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Dentigerous Cyst Associated with An Impacted Atypical Mesiodens - A Rare Case Report

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Abstract

Dentigerous cyst is the most common odontogenic cyst that may be developmental or inflammatory in origin. Dentigerous cysts radiographically appear as ovoid/round, sclerotic, unilocular radiolucent lesions surrounding the crown of impacted teeth. They are often painless, slowly enlarging to produce an expansion of the jaw, resorption of adjacent teeth, and facial asymmetry. Hereby we report a case of a dentigerous cyst with an impacted mesiodens that presented as a heart-shaped radiolucency.

Keywords: Dentigerous Cyst, Mesiodens, Impacted

Introduction

Dentigerous cyst is the most common odontogenic cyst that is either developmental or inflammatory in origin. It arises from the crown of an impacted tooth [1]. It emerges by the accumulation of fluid between the crown of the impacted tooth and reduced enamel epithelium. It usually attaches to the neck of the tooth [2]. In 5 % of cases, the dentigerous cyst may be associated with mesiodens in the anterior maxilla. Treatment preferred is either marsupialization or enucleation depending on the extent of the cystic lesion [3]. Hereby we report a case of a dentigerous cyst with an impacted mesiodens that presented as a heart-shaped radiolucency.

Case Report

15-year-old healthy male patient with a chief complaint of pain in his upper front tooth region for 2 days. The pain was sudden in onset, intermittent, dull aching type of pain which got aggressive on having solid foodstuffs and relieved by itself. Pain radiated towards the nose and forehead. There was no history of any trauma. On extraoral examination there was no visible swelling or growth regarding the area of interest; on palpation, there was mild tenderness concerning the left lateral border of the nose. On intraoral examination, tenderness was noted with the maxillary left central and lateral incisor [Figure 1].

We advised an intraoral periapical (IOPA) with 21 and 22 which revealed no changes about the coronal aspect of 21 and 22. A tooth-like radiopacity was noted in periapex of 21 and was encapsulated by well-defined, heart-shaped, unilocular radiolucency measuring more than 4 cm in diameter with a sclerotic border that was suggestive of a cyst associated with mesiodens [Figure 2]. To identify the exact location of mesiodens, Cone beam computed tomography (CBCT) was advised which revealed mesiodens in between the periapical region 21 and 22 in the 3D section [Figure 3a]. The axial section shows the maximum buccolingual dimension of the cyst(11.5mm) associated with mesiodens [Figure 3b]. and the coronal section shows the maximum mesiodistal dimension of the cyst(14.7mm) with loss of palatal cortical plate. The root portion of mesiodens lies within the radiolucency [Figure 3c]. A provisional diagnosis of the dentigerous cyst associated with an impacted mesiodens was made based on the clinical and radiographic findings. The contents of the swelling were aspirated which was dark straw-coloured [Figure 4]. Surgical Enucleation with disimpaction of mesiodens [Figure 5]. was carried out. The surgery was done under local anaesthesia and the course of antibiotics. The cyst cavity was sterilized by irrigating with saline and the specimen was sent for histopathological examination.

The H and E sections [Figure 6]. show the thin 2-3-layer thickness of the stratified squamous epithelium. The cells are flat cuboidal in shape. Underlying connective tissue is comprised of a parallel arrangement of collagen fibers with few inflammatory cells and an area of hemorrhage which confirmed the diagnosis of dentigerous cyst.

