

Pre-Eruptive Intracoronal Resorption in a 17-Year-Old Male: Case Report

PAUL SUH, DMD, AIDA DADASHZADEH, DDS, ALEXANDER ALCARAZ, DMD, CATHERINE PHAM, DDS, MPH
CHILDREN'S HOSPITAL LOS ANGELES|DIVISION OF DENTISTRY AND ORTHODONTICS
HERMAN OSTROW SCHOOL OF DENTISTRY OF USC|ADVANCED PEDIATRIC DENTISTRY

INTRODUCTION

Pre-eruptive intracoronal resorption (PEIR) is a rare dental abnormality characterized by a loss of dentin and enamel prior to tooth eruption.¹ This condition presents difficulties for the affected tooth as it weakens its structural integrity. PEIRs are sometimes diagnosed early through panoramic radiographic assessment, in which a provider will identify a well-defined circular radiolucency within the dentinal aspect of a tooth just below or within the most inner aspect of the enamel.² Currently, providers may not routinely screen for PEIR via radiographic examination as part of a comprehensive oral evaluation.

ETIOLOGY AND EPIDEMIOLOGY

The exact etiology of PEIR is not fully understood, but it is believed to be caused by a combination of the following causes:³

- Genetic factors
- Developmental defects
- Ectopic positioning/trauma
- Infection during tooth development

The overall prevalence of PEIR within the permanent dentition ranges from 0.5 to 2 percent, with one study reporting up to 27 percent.⁴ These lesions most often present on the permanent mandibular first molar or the permanent maxillary first molar but have also been reported in the premolars and canines.⁵

Although radiographically these lesions resemble caries, they are histologically non-carious and present with osteoclasts and macrophages. It is theorized that these cells originate from the surrounding bone and may be entering the dentin through a break in the enamel layers.⁷ Soon after eruption, bacteria can enter the defects, resulting in decay.⁷

PEIR lesions differ in their progressive nature, and so it can be necessary to complete surgical exposure of the crown with immediate intervention to avoid risk of pulpal involvement. Other defects may not enlarge at all.⁸

No association has been found between PEIR defects and race, gender, medical conditions, systemic factors, or fluoride supplementation.³

DIAGNOSIS AND MANAGEMENT

PEIR is often asymptomatic and diagnosed during routine radiographic examination. PEIR is diagnosed by identifying radiolucent areas within the coronal dentin close to the dentinoenamel junction. Depending on the extent of resorption, practitioners may decide to monitor the affected teeth until eruption. Soon after eruption, affected teeth may be more prone to bacterial invasion resulting in decay within the softened dentin.³

Application of a GI sealant can help to prevent colonization of the deep grooves of the teeth, especially with the delivery of bioactive fluoride ions encouraging enamel and dentin remineralization.³ In more extensive cases, management may involve surgical exposure of the affected tooth to assess the extent of the damage and determine an appropriate treatment plan, which could involve the removal of damaged dentin and the placement of a protective barrier.

CASE REPORT

This case report presents a 17-year-old male patient who is a patient of the Children's Hospital of Los Angeles. His medical history is significant for Joubert syndrome, developmental and cognitive delay, obstructive sleep apnea, and G-tube placement.

Upon clinical examination, the patient presented with two supernumerary teeth fully erupted in the palate. The proposed treatment plan involved comprehensive dental treatment under general anesthesia. Upon radiographic examination under general anesthesia, it was noted that tooth #20 had what was likely to be a PEIR. The provider determined that the tooth would require a restoration, and upon preparation, the provider encountered softened dentin with the texture of pulpal tissue. Irregularly shaped defects were also noted within the tooth structure.

After removal of the softened dentin a composite restoration was placed.



