

Pre-eruptive Intra Coronal lesions Revisited: Report of Two Rare Cases and their Treatment

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ABSTRACT

Introduction: Intra coronal radiolucencies in clinically unerupted teeth are a rare occurrence and are usually detected unintentionally on routine intraoral or panoramic radiographs. Despite the fact that various documented studies and theories have been put forth, the etiology of such lesions still remains unclear. The main emphasis is placed on early detection and appropriate management protocol.

Case report: The purpose of this case report was to describe the diagnosis and treatment of two cases involving mandibular second premolars with pre-eruptive intracoronal resorption and to stress on the different treatment options available depending on the severity of the defects and the nature of the lesion. Pre eruptive intra coronal resorption lesions can be treated conservatively as mentioned in the first case or treated endodontically as discussed in the second case.

Conclusion: The treatment adopted and outcome largely depends on the early detection of the lesion and the rapidity with which the treatment is undertaken.

Keywords: Tooth Eruption, Dental Caries, Intra Coronal Resorption, Pre eruptive, Diagnosis

INTRODUCTION

Several authors have tried to explain the phenomenon that is Intra Coronal Radiolucencies, coining various terms such as Intrafollicular Caries, Idiopathic Intracoronal resorption and “pre eruptive caries”. The etiology of such lesions is still not fully understood, however previously established histological and clinical evidence suggests that they are acquired defects, developmental in origin, occurring as a result of coronal resorption. The purpose of this case study was to describe the diagnosis and treatment of two cases of pre-eruptive intracoronal resorption and to emphasise on the importance of early detection and treatment in such cases.

CASE REPORT

Case 1: A healthy 9 year old boy reported to the Department of Pedodontics and Preventive Dentistry for a regular dental visit. On intra oral examination, multiple grossly decayed teeth and root stumps were detected. Prior to extraction of the root stumps, a mandatory pre-operative radiograph revealed a large radiolucent area in the coronal dentin of an unerupted permanent mandibular second premolar (Figure 1). The decision was made to extract the root stumps and wait for clinical eruption of the affected tooth. One month recall checkup revealed clinically emergent mandibular second premolar with a large lesion involving mesial, buccal and distal surfaces. Tactile examination revealed soft material at the bottom of the lesion. Despite the depth of the cavity,

no pulpal involvement was detected following soft dentin removal. A Calcium Hydroxide lining (Dycal®, LD Caulk Co, Milford, DE) was placed at the cavity Base. A further base of Type 7 High Fluoride releasing Glass Ionomer cement (GC Fuji IX-GP, GC, Tokyo, Japan) was applied. Following acid etching and bonding, the cavity was restored with a posterior composite (P-30™, 3M Company, St Paul, MN). Six month follow-up revealed no clinical symptoms and normal appearance of the tooth and restoration (Figure 2).

Case 2: A radiolucent area was detected in an unerupted second mandibular premolar in a radiographic examination of a ten year-old, healthy girl (Figure 3). The preceding deciduous molar displayed moderate degree of mobility and hence the decision was taken to extract the tooth in question and to wait for the spontaneous eruption of the affected premolar. A 4 month follow up visit revealed clinically erupted second mandibular premolar and on clinical examination pulpal involvement was detected on the distobuccal area. A decision was taken to opt for a pulpal regeneration procedure judging by the large blunderbuss canal and wide open apex. Pulp revascularization of the affected tooth is being undertaken and a long follow up period is essential to gauge the efficacy of the treatment undertaken.

DISCUSSION

The above mentioned cases demonstrate accidentally diagnosed, asymptomatic, pre-eruptive, intracoronal resorption of mandibular second premolars detected on a routine intraoral radiograph. Pre-eruptive Intracoronal resorption has been described as radiolucent lesions present adjacent to the dentin-enamel junction and extending into various depth in the dentin. These defects present themselves on clinically unerupted teeth, and are usually detected

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Figure-1: (a) IOPA showing pre eruptive intracoronar lesion with relation to unerupted mandibular second premolar; (b) Intraoral view showing pre eruptive intracoronar lesion with relation to mandibular second premolar one month after eruption; (c) IOPA showing pre eruptive intracoronar lesion with relation to mandibular second premolar one month after eruption.



Figure-2: (a) Intraoral view showing mandibular second premolar after excavation of caries; (b) Intraoral view showing mandibular second premolar treated by indirect pulp capping and glass ionomer restoration; (c) Intraoral view showing conservatively treated mandibular second premolar at one month follow up.

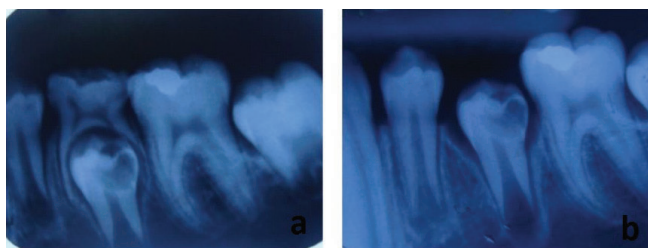


Figure-3: (a) IOPA showing pre eruptive intracoronar lesion with relation to unerupted mandibular second premolar; (b) IOPA showing pre eruptive intracoronar lesion with relation to mandibular second premolar one month after extraction of preceding primary tooth.

accidentally on routine intraoral or panoramic radiographs.¹ Various theories have been suggested for the etiology of such pre eruptive lesions.² One of the earliest theories was chronic periapical inflammation of the preceding primary tooth, but in a vast majority of cases, teeth affected do not have a primary precursor. Dental caries of the unerupted tooth and also failed mineralization of certain sections of the affected tooth have been suggested.^{3,4}

It is now widely accepted that the cause is resorption. Presence of resorption markers such as multinucleated giant cells, osteoclasts and chronic inflammatory cells in histopathological findings are testament to the resorption process.^{5,6} The commonly used term "Pre eruptive Caries" is a misnomer, as the developing tooth while completely encased in its crypt is unlikely to be infected with pathogenic microorganisms.⁷ Mandibular 1st molars and 1st premolars show highest prevalence of these defects, however cases

affecting the maxillary canine have also been reported. To date only one case has been documented in the deciduous dentition. No gender or racial predilection has been found in controlled studies, nor have they shown any association with any medical conditions.³ Prevalence of pre eruptive intracoronar resorption varies between 2-6% depending on the tooth and radiographic technique. Rarely has more than one tooth been affected in the same individual.¹

Pre eruptive resorptive defects which remain undiagnosed, may progress rapidly leading to gross destruction of the coronal portion of the tooth and pulpal involvement.⁸ Dental literature generally recommends surgical exposure of the unerupted tooth as soon as the lesion has been diagnosed radiographically, to arrest the progression of the resorptive process and prevent its penetration into the dental pulp. However as most lesions enlarge minimally at a pre eruptive stage, a Wait and Watch approach can also be advocated, as followed in the cases mentioned above.⁹

CONCLUSION

The significance of early detection and treatment in such cases cannot be over emphasised. As Paediatric dentists are some of the first dental professionals to come in contact with the child, it is imperative that they are well versed with the phenomenon that is pre eruptive intracoronar radiolucency and the risks and treatment modalities that are associated with it.

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