Figure 1: Intraoral view

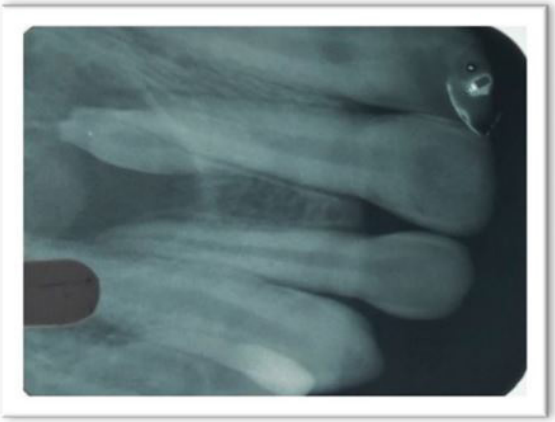

Figure 2: IOPA showing impacted mesiodens and associated dentigerous cyst

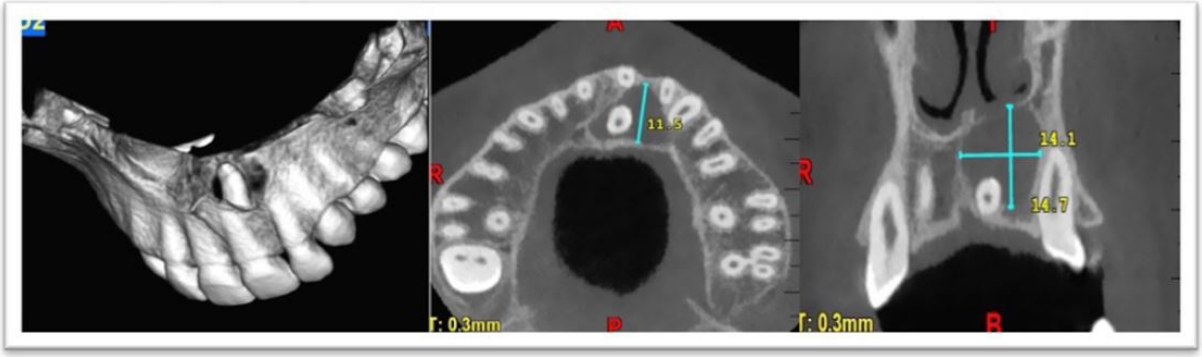

Figure 3: CBCT - a) 3D shows impacted mesiodens b) Axial shows unilocular radiolucency surrounding the mesiodens c) Coronal shows a large unilocular radiolucency

Figure 4: Fine needle aspiration shows dark straw-coloured fluid

Figure 5: Extracted mesiodens

Figure 6: H & E section (10x) shows the 2-3 layer thickness of the stratified squamous epithelium

Discussion

The term dentigerous cyst was given by Paget in 1853 [4]. Dentigerous means tooth-bearing [5]. It is a solitary, odontogenic cyst that affects unerupted teeth. It commonly affects the maxillary canine, mandibular third molars, maxillary third molars, premolars, supernumerary teeth. It rarely is associated with central incisors [6]. This cyst has a male predilection with an age predilection in the 2nd and 3rd decade of life [2]. In our reported case, a male patient in his 2nd decade of life was diagnosed with a dentigerous cyst associated with a maxillary mesiodens.

It is usually attached to the neck of the tooth [6]. In the present case, the cyst was attached to the root of the tooth. They are often painless, slowly enlarging to produce an expansion of the jaw, resorption of adjacent teeth, and facial asymmetry. Sometimes they may be painful if inflamed [3]. In our case, the patient presented with pain in the maxillary anterior region and no expansion of the jaw, resorption of adjacent teeth, and facial asymmetry.

The likely origin of the dentigerous cyst was the breakdown of proliferating cells of the follicle after the delayed eruption. Increased osmotic tension results in cyst formation [7]. Dentigerous cysts radiographically appear as ovoid or round, unilocular, radiolucent lesions surrounding the crown of impacted teeth with a sclerotic border. The roots of involved teeth are usually outside the cystic cavity [8]. Central, circumferential and lateral variety are the three radiographic appearances. Loss of sclerotic

border may be seen in infected cases. Evidence of trabeculations may provide an impression of multilocularity. Root resorption of adjacent teeth may also be associated [2]. In our reported case, radiographically it appeared as a heart-shaped, unilocular radiolucent lesion surrounding the root of the impacted tooth with a sclerotic border. No root resorption of adjacent teeth was noted.

On aspiration, the cystic fluid is pale or dark straw colored which may contain cholesterol crystals, hemosiderin, or both. Cholesterol clefts are more common when there is the presence of haemosiderin pigment may be due to disintegrating erythrocytes. The inflamed dentigerous cyst may contain hemosiderin and cholesterol crystals [9]. In our case, dark straw-colored fluid was observed on aspiration which suggests the presence of cholesterol crystals and hemosiderin.

Dentigerous cyst is lined by non-keratinized stratified squamous epithelium favouring odontogenic remnants, reduced enamel epithelium, and rarely sebaceous cells. All of the dentigerous cysts can give rise to ameloblastoma, mucoepidermoid carcinoma, squamous cell carcinoma, and other tumours [2,10]. In the present case, the dentigerous cyst was lined by stratified squamous epithelium.

The primary treatment for dentigerous cysts is enucleation along with the extraction of the impacted teeth. Marsupialization may be considered in paediatric cases to preserve the impacted tooth and developing tooth bud [10]. In our case, enucleation with the extraction of impacted mesiodens was carried out.

Complications from dentigerous cysts include expansive bone destruction, loss of permanent teeth, pathologic bone fracture, and development of mural ameloblastoma, mucoepidermoid carcinoma, squamous cell carcinoma [2].

Conclusion

Dentigerous cyst associated with impacted permanent teeth is not uncommon, such development as a result of an impacted supernumerary tooth might be rare. Therefore, supernumerary teeth should be examined carefully to prevent harmful effects on the adjacent regular teeth and possible cystic development.

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