

CASE REPORT

MAXILLARY DENTIGEROUS CYST WITH IMPACTED MESIODENS A CASE REPORT

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ABSTRACT:

Dentigerous cysts, also known as follicular cysts, are a relatively common pathology in our field. They are associated with unerupted or semi-erupted teeth and less common with supernumerary teeth. Dentigerous cysts are the second most common odontogenic cysts after radicular cysts and are most commonly seen in association with third molars and maxillary canines. Only 5% of dentigerous cysts involve supernumerary teeth, of which mesiodens is common. This report describes a case of dentigerous cyst associated with an impacted mesiodens in a patient with swelling in the maxillary anterior region. Radiographic examination revealed an impacted mesiodens surrounded by a radiolucency. The cyst was enucleated along with the removal of the mesiodens. Histopathological examination confirmed the diagnosis of dentigerous cyst associated with an impacted mesiodens. The postoperative recuperation was uneventful

Keywords: Dentigerous cyst, Mesiodens, Supernumerary teeth

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INTRODUCTION

The term "dentigerous cyst" was coined by Paget in 1853. These cysts are the most common type of developmental odontogenic cysts arising from the crown of impacted, embedded, or unerupted teeth.¹ They constitute the second most common cystic lesion of the jaws, after radicular cysts. The literal meaning of dentigerous is 'tooth bearing'. They are most commonly associated with the crowns of permanent teeth, though few rare cases are reported in association with the crowns of deciduous teeth, complex odontoma, and supernumerary teeth. Dentigerous cysts associated with supernumerary teeth constitute 5-6% of all dentigerous cysts and about 90% are associated with a maxillary mesiodens.² Dentigerous cysts are caused by expansion of dental follicles resulting from accumulation of fluid between tooth crowns and epithelial components.

This cyst most frequently occurs in patients between 10 and 30 years of ages and there is a

greater incidence in males with a 1.6:1 ratio.³ The cysts most often involve impacted mandibular third molars, followed by maxillary canines, mandibular premolars, and occasionally supernumerary teeth or odontomas. Stafne first described dentigerous cysts associated with supernumerary teeth and found an incidence of 5.5% among 200 supernumerary teeth.⁴ The supernumerary teeth are more common in the anterior maxillary region. The supernumerary tooth which appears in the maxillary midline is known as mesiodens due to its position in the center of the maxilla. Normally, the clinical examination reveals a missing tooth or teeth and occasionally a hard swelling, sometimes resulting in facial asymmetry and possible pathologic fracture. Dentigerous cysts are initially diagnosed on routine dental radiographs. Radiographically, the cyst appears as a unilocular radiolucent shadow with a well-defined sclerotic border associated with the crown of an unerupted tooth, but an infected cyst will show ill-defined borders.⁵ This

report describes a rare entity of dentigerous cyst associated with an impacted mesiodens.

CASE REPORT

A 32 years old male patient came to our department with the chief complaint of painful swelling in relation to the upper lip for the past 4 months which has been gradually increasing to attain present size.

On intraoral inspection, a single swelling was present in the anterior region of the maxilla in relation to 11,21 region. Obliteration of the labial vestibule in relation to 11, 21 was evident. It measured approximately 3x4 cm in size and was roughly oval in shape. It extended antero-posteriorly from 13 to 23, superio-inferiorly into the labial vestibule and 0.5 cm short of alveolus. Mucosa over the swelling appears normal without any visible pulsations and secondary changes. On palpation, all inspectory findings with respect to site, size, shape, surface and extension were confirmed. It was firm to hard in consistency, and tender. (Figure 1)



Figure1: Obliteration of the labial vestibule in relation to upper anteriors

On radiographic examination with IOPA, Occlusal view and Panoramic view revealed an ill defined unilocular radiolucency extending from apical aspect of incisors along with its root resorption and a tooth like radiopacity found in the radiolucency suggestive of impacted mesiodens.

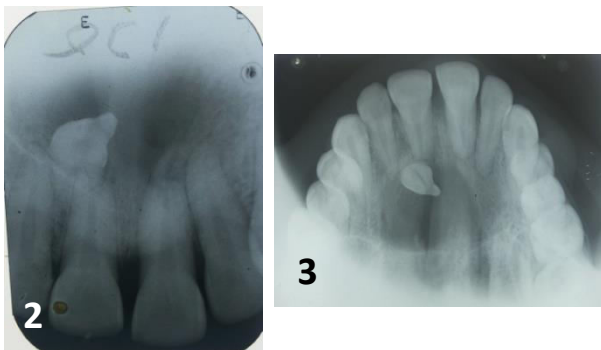


Figure 2 & 3: An ill defined unilocular radiolucency