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Eruption cyst: A literature review and case report

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Abstract

Eruption cyst is an odontogenic cyst which is regarded as the soft tissue variant of dentigerous cyst. They are usually seen in first decade of life and appears as raised dome shaped swelling on the mucosa of alveolar ridge. This paper presents a case of an eruption cyst in a 7 year old male and its successful management.

Keywords: Eruption cyst, children, alveolar mucosa, swelling

Introduction

Eruption cyst is an odontogenic cyst with the histologic feature of a dentigerous cyst, surrounding a tooth crown that has erupted through bone but not through soft tissue and is clinically visible as a soft fluctuant mass on alveolar ridge [1]. It is lined by stratified squamous non-keratinizing epithelium [2]. Earlier it was considered as a type of dentigerous cyst occurring in the soft tissues. However, now eruption cyst is listed as a separate entity as per the current WHO classification of epithelial cysts of the jaw. It also has its own morphology code of the international classification of diseases for oncology [3, 4].

The prevalence rate of this cyst is as low as 0.6% as they have not been extensively researched [5-8]. One of the reasons for low prevalence may be attributed to the fact that most of the eruption cysts are asymptomatic and resolve unnoticed. Patient report to the dental clinic solely in case of symptomatic eruption cyst [6-8].

The exact occurrence of eruption cyst is not known till date. The various causative factors for eruption cyst listed are caries, trauma, infection and deficient amount of space available for eruption [6, 7, 9, 10]. It is also seen in children that are kept on immunosuppressant drug therapy such as cyclosporine or those who are undergoing anticonvulsant therapy [7, 11]. Such drugs have profibrogenic effects that increases the level of interleukin-6 thereby enhancing the production of tissue inhibitor of metalloproteinases (TIMP) by fibroblasts which in turn promotes accumulation of connective tissue [7].

According to the literature, eruption cyst may occur on deciduous as well as permanent teeth [16]. These cysts are usually seen in first decade of life, coinciding with the eruption of permanent molars and incisors [6, 8, 12]. Few case reports have shown the presence of this type of lesion in neonates [10, 13]. Bodner has reported involvement of around 8.3% cases of natal teeth with eruption cyst. Although, it is considered rare in adults, but few literature has revealed the presence of eruption cyst in 40 and 46 year old patients [14, 15].

Clinically, it appears as raised dome shaped swelling on the mucosa of alveolar ridge over the site of erupting tooth and is soft to touch [4-6, 8, 16]. The colour of the cyst ranges between transparent, bluish, red- bluish, purple or blue black [6, 11, 16]. Size of the cyst depend on whether it is associated with primary or permanent teeth [5].

Radiographically, it is difficult to distinguish the cystic space of eruption cyst as it is a soft tissue cyst. Dentigerous cyst, in contrast, has a well-defined unilocular radiolucent area which is observed in the form of half-moon on the crown of a non-erupted tooth [5].

Histologically, on the superior aspect, the microscopic characteristic seen are that of surface oral epithelium with presence of variable inflammatory cell infiltrate in the underlying lamina propria.

The deep portion of the specimen which represents the roof of the cyst, covers dense fibrous connective tissue by a thin layer of non-keratinizing squamous epithelium [7]. Needle aspiration biopsy is done for confirmatory diagnosis. The aspirated cystic content on evaluation under polarization light microscopy may demonstrate the presence of cholesterol crystal [10].

Surgical and non-surgical management are two basic treatment modalities in managing eruption cyst [7]. In cases where the eruption cyst is asymptomatic, no treatment is required as they would disappear on their own. Surgical intervention is considered for symptomatic cases where the eruption cyst are painful, bleeds or are infected [6]. Use of Er, Cr-YSGG laser as suggested by Boj *et al.* is also considered as a novel treatment modality for eruption cyst as it has certain advantages over conventional surgical method. The tissue healing is better and faster and it is not associated with post-operative pain with this modality [5].

This case report describes an eruption cyst in permanent maxillary anterior teeth and its successful management.

Case report

A 7 year old boy of Indian origin reported to the department of pedodontics and preventive dentistry of a post graduate training institute in north India with the chief complaint of swelling associated with upper front tooth region since two months (Figure 1). The swelling was initially bigger in size and had gradually decreased to its present size. Swelling measured approximately 2cm × 2 cm. It was esthetically not pleasing to the patient. Patient father gives no history of association of swelling with fever or pain. There was no difficulty in chewing food due to the swelling. On general examination, it was seen that the child was moderately built with normal motor co-ordination. Medical and dental history was non- contributory. The child however gives the history of trauma in upper front tooth region while playing. Adjacent central incisors was not affected and had erupted.

On clinical intra oral examination, a single well demarcated swelling completely covering the alveolar ridge of 11 extending to labial and palatal gingiva was seen (Figure 2). The swelling was pink in colour with smooth surface. On palpation, the swelling was soft in consistency, compressible and non-tender without any purulent discharge.

An intraoral periapical radiograph of the site revealed normally developed #11 and almost fifty percent root formation was complete (Figure 3). There was no evidence of any bone involvement. Based on clinico- radiographic feature, a provisional diagnosis of eruption cyst was made.

