showing swelling with respect to #21; (1b) Pre-operative intraoral periapical radiograph showing #21 with open apex; (1c) Orthopantomogram showing unerupted #21 and more advanced #22.

The swelling was not associated with any kind of pain; however, it was associated with occasional discomfort during mastication. The child had no prior history of traumatic dental injury.

Clinical examination showed that the patient was in the mixed dentition stage. There was a localized, circular swelling of approximately 2 × 2 cm^2 on the labial aspect of the gingiva with respect to the permanent maxillary left central incisor (#21). The swelling was similar to the color of the adjacent attached gingiva. The swelling was non-tender on palpation, firm in consistency, and without any sign of discharge.

Maxillary right central incisor (#11) had erupted fully in a favorable anatomical position within the dental arch (Figure 1a). Maxillary left and right lateral incisors (#12), (#22) were erupting (Figure 1a). A provisional diagnosis of an eruption bulge was made. Intraoral periapical radiograph and orthopantomogram were done.

The periapical radiograph revealed the presence of a permanent maxillary central incisor (#21) with delayed eruption and an open apex (Figure 1b). According to Nolla's stage of root development classification, it was stage nine.[6] Panoramic radiograph showed a significant deviation of the eruption sequence as the permanent maxillary left lateral incisor (#22) was at a more advanced stage of development compared to tooth (#21) (Figure 1c). The final diagnosis of eruption bulge, with delayed eruption of the permanent maxillary left central incisor was made.

A treatment plan to perform surgical exposure of tooth (#21) under local anesthesia was made. The procedure was explained to the patient and his parent, and after obtaining informed consent and assent, the treatment was performed. Topical 2% lignocaine gel was applied prior to local anesthesia administration to enhance comfort, and local infiltration was given with 2% lignocaine hydrochloride with 1:200000 concentration adrenaline to anesthetize the region surrounding the tooth. A simple releasing incision was given using a scalpel (#15 blade) over the soft tissue covering, and the mucosal flap was reflected with Molt (#9) Periosteal elevator to expose the incisal edge (Figure 2a). Pressure was applied with sterile gauze to achieve hemostasis.

The follow-up appointments were made after the second and sixth week to monitor the healing progress and emergence of the tooth. After two weeks (Figure 2b), the swelling had subsided, and the permanent maxillary central incisor had partially erupted; and by the sixth week (Figure 2c), the middle third of the crown was visible.

Figure 2. (2a) Post-operative frontal view showing exposed incisal edge of #21; (2b) Intraoral photograph acquired at two-week follow-up; (2c) Intraoral photograph acquired at six-week follow-up showing eruption of #21; (2d) Intraoral periapical radiograph at six-week follow-up.

DISCUSSION

Eruption sequence is an obvious indicator of overall physical development since dental emergence patterns are influenced by various biological and nutritional factors in early life.[1] Tooth eruption is considered delayed when a tooth appears in the oral cavity at a time that significantly deviates from the established norms for an individual's sex and ethnic background.[2] Though various local factors and systemic conditions are attributed to delayed tooth eruption, the exact cause and process are still a topic of debate.[2,4] In the present case, the cause was a local factor, a physical obstacle in the form of a thick fibrous gingiva in the eruption pathway, which prevented the tooth from erupting and presented as a persistent eruption bulge.

Although eruption bulges are usually thought to be a natural aspect of the eruption process that tends to resolve on their own, their appearance might occasionally concern medical professionals and parents if they cause discomfort, bleeding, infection, or aesthetic concerns.[3] The delay in eruption may allow adjacent teeth to drift into the space, which may further impede eruption of the unerupted tooth, as in the case presented, where eruption of #22 was more progressed compared to #21, posing future problems in occlusion.[7]

Observation is the preferred approach for addressing delayed tooth eruption.[2] However, intervention is advocated when there is the emergence of contralateral teeth that occurred greater than six months previously, the lower incisors have emerged more than one year previously, and there is deviation from the normal pattern of eruption, with delayed eruption being the child's presenting complaint.[5,7,8] The case presented had exact indications for active intervention.

Active intervention includes exposure of the affected crown by incision, electrocautery or lasers, and guiding them to occlusion via orthodontic treatment if needed.[8-10] Electrocautery and laser have various advantages over manual excision.[8] However, due to unavailability of the above-mentioned facilities, incision was carried out manually using a scalpel (#15) blade in the case above.

This case report aims to contribute valuable evidence to the limited literature on eruption bulges and to advance understanding of their etiology, clinical features, and management. Thus, dental practitioners can appropriately address patients' concerns, and parents will be better informed about the need for timely dental treatment.

SUMMARY

Sequential and timely eruption of teeth plays a significant role in a child's overall development. Persistent eruption bulge often indicates a mechanical barrier to tooth emergence. Early diagnosis through clinical and radiographic monitoring is essential, and active intervention is needed if esthetics and function are compromised. Simple surgical exposure remains a highly successful, minimally invasive treatment that provides immediate relief and allows for spontaneous tooth eruption.

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CONFLICT OF INTEREST: None

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