

# From Radiolucency to Tooth Bud: A Case Report of Mandibular Lesion in an 8-Year-Old

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## Introduction

Radiolucent lesions in pediatric patients can present as diagnostic challenges due to the wide range of potential etiologies they may represent [1]. These lesions are often discovered incidentally during routine radiographic examinations, particularly panoramic imaging, and may vary in appearance depending on the patient’s age, stage of dental development, and the specific anatomical site involved [2,5]. In children, radiolucencies may correspond to a normal phase of dental development or represent odontogenic cysts, non-odontogenic lesions, or more rarely, neoplastic processes [2]. Differentiating between normal developmental anatomy and true pathology is essential in pediatric patients, where structures such as developing tooth buds, follicular spaces, or areas of delayed mineralization can mimic pathological conditions [2,3]. In some instances, these radiographic findings may lead to concern and unnecessary referrals if not interpreted in the context of age-appropriate anatomical variation [6]. Moreover, due to the dynamic nature of the developing dentition, initial images may not always offer a complete picture, and follow-up imaging can be crucial in clarifying ambiguous findings [3].

Accurate diagnosis relies on a combination of clinical examination, patient history, and sequential radiographic evaluation. In the absence of symptoms such as swelling, pain, or expansion, a conservative approach that includes periodic monitoring may be more appropriate than immediate intervention. This strategy helps avoid overtreatment and minimizes patient and parental anxiety [4,6].

The present case highlights the importance of comprehensive radiographic interpretation and longitudinal observation in distinguishing normal dental development from potential pathology. It also emphasizes the value of continuity in pediatric dental care, where access to previous imaging and consistent follow-up allows clinicians to make informed, evidence-based decisions regarding patient management [1,4].

## Case Report

An 8-year-old male presented to our pediatric dental clinic in September 2024 for a routine dental examination. The patient had no notable complaints and was in good general health with an unremarkable medical history.

A review of the patient's previous dental records revealed a panoramic radiograph taken in May 2023. The image showed a unilocular, well-defined radiolucent area in the left mandibular posterior region, which appeared to be located near the developing second premolar area. At that time, the radiolucency raised suspicion for a possible developmental cyst or other odontogenic pathology. The case was referred to an oral surgeon for further evaluation; however, the patient did not return for follow-up or additional imaging until the September 2024 visit.

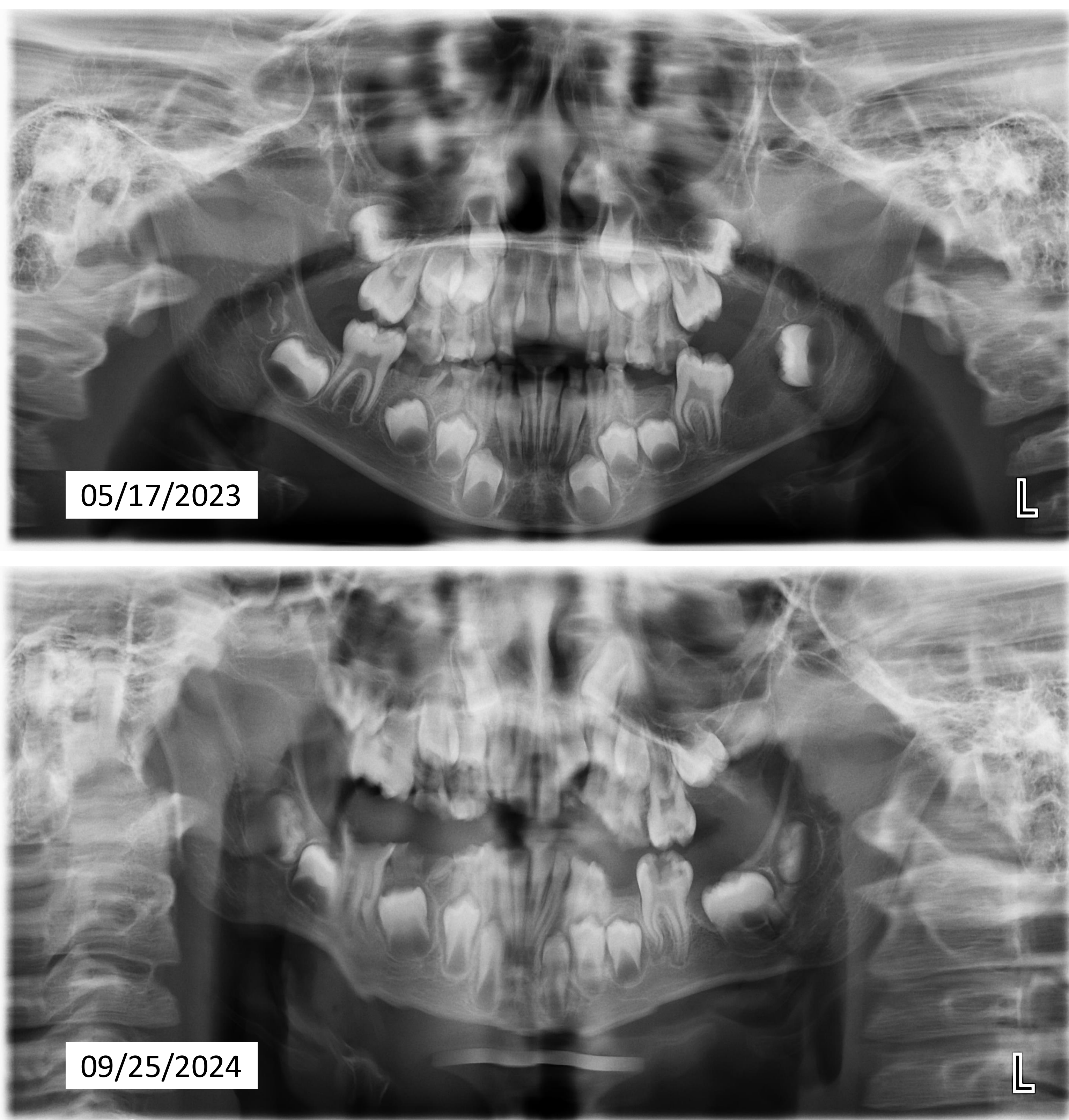
At the follow-up appointment, a new panoramic radiograph was taken. The previously identified radiolucent area now appeared to be occupied by a developing tooth bud that had migrated mesially into the space, consistent with the expected eruption path of a mandibular second premolar. The radiolucency was no longer evident, and the area displayed normal bony architecture with no signs of pathological change. Clinically, the patient remained asymptomatic, with no signs of swelling, pain, or cortical expansion. Soft tissues were within normal limits.

Given the findings, no surgical intervention was deemed necessary. Instead, a conservative approach was taken, and the patient was scheduled for periodic radiographic monitoring to confirm continued normal tooth development and eruption.

## References

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## Panoramic Radiographs



## Discussion and Conclusion

This case emphasizes the importance of radiographic follow-up in pediatric patients, particularly during mixed dentition when developing teeth may appear as radiolucent areas. Although the initial radiograph suggested a possible lesion, the radiolucency later corresponded to a normally developing tooth bud that had changed position and calcified over time.

Despite being a neglected case with no follow-up for over a year, the initial radiographic finding clearly warranted further evaluation and imaging at the time. However, when the patient eventually returned, the radiolucency had resolved, revealing a normally developing tooth bud. This outcome highlights that, in similar cases where the patient is asymptomatic and clinical signs are absent, a conservative approach with periodic monitoring can be a reasonable option—provided there is close follow-up and careful assessment.