The clinical condition was properly explained to the patient parents. since it was not associated with pain or any other difficulty, they were advised to observe the swelling for another two-three weeks as it may rupture on its own due to masticatory pressure and may not need any intervention at all. Patient reported to the clinic after three weeks for the follow up check-up. On intra oral examination, it was found that the swelling had disappeared and the teeth started to erupt normally (Figure 4). The patient was kept on regular recall. After 15 months, the tooth had erupted completely in the oral cavity and root development was also almost complete (Figure 5 and 6).

Discussion

Eruption cyst is the soft tissue analogue of dentigerous cyst that lies superficially to the crown of an erupting tooth and is lined with non-keratinizing stratified squamous epithelium [3, 9]. The exact etiopathology of this entity remains controversial.

While some author considers that degenerative changes occurring in the reduced enamel epithelium at the time of amelogenesis or accumulation of fluid or blood around the dental follicle leading to its separation from newly formed enamel are the main cause of epithelial eruption cysts. Other states that remnants of dental lamina overlying the erupting teeth could be responsible for this [9-10, 16]. One of the possible pathogenesis could be the presence of dense fibro-collagenous tissue restricting the movement of teeth through gingiva [17].

The patient gave the history of trauma to the upper front tooth while playing which could be the reason for the presence of eruption cyst. The similar cause was also reported by Joshi AV and Dixit UB in their study [12].

Eruption cyst clinically presents itself as a smooth swelling which is soft and fluctuant over the erupting teeth and has the color of normal gingiva. In most of the cases it is painless unless infected [2, 5]. Our case also demonstrated a similar clinical presentation with painless lesion which is similar to that of Soni T *et al.* [2].

Eruption cyst is more frequently seen in first decade of life, when the primary dentition and many permanent dentition erupt. Permanent molars and incisors are most commonly affected teeth. Greater visibility in the incisal area could be one of the reasons of preference for incisal rather than molar area with the ration of 2:1 [18]. The patient was 7 year old in the present case and the tooth affected was maxillary incisors which was in accordance with the case published by various authors [2, 8-9, 12].

Gender predilection of eruption cyst is controversial. Anderson [18] and Bodner [15] reported a male predilection with male: female ratio of 2:1 which is similar to our case report. However, Aguilo *et al.* [19] found no difference between the genders and data presented by Seward *et al* had showed female predilection [20].

Radiography is not essential for the diagnosis of eruption cyst like any other odontogenic cyst since there is no involvement of bone [11]. However, the intraoral periapical radiograph is highly recommended in order to evaluate the morphology of involved tooth or their surrounding bone [3, 13].

Before delivering any treatment, the differential diagnosis should be considered which varies from granuloma, amalgam tattoo, hemangioma and bohn nodule to eruption hematoma [6-7]. The exact difference between eruption cyst and hematoma is not known. However, under transillumination, cyst glows whereas the hematoma does not glow. Eruption cyst is known as eruption hematoma or blue stain if it becomes bluish in color because of bleeding occurring within the cyst due to trauma or local infection. It could also be the first sign of follicular cyst [6]. In our case, bluish discoloration was absent indicating no sign of bleeding.

Eruption cyst if small in size does not require any treatment and the affected teeth erupts normally under masticatory pressure [4]. In the present case also the treatment protocol followed was “wait and watch” as in most cases the cysts ruptures spontaneously, thus permitting the tooth to erupt. Similar treatment protocol was followed by Bodner L *et al.* and Alemán Navas RM *et al.* [3, 13] A more invasive treatment approach is recommended in those cases where cyst is painful and is constantly traumatized causing discomfort to the patients.

Conclusion

The eruption cyst typically occurs as a swelling of the overlying mucosa of the deciduous or permanent teeth during the time of eruption. No treatment is required in asymptomatic

cases, while in symptomatic cases where the eruptive cysts are painful, bleeding or infectious, surgical intervention is often considered. So, it is imperative to have sound Knowledge amongst clinicians regarding eruption cysts in order to provide appropriate treatment and to reassure the apprehensive parents regarding this lesion.

Photographs

Pre-op photographs



Fig 1: Intraoral photograph



Fig 2: Intra oral view of swelling

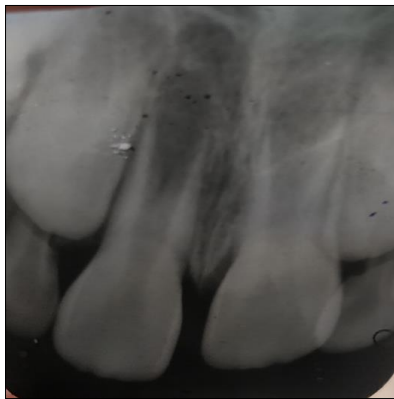


Fig 3: IOPA#11, 21

Post-op follow up photograph



Fig 4: Follow up photograph after 3 weeks

15 months follow up photo graph



Fig 5: 15 month follow up photograph

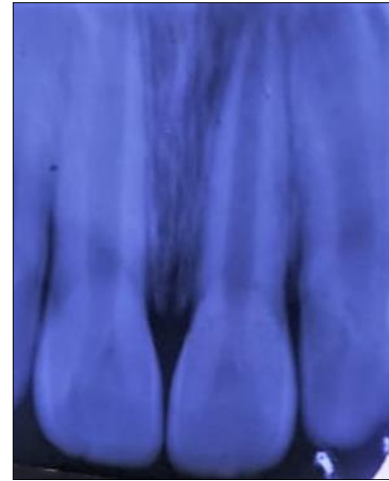


Fig 6: IOPAR # 11, 21 after 15 months

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