



PRE ERUPTIVE INTRACORONAL RESORPTION- A REVIEW

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ABSTRACT

Pre eruptive intracoronar resorption (PEIR), is a radiological finding in an unerupted tooth. Early diagnosis and timely management of the lesion is imperative for the preservation of integrity of the tooth, dentition and the developing dentoalveolus. Very often a missed finding, the lesion needs to be looked for, in every radiograph seen in routine pedodontic practice.

Key words:

Pre-eruptive coronal resorption, internal resorption

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INTRODUCTION

Pre-eruptive intracoronar resorption (PEIR) is a lesion that presents as an asymptomatic, resorption in the dentine of an unerupted tooth (1). It has been named differently by many due to its innocuous location as intrafollicular caries (2), pre eruptive caries (3) hidden caries, or occult caries (4). The intra-coronar radiolucencies develop spontaneously within the coronal dentine, commonly located at amelodentinal junction, leaving the outer enamel shell intact. This is in contrast to the radiological appearance of a carious lesion where the radiolucency is seen breaking the continuity of the outer enamel surface, and progressing towards the pulp. The lesion is insidious in onset in the pre-eruptive phase and rarely connects the pulp (5,6,7). PEIR has been reported earlier to be an isolated finding (8), or associated with more than one unerupted tooth (9), or supernumerary tooth (10). The common occurrence is in the mandibular first molars, the permanent maxillary first molars (11,12,13,14), the mandibular second premolars, and the permanent mandibular second molars in the order of frequency (15). A recent literature has reported the finding in maxillary permanent canine (16).

Etiology

The etiology remains idiopathic and the pathogenesis rather unclear thus far. However, many hypothesis have been put forth as probable causes. Interference to eruption causing a

delay in eruption and hence a prolonged pre-eruptive period (6), abnormal pressure from an adjacent impacted tooth (19) or ectopically positioned tooth (17) have been implicated. Few have attributed it to be of developmental origin (20, 21) or a developmental dentinal defect (22).

Acquired pathology from the periapical lesion of a primary teeth (23), or breakdown of reduced enamel epithelium (24) have also been proposed. Unlike in a carious lesion, where there is invasion of microorganisms from salivary contamination, there is no microbial invasion in the pre eruptive lesion. However, Seow and McNamara (17, 18) have opined that, the lesion becomes vulnerable to caries immediately on eruption.

Diagnostics

Radiographs remains the chief, and confirmatory chairside method of choice for the diagnosis of PEIR, which is inaccessible for visual examination. Diagnosis of dental caries is presently based upon clinical criteria, defined by WHO specifications (25). This criteria, which views caries as present when there is cavitation recognized by visual examination or testing, will not be applicable to PEIR.

Radiographic Methods

Bitewing radiographs, till date are among the most conservative mode of radiodiagnostic aid, for detection of early cervical caries of multiple teeth. With the unerupted teeth not being covered in bitefilm, chances of missing the finding is very high with bitewing films (4). The role of panoramic radiographs (17) is probably undisputed in the diagnosis of intracoronar radiolucency in an unerupted teeth. Digital

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radiography, particularly CBCT today will probably be the best option

Other Diagnostic Methods

Noninvasive gadgets have also been used as additional diagnostic criteria, to detect caries.

These include, Diagnodent -Fiber-optic Transillumination (FOTI) (26), laserluminescence (27), light scattering (28), Electrical Resistance Measurements (ERM)(29), and color uptake(30).

Histology

The resorption starts intracoronally involving the dentine of the unerupted tooth. Histologically, PEIR appears as areas of degeneration of the dentinal tubules which are later replaced by vascular connective tissue (31). The degenerative components on histological section appear as, globular sections of dystrophic calcifications, remnants of necrotic dentine and pre-collagenous fibres (22). Cells like osteoclasts and macrophages adjacent to scalloped margins have also been reported at resorption sites. (17).

