CASE REPORT

A Gigantic Dentigerous Cyst in the Mandible with Four Impacted Anterior Teeth: A Rare Case Report

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Abstract

Introduction: A dentigerous cyst is a common developmental odontogenic cyst which is seen in association with impacted or unerupted teeth. The highest incidence of dentigerous cysts is in individuals of the second and third decades. The most frequently affected teeth are the impacted permanent mandibular third molars, premolars and maxillary canines. It is asymptomatic and is frequently noted during routine radiographic examination.

Case Presentation: A 50-year-old male patient presented with a swelling and pain in the anterior portion of the mandible crossing the midline to encompass four impacted mandibular anteriors, radiographically presenting as a large radiolucency crossing midline and histopathologically diagnosed as dentigerous cyst.

Conclusion: A thorough clinical and radiographic evaluation of a patient presenting with missing teeth is thus necessary for an early diagnosis and prompt treatment which can avoid further complications.

Keywords- Dentigerous cyst, impacted teeth, follicular cyst, enucleation

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Introduction

Dentigerous cysts are the second-most-common odontogenic cysts noted in the jaws after radicular cysts.[1] Dentigerous cyst, also referred to as follicular cyst arises as a result of fluid accumulation between the enamel surface of a tooth and reduced enamel epithelium overlying it, resulting in a cyst in which the tooth crown is encompassed within the lumen.[2]

Majority of these cysts are asymptomatic and hence, they are frequently noted during routine radiographic examination.[3,4] Statistics reveal a greater incidence in young men with a ratio of 1.6:1.[2,5] It is frequently associated with impacted or unerupted teeth. A frequency estimate of 1.44 cyst for every 100 unerupted tooth has been reported. Although it may involve any tooth, the mandibular third molars are the most commonly affected teeth.[1] Other frequently involved teeth are the permanent maxillary canines and mandibular premolars. Rarely, it is associated with multiple impacted teeth, odontome, deciduous teeth and supernumerary teeth.[2,6]

Herewith, we report the first case of a gigantic dentigerous cyst in the anterior portion of mandible which is an unusual site, crossing the midline to encompass four impacted mandibular anteriors. A detailed review of existing literature revealed no other reported cases of a dentigerous cyst affecting the mandible encompassing more than three teeth.

Case Presentation

A 50-year-old male patient presented with a primary complaint of swelling and pain in the anterior portion of the lower jaw for few days. The patient had no relevant medical history and no past dental history. Extraoral examination revealed, a mild extraoral swelling in the anterior portion of the mandible of the patient which was tender on palpation. Intra oral examination revealed, missing right and left permanent mandibular lateral incisors and canines, an over retained mandibular left deciduous canine, root stump of right deciduous canine. Additionally, over retained maxillary deciduous canines were noted with missing maxillary permanent canines.

The orthopantamograph revealed a large well-defined unicystic radiolucency in the anterior part of mandible between 36 and 46 enclosing all four impacted anteriors. In addition to this, impacted permanent maxillary canines were

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also appreciated.On the basis of the clinical and radiographic examination, the differential diagnosis included dentigerous cyst, odontogenic keratocyst or cystic ameloblastoma.

An incisional biopsy was carried out along with fine needle aspiration which showed brownish coloured fluid, suggesting a cystic lesion. Histopathological examination revealed a nonkeratinized thin epithelial lining of 2-3 flattened cells overlying loosely arranged connective tissue capsule with a few odontogenic cell rests in areas. Hyperplasia of epithelial lining was noted in areas of inflammation. It was diagnosed as dentigerous cyst. Under General Anaesthesia crestal incision was given extending between premolar region on both sides and mucoperiosteal flap got elevated. The cystic lesion is identified and exposed. The soft tissue contents in the cystic cavity were removed by curettage. The multiple impacted teeth were found firmly attached to the bone and had to remove by sectioning the tooth and removing the bone around it. Thus surgical enucleation was performed along with all the teeth

