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Case Report

Pre-Eruptive Intracronal Resorbtion at Unerupted Three Molar Teeth: A Case Report

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Pre-Eruptive Intracronal Radiolucency (PEIR) is seen as a radiolucent anomaly at coronal dentin of unerupted teeth. PEIR is often confused with dental caries because of their similarities. Pre-eruptive intracoronal resorptions are typically observed as radiolucency in dentin tissue and the lesions are close to the enamel dentin junction. Lesions are often accidentally noticed on the radiographs of the unerupted tooth. The aetiology of REIR is not clear and mechanism of its progression is not fully understood. But some of the histological studies described its resorptive nature. The treatment of pre-eruptive intracoronal resorption varies according to the progression of the lesion. The aim of this case report is to present the diagnosis of pre-eruptive radiolucency in three unerupted teeth in the same patient. Case report: 7 years old girl admitted to our clinic for dental caries. After taken panoramic radiography PEIR was detected at ♯16, ♯26 and ♯46. After detailed examination we decided to wait eruption for restorative procedures. Conclusion: Early detection and classification of PEIR lesions will always help to build treatment plans for patients.

Keywords: Pre-Eruptive Intracoronal Radiolucencies, Occult Caries, Dentin Caries, Panoramic Radiography

Radiolucencies, which cannot be clinically diagnosed because of occlusal surface deterioration and can only be seen with different radiographs, are called “Hidden Caries” (1). Pre-Eruptive Intracronal Radiolucency (PEIR) is defined as a radiolucent anomaly in the coronal dentin of unerupted teeth (1, 2). These radiolucencies are described as abnormal, well-circumscribed, radiolucent area, often occurring within the coronal tissue close to the amelodentinal junction of unerupted teeth (3, 4). These anomalies, which are similar to dental caries, are frequently referred to as pre-eruptive caries in the literature (5). Although various aetiologies have been suggested in previous histological studies, no exact cause of this situation has been established. (1). Seow and Hackley reported that generally radiolucency is formed after coronal dentin development (6). Thus, it has been proven that the lesions do not occur as a result of losing minerals in dentin (7). It is widely accepted that PEIR is a process of resorption (7), but its process has not yet been fully explained (8). Histopathological studies have reported that osteoclasts and inflammatory cells play different roles in this resorption mechanism (9). Although multiple case reports have been published for PEIR, only Seow and Lomçalı performed an established study (8, 10). Most of these defects were found in the first molar teeth in permanent dentition (8, 10). Studies showed that subject prevalence of between 3 and 6% and a tooth prevalence of 0.5–2% (2, 8, 11). Previous studies showed that there is no difference between genders (2, 8). Maxillary first permanent molar (8), mandibular second premolar and mandibular second permanent molar (6) show the most common defects respectively. A single

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tooth is usually affected in an individual (2). Clinically; In contrast to the behaviour of resorbing lesions, various investigators have suggested different causes, although the triggering factors are still unknown (12). In 1999 Seow et al., stated that presence of abnormal local pressure on tooth buds play important role in stimulating PEIR formation (8). Numerous studies have also reported differences between PEIR lesions (7). Characteristically lesions progress slowly at the beginning but then accelerate after eruption. The rate of lesion progression can show variations depending on the development. (13-15). These lesions then cause destruction of the coronal structure. McNamara et al. (16) and Seow et al. (17) reported that when the affected tooth erupts, the microorganisms come into contact with the lesions through the openings on the enamel surface. After this microorganisms proceed rapidly in to the lesion area and cause caries lesion and destruction of coronal structure.

The aim of this case report is to evaluate the case of PEIR in a 7-year-old girl who was seen on a panoramic film after routine examination.

Case Report

A 7-year-old girl was admitted to our clinic with dental caries and poor oral hygiene. After the detailed oral examination, caries lesion was found at #36, #54, #55, #64, #74, #75, #84, #85 (Fig.1, Fig.2, Fig.3). At panoramic film evaluation; radiolucent area was found at #16, #26 and #46 in the dentin tissue adjacent to the enamel-dentin border, although they have not been erupted (Fig.4). No pathology was observed in the periapical regions of the teeth. On clinical examination, it was observed that the mucosa on the unerupted teeth retained its normal colour and contour structure. At the examination and history of patient; it was learned that the patient didn't complain about the pain from these teeth. The radiolucent areas of the unerupted lower right, upper right and upper left first permanent molar were observed on panoramic radiography, so they were diagnosed as pre-eruptive intracoronal resorption. The parents of the patient were informed about the treatment plan and before the dental treatment signed an “Informed Consent Form”. The patient's medical anamnesis and biochemical tests were normal. Blood biochemical tests were performed to detect different diseases that could cause demineralization. It was decided to wait for the teeth to be observed before starting the treatment. The patient's teeth #75 and #85 have been removed. Then it was decided to fill the teeth #54, #55, #64, #74 and #84 with Compomer (Dyract eXtra Universal Compomer, Dentsply Sirona Inc). In # 36, the infected area has been cleaned and composite filling has been performed.

Discussion

In this case report, we present a case of asymptomatic intracoronal resorption of unerupted permanent molars, which were fortuitously diagnosed on panoramic radiography during routine clinical examination. Most of the intracoronal resorptions observed prior to eruption in the tooth cannot be noticed until the tooth eruption. Caries-like appearance can be misleading and often overlooked by dentists. PEIR is typically seen near the enamel dentin junction boundary. They are observed as prominent radiolucency in dentine. Since they are often seen accidentally on a radiograph of an untreated tooth, therefore radiographs taken during routine examinations are essential for accurate diagnosis of PEIR. (18).

Generally radiolucent resorption lesions on the dentin of the unerupted tooth are radiographically located close to the enamel dentin junction. (8). According to literatures we think that the radiographic images of the permanent teeth in this case show intracoronal resorptive lesions occurring in the pre-eruptive period. When the lesion is still small and does not progress, some investigators recommend radiological follow-up until eruption occurs. (19, 20). Seow et al. (8). Wood and Crozier (21) reported that the first and second molars were the most commonly affected teeth, and these

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researchers stated that intracoronal radiolucency was seen primarily in the mandibula, whereas Ozden and Acikgoz showed that this lesion was more often located in the maxilla (2). In advanced cases when irreversible damage occurs, the treatment is to open the tooth mucosa by surgical operation and clean resorbed area by restorative procedures. After cleaning, the tooth filled with appropriate restorative materials (22). However, performing surgery for paediatric cases may require general aesthesia. At this case we thought that it would be more appropriate to wait for the tooth eruption instead of such a surgical approach. So we performed the other dental treatments and decided to wait for the teeth with PEIR. Literature reviews on PEIR show that the number of pre-eruptive radiolucensities observed in multiple teeth in the same patient is quite low. (2, 7, 8). Moskovitz and Holan (2004) presented a case of PEIR on the mandibular 2nd molar tooth and performed the restoration after tooth removal by following up the patient (23). McEntire performed restoration following eruption at a PEIR case. (24). Yamana et al. achieved success by applying treatment after eruption (25).

Pre-Eruptive Intracronal Radiolucency is a rare condition. We believe that this condition, which is encountered during routine controls, should be under control, and that rapid treatment without infection in any way after the eruption is a priority and will be more protective. We think that our case is rare in terms of showing pre-eruptive resorption lesion of more than one tooth in an individual all at once.

Conflict of interest

The authors declared no conflict of interest.

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