Treatment

As a preventive measure, the dental practitioner can likewise utilize sealant in the fissures, in anticipation of suspicious radiolucencies (32). Interim restoration with calcium hydroxide, zinc oxide eugenol, glassionomer cements and thereafter, permanent restoration with amalgam (33) have been reported.

In extensive lesions, root canal treatment has been advised (4). Resin restorations have been advised for aesthetics. Management of the identified lesion therefore involves oral hygiene, and dietary change. Topical medicaments like fluoride varnishes, topical fluoride and chlorhexidine becomes mandatory (34).

Prognosis is dependent on the size of the lesion on diagnosis. No recurrence has been reported with early diagnosis (35), hence early intervention is of paramount importance in maintaining the integrity of the dentition. As the lesion is asymptomatic, the finding is very often missed at an early stage. Tooth with advanced lesion may have to be lost with time, but attempting to hold on to the tooth for as long as possible, should be the prime concern of the pedodontist in the best interest of the patient. The tooth will act as a space maintainer to alleviate a malocclusion, and thereby allow the vertical development of the alveolus and preserve it, subsequently or an implant to be given later. During therapeutic extraction in Orthodontics PEIR should be looked for, and considered for extraction, instead of a healthy tooth.

CONCLUSION

Uneventful appearance of PEIR may be missed very easily by a clinician in a routine chairside clinical examination. The condition for which the patient cannot be held responsible, may happen in many mysterious circumstances. Early detection and management of this lesion is the best possible attention that can be given to a patient by an able clinician. As radiographs are likely the best technique for diagnosing PEIR, the condition, ought to be kept in mind on every single routine radiograph examined.

Reference

1. Seow WK. Pre-eruptive intracoronar resorption as an entity of occult caries. *Pediatr Dent* 2000; 22:370-6.
2. Skillen WG. So-called "intra-follicular caries". *Ill Dent J.* 1941; 10:307-8.
3. Brooks JK. An unusual case of idiopathic internal root resorption beginning in an unerupted permanent tooth. *J Endod.* 1986; 12(7):309-10.
4. Timucin Ari, Management of "Hidden Caries": A Case of Severe Pre-eruptive Intracoronar Resorption. *J Can Dent Assoc* 2014;80:e59
5. Seow WK. Multiple pre-eruptive intracoronar radiolucent lesions in the permanent dentition: case report. *Pediatr Dent.* 1998;20(3):195-8
6. Holan G, Eidelman E, Mass E. Pre-eruptive coronal resorption of permanent teeth: report of three cases and their treatments. *Pediatr Dent.* 1994;16(5):373-7
7. Klambani M, Lussi A, Ruf S. Radiolucent lesion of an unerupted mandibular molar. *Am J Orthod Dentofacial Orthod.* 2005;127(1):67-71
8. Seow WK. Multiple pre-eruptive intracoronar radiolucent lesions in the permanent dentition: case report. *Pediatr Dent* 1998; 21: 195-198.
9. Seow WK, Hackley D. Pre-eruptive intracoronar radiolucent lesions in the permanent dentition: case report. *Pediatr Dent* 1996; 18: 67-71.
10. Özden B, Acikgoz A. Prevalence and characteristics of intracoronar resorption in unerupted teeth in the permanent dentition: a retrospective study. *Oral Radiol* 2009; 25: 6-13.
11. Sawle RF, Andlaw RJ: Has occlusal caries become more difficult to diagnose? A study comparing clinically undetected lesions in molar teeth of 14-16 year old in 1974 and 1982. *Br Dent J.* 1988 Apr;164(7):209-211
12. Creanor SL, Russell JI, Strang DM, Stephen KW, Burchell CK. The prevalence of clinically undetected occlusal dentine caries in Scottish adolescents. *Br Dent J.* 1990 Sep;169(5):126-129
13. Kidd EA, Naylor MN, Wilson RF. The prevalence of clinically undetected and untreated molar occlusal dentine caries in adolescents in the Isle of Wight. *Caries Res.* 1992;26(5):397-401
14. Weerheijm KL, Groen HJ, Bast AJ, Kieft JA, Eijkman MA, van Amerongen WE. Clinically undetected occlusal dentine caries: A radiographic comparison. *Caries Res.* 1992; 26(4):305-309.
15. Manan, N.M., Mallineni, S.K. & King, N.M. *Eur Arch Paediatr Dent* (2012) 13: 98.
16. Stafne EC, Austin LE. Resorption of embedded teeth. *J Am Dent Assoc* 1945; 32: 1003-1009.
17. Seow WK, Lu PC, McAllan LH. Prevalence of pre-eruptive intracoronar dentin defects from panoramic radiographs. *Pediatr Dent.* 1999;21(6):332-9)
18. McNamara CM, Foley T, O'Sullivan VR, Crowley N, McConnel RJ. External resorption presenting as an intracoronar radiolucent lesion in a pre-eruptive tooth. *Oral Dis.* 1997;3(3):199-201
19. Seddon RP, Orth D, Smith PB. Early arrested development and coronal resorption of an impacted maxillary canine: report of case. *J Dent Child* 1996; 63: 208-212.

