

# Rare Case of Unerupted Second Deciduous Molar with Congenitally Missing Second Permanent Premolar: Case Report

## SUMMARY

**Background/Aim:** The purpose of this report is to present an unusual case of failure of eruption of a second deciduous molar and its management.

**Case Report:** An 8-year-old boy presented with a complaint of a missing tooth. Radiographic examination revealed the second deciduous molar was impacted without any mechanical obstacles, like an odontoma or supernumerary teeth, being present. **Conclusions:** The case presented in this report is of scientific relevance due to the rarity of this type of pathology and the interesting histopathology.

**Key words:** Primary Failure of Eruption, Unerupted Primary Tooth, Second Deciduous Molar

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CASE REPORT (CR)

Balk J Dent Med, 2020;191-193

## Introduction

Tooth eruption is described as the process in which a tooth moves from its normal position within the alveolar process towards its functional position in the oral cavity<sup>1</sup>. The main anomalies in tooth eruption can be classified as follows. Impaction is defined as a cessation of the eruption of a tooth caused by a clinically or radiographically detectable physical barrier in the eruption path or by an ectopic position of the tooth. Primary failure of eruption: defined as a cessation of the eruption before gingival emergence without a recognisable physical barrier in the eruption path or ectopic position. Secondary retention: defined as a cessation of eruption of a tooth after emergence; secondary retention can be defined also as reimpaction, ankylosis, submersion<sup>2</sup>. Among all primary teeth the mandibular second primary molar has the highest incidence of retention. Primary retention is considered a very rare phenomenon with very few cases presented in the literature. Failure of eruption is diagnosed when the unerupted tooth is covered by an intact mucosa and radiographs reveal the tooth to be deeply buried in the bone<sup>3</sup>.

This paper presents a case of failure of eruption of a deciduous second molar.

## Case Report

We report the case of an 8-year-old boy who was referred to the Oral Surgery Department at the Royal Cornwall Hospital for investigation of an unerupted deciduous right second molar. His family and medical history were unremarkable.

Intraoral examination revealed that the patient was in the mixed dentition. All primary teeth except for the mandibular right deciduous second molar and his upper and lower deciduous central incisors were present in the mouth. All four first permanent molars, his lower permanent central incisors and his upper left first permanent central incisor were also present.

Extraoral clinical examination was non-contributory. An orthopantomograph (Figure 1) was taken to identify any dental anomalies and revealed a normal development of his dentition, with the exception of the mandibular right deciduous second molar (LRE) and the mandibular right second premolar (LR5). The LRE was unerupted and his LR5 was completely absent; LREs' root development was complete, and its root apices seemed to be in close proximity to the mandibular canal and the lower mandibular cortex. No periodontal space around the roots of the LRE was seen, thus suggesting ankylosis. Finally, the crown appeared to be surrounded by a radiolucent area.



Figure 1. Orthopantomograph of patient

A Cone Beam CT was performed in order to evaluate the tooth morphology and its proximity to the inferior alveolar nerve (Figure 2). The report noted a normal morphology, an enlarged follicle and a close relationship with the inferior alveolar nerve but no branching.



Figure 2 Cone beam CT of patient

### Treatment

After clinical and radiographic examinations were conducted, it was decided to surgically extract the impacted tooth. The procedure was undertaken under a general anaesthetic (due to the proximity of the root apices to the inferior alveolar nerve canal, the young age of the patient and the length of the procedure). A full thickness flap was raised and the LRE was exposed by removing buccal bone. Then the LRE was sectioned and removed with care. The inferior alveolar nerve was visualised and protected. The fibrous capsule surrounding

the tooth was removed and curettage of the bone, irrigation and suturing were completed. The specimen collected was sent for analysis. The recovery was uneventful.

### Histology report

The histopathology of the excised lesion surrounding the tooth revealed pieces of odontogenic tissue comprising of epithelial and mesenchymal components. The overall appearance was that of a developing odontoma or ameloblastic fibro-odontoma.

### Follow up

The patient was reviewed 6 weeks post-surgery. No complications or paraesthesia were reported, and the intraoral healing was satisfactory. Radiographic examination revealed a satisfactory bony infill. The patient will be reviewed by the orthodontic department in the future to assess the need of orthodontic treatment in order to close the space between the first permanent molar and the first premolar.

### Discussion

Although extraction of infraoccluded primary molars could be avoided, because resorption and exfoliation will most often occur within the normal time frame, extraction of an unerupted primary molar is recommended. This is to permit normal eruption of the permanent tooth, to prevent the unerupted tooth from interfering with the development of adult teeth, to prevent resorption of the permanent tooth and to avoid the risk of cyst formation or enlarged follicle<sup>4</sup>.

It also is important for the diagnosis of any developing lesions, as in our case. Lack of eruptive force and rotation may cause impactions and additional examinations may be necessary to exclude systemic and metabolic conditions. Primary failure of eruption (PFE) is a rare disease defined as incomplete tooth eruption despite the presence of a clear eruption pathway. Infraocclusion of the posterior teeth, especially if both sides are affected, is the hallmark of PFE. If a patient is suspected of having PFE, a genetic test for mutation in the PTH1R gene should be recommended prior to any orthodontic treatment to avoid ankylosis<sup>5</sup>.

Early diagnosis and treatment is the key to prevent complications. An odontoma is a mixed tissue benign tumour of odontogenic origin, which exhibits complete dental tissue differentiation. Odontomas are usually detected in school-age children, and the average age at the time of diagnosis is 14 years. Odontomas mostly occur in the permanent dentition and are rarely associated with the primary teeth<sup>6</sup>. A case report recently published has also

suggested coronectomy as a suitable treatment option in managing impacted deciduous teeth<sup>7</sup>.

As these cases are very rare they have to be treated at an individual level based on each patient. This case report shows the importance of early intervention and the need for obtaining histology with unusual clinical presentation.

## Conclusions

The case presented in this report is of scientific relevance due to the rarity of this type of pathology and the interesting histopathology.

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**Conflict of Interests:** Nothing to declare.

**Financial disclosure Statement:** Nothing to declare.

**Human Rights Statement:** All the procedures on humans were conducted in accordance with Helsinki Declaration of 1975, as revised 2000. Consent was obtained from the patient/s and approved for current study by national ethical committee.

**Animal Rights Statement:** None required.

**Received on September 23, 2019.**

**Revised on November 20, 2019.**

**Accepted on December 2, 2019.**

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