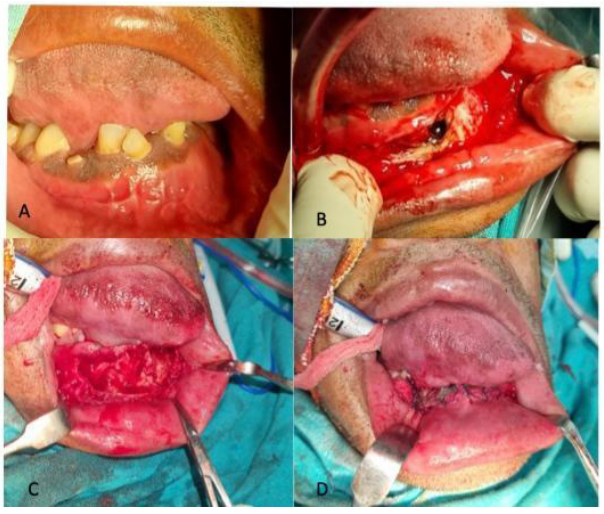

Fig. 1 A: Clinical pre-operative photograph shows missing four anterior teeth, **B.** intra-operative photograph showing impacted teeth in the cyst **C.** intra-operative photograph after enucleation of cyst along with removal of all impacted teeth **D.** post-operative photograph after suturing.

Fig. 2: Well-defined unicystic radiolucency in the anterior part of mandible between 36 and 46 enclosing four impacted anteriors.

Fig. 3 A: Grossing of specimen, **B.** Aspiration syringe yielding brownish aspirate, **C.** Multiple teeth remnants retrieved from cyst.

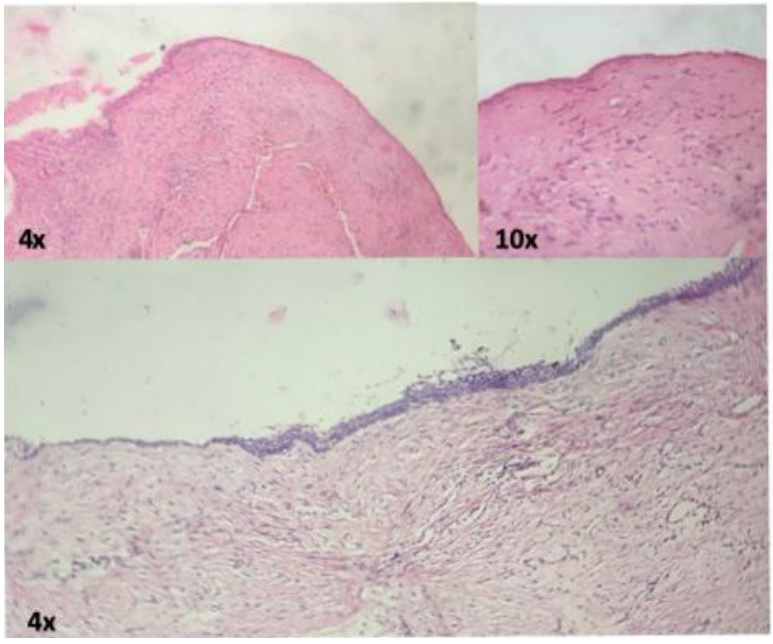

Fig. 4: Nonkeratinized thin epithelial lining of 2-3 flattened cells overlying loosely arranged connective tissue capsule. (H & E 4X, 10X)

associated with the lesion. The same histopathological findings were observed with excisional biopsy specimen and our diagnosis was confirmed as dentigerous cyst.

