

Interceptive Treatment of Upper Premolars Eruption Disturbances: A Case Report



Ming-Fang Lee¹, Kuo-Ting Sun^{1,2}

1. Department of Pediatric Dentistry, China Medical University Hospital, Taichung, Taiwan
2. School of Dentistry, College of Dentistry, China Medical University, Taichung, Taiwan

Introduction

Eruption disturbances, or tooth impaction, affect approximately 1% to 2% of orthodontic patients, with maxillary canines and third molars being the most frequently involved. Common etiologies include arch length deficiency, prolonged retention of deciduous teeth, presence of supernumerary teeth, and abnormal eruptive paths.^{1,3}

Case Report

A 9-year-old female patient presented with a chief complaint of unerupted maxillary premolars. Radiographic examination revealed a horizontally impacted upper left first premolar, which acted as a physical barrier leading to the secondary impaction of the adjacent second premolar. The suggested treatment plan involved the extraction of the upper left primary molars, and keeping the space while waiting for the spontaneous eruption of the permanent premolars. Orthodontic traction of those teeth may be needed afterwards.

In May 2023, the primary molars were extracted, and a Nance appliance was placed to preserve the arch perimeter. During subsequent follow-ups, the first premolar showed favorable spontaneous uprighting and had partially erupted by late 2024. In March 2025, orthodontic brackets were bonded to align the anterior segment and the first premolar, further creating sufficient space for the second premolar.

By March 2026, the partial eruption of the upper left second premolar was observed. Once the root development of the second premolar is sufficient, brackets will be bonded to achieve final alignment and functional occlusion.

Discussion

Literature suggests that females often exhibit more severe impactions, potentially due to earlier dental eruption. If left untreated, the severity can worsen over time.³ Management ranges from observation and interceptive extractions to surgical exposure with orthodontic traction. While spontaneous eruption is highly desirable to avoid painful surgical exposure, success depends on space availability and the stage of root development. Specifically, a tooth typically emerges into the oral cavity when two-thirds to three-fourths of its root has formed.²

This case underscores the efficacy of early clinical intervention and space management in redirecting impacted teeth, thereby reducing the need for complex surgical exposure and achieving a stable, functional occlusion through conservative orthodontic guidance.²

References

1. McDonald and Avery Dentistry for the Child and Adolescent - Mosby; 9 edition.
2. Andrade I Jr, Paschoal MA, Santos TO. Spontaneous Eruption of Severely Impacted teeth: The Report of Two Cases. J Clin Exp Dent. 2019 May.
3. Al-Abdallah M, AlHadidi A, Hammad M, Dar-Odeh N. What factors affect the severity of permanent tooth impaction? BMC Oral Health. 2018 Nov.

Figure 1.
Intraoral photos after Nance appliance delivery.



Figure 2.
Radiographic films taken during treatment progress.