Fig 1: Intraoral Photograph



Fig 2: Extraoral Photograph

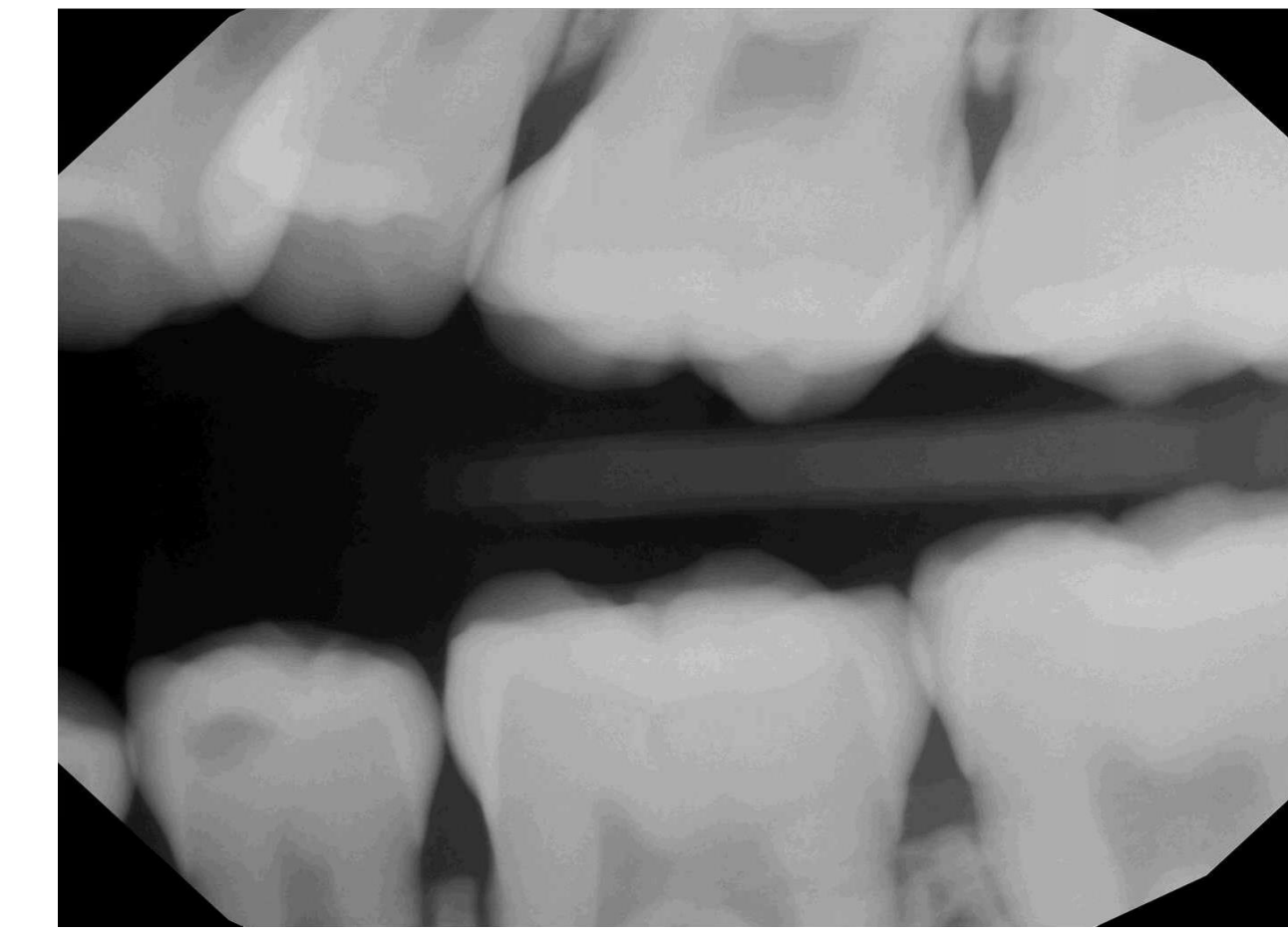


Fig 3: Left Bitewing Radiograph

CLINICAL FEATURES AND DENTAL IMPLICATIONS

Clinical Features:

- The clinical presentation of tooth #20 was non-significant.
- The radiographic presentation of tooth #20 demonstrated a well-defined radiolucent area within the coronal dentin following the contour of the dentinoenamel junction.
- The provider completed a high-speed preparation of tooth #20 for a composite restoration and encountered dentin with the soft texture of pulpal tissue. No base or liner was placed.

Dental Implications:

- Consistent recall visits with attempts for radiographic examination.
- Careful radiographic examination for radiolucencies even in patients with lower risk for caries.
- GI sealant placement immediately after eruption, as it has been shown that this can prevent further growth of the defect based on case reports.³
- Consideration of the size of the lesion affecting definitive treatment options.
- Consideration of possible pulpal exposure prior to restoration.
- Frequent recall visits to monitor the status of the restoration.
- Collaboration with the medical team to examine any existing imaging (i.e. CBCT) that may also result in diagnosis of PEIR.⁹

CONCLUSION

Pre-eruptive intracoronal resorption is an uncommon condition that presents as pre-eruptive loss of tooth structure. Diagnosing and identifying PEIR can be done through radiographic imaging. It is important to screen for PEIR particularly on teeth that have not yet erupted and on teeth of patients with low caries risk. Management involves monitoring the tooth for progression of resorption and eventually treating with restorative procedures to prevent extensive tooth damage or loss.

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