Discussion

Dentigerous cysts are one of the most common developmental odontogenic cysts of the jaws, accounting for approximately 20–24% of all the epithelium lined jaw cysts.[7] Epidemiological studies have shownthat the highest incidence of dentigerous cysts is in individuals of the 2nd and 3rd decades.[8] Some teeth fail to erupt as a result of biomechanical impediments, previous dento-alveolar trauma, crowding and malpositioning of teeth, excessively thickened overlying mucosal and osseous tissues, insufficient maxillofacial skeletal development, eruption interferences or as indirect consequences of cysts or neoplasms.[9] Statistics reveal that dental impactions affect 25% to 50% of population.[10] Single tooth impactions are common but multiple impactions are rare and are commonly seen in syndromic individuals or among those having hormonal and metabolic disturbances. Multiple impactions with an unknown etiology are a rare dental anomaly.[11] In our case, the patient had a total of six impacted teeth, of which the patient was not aware. Also, the patient had no relevant medical history.

There have been only a very few reported cases of a dentigerous cyst involving more than two impacted teeth. Among these, most are of maxillary dentigerous cysts involving more than two impacted maxillary teeth are reported.[12-14] During a detailed review of literature, we found only one case report of a follicular cyst involving three impacted permanent mandibular teeth in a 13-year-old boy.[15] In our case, it was an enormous dentigerous cyst in the mandible encompassing four impacted anteriorteeth in a 50-year-old male and it is hence the first-of-its-kind. Our case is peculiar not only in the number of encompassed teeth but also in its location.

Although asymptomatic in most cases, the dentigerous cyst is capable of becoming an aggressive lesion. Continued growth of the cyst may result in pain, expansion of bone, facial asymmetry, drastic displacement of teeth and drastic root resorption of adjacent teeth. It may also progress into ana meloblastoma, epidermoid carcinoma or mucoepidermoid carcinoma.[16] This necessitates an early diagnosis and prompt treatment of this cyst. So, a thorough radiographic evaluation must be conducted in a patient presenting with missing teeth so as to eliminate the presence of a dentigerous cyst. The possible reasons for the late diagnosis of the cyst in our case may be a lack of aesthetic concern, asymptomatic nature of a follicular cyst unless secondarily infected and absence of other commonly found symptomatic lesions of the oral cavity which would have necessitated a dental visit.

Radiographically, a dentigerous cyst appears as a radiolucent area associated with the crown of an unerupted tooth. While a normal follicular space is 3-4 mm, a dentigerous cyst is to be suspected when the radiographically observed space is more than 5 mm.[16] In our case, the radiolucency observed in the mandible was of such large size that we even suspected it be an unicystic ameloblastoma. Three radiological variations of the follicular cysts have been reported. In the central variety, the crown portion of the tooth is enveloped in a symmetric fashion. In the lateral type of dentigerous cyst, the follicle appears to be dilated on one side of the tooth crown. In the circumferential kind, the entire tooth appears to be encompassed by the cyst. Our case showed a circumferential variant as all the impacted teeth are encompassed by the cyst. Most dentigerous cysts are solitary. Multiple and bilateral cysts are usually found in individuals with associated syndromes like cleidocranial dysplasia, Maroteaux-Lamy syndrome.[16]

Numerous factors have to be taken into consideration during treatment planning including the patient's age, medical history, total number of teeth associated with the follicular cysts and the position of these teeth. Guided eruption of the teeth is recommended whenever possible.[17] Smaller lesions may be enucleated while larger lesions may require marsupialization to mitigate the pressure within the cysts accompanied by enucleation when the size has reduced which is known as Waldron's technique.[18,19] Following complete removal, recurrence is unlikely.[20] In our case, enucleation of the follicular cyst was done along with removal of all the four impacted teeth.

Conclusion

This case involves a unique clinical and radiographic presentation of a dentigerous cyst. It highlights the importance of a thorough radiographic evaluation in patients reporting with missing teeth in the oral cavity to eliminate the presence of a dentigerous cyst and the associated complications. This report of a dentigerous cyst in the anterior portion of the mandible encompassing four uncommonly involved anteriors shows a new variant of presentation that clinicians should be aware of so that an early diagnosis can be made and prompt treatment be delivered.

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