20. Ignelzi MA Jr, Fields HW, White RP, Bengenholz G, Booth FA. Intracoronal radiolucencies within unerupted teeth: case report and review of the literature. *Oral Surg Oral Med Oral Pathol* 1990; 70: 214-220.
21. Walton JL. Dentin radiolucencies in unerupted teeth: report of two cases. *J Dent Child* 1980; 47: 183-186.
22. Giunta JL, Kaplan MA. "Caries-like" dentin radiolucency of unerupted permanent tooth from developmental defects. *J Pedod* 1981; 5: 249-255.
23. Muhler JC. The effect of apical inflammation of the primary teeth on dental caries in the permanent teeth. *J Den Children* 1957; 24: 209-210.
24. Kronfeld R. Histopathology of the teeth and their surrounding structures. 4th ed. Philadelphia: Lea & Febiger, 1955: 283-284.
25. Chan DCN: Current methods and criteria for caries diagnosis in North America. *J Dent Edu* 57:422-27, 1993.
26. Stephen KW, Russell JI, Creanor SL, Burchell CK: Comparison of fibre optic transillumination with clinical and radiographic caries diagnosis. *Community Dent Oral Epidemiol* 15:90-94, 1987.
27. Ferreira Zandona AG, Isaacs RL, van derVeen M, Eckert GJ, Stookey GK: comparison between light-induced fluorescence and clinical examinations for detection of demineralization in occlusal pits and fissures. *Caries Res* 32:210-18, 1998.22.
28. 28Angmar-Mansson B, ten Bosch JJ: Optical methods for the detection and quantification of caries. *Adv Dent Res* 1:1420, 1987.
29. Flaitz CM, Hicks J, Silverstone LM: Radiographic, histologic, and electric comparison of occlusal caries: an in vitro study. *Pediatr Dent* 8:24-28, 1986.
30. Van de Rijke JW: Use of dyes in cariology. *Int Dent J* 41:111116, 1991.
31. Stafne EC, Austin LE. Resorption of embedded teeth. *J Am Dent Assoc* 1945; 32: 1003-1009.
32. Thompson VP, Kaim JM. Nonsurgical treatment of incipient and hidden caries. *Dent Clin North Am* 2005;49:905-21,
33. Esti Davidovich, Bruno Kreiner, Benjamin Peretz, Treatment of Severe Pre-eruptive Intracoronal Resorption of a Permanent Second Molar (*Pediatr Dent*. 2005;27:74-77)
34. Barnes CM. Dental hygiene participation in managing incipient and hidden caries. *Dent Clin North Am* 2005;49:795-813,
35. Seow WK. Diagnosis and management of unusual dental abscesses in children. *Aust Dent J*. 2003; 48(3):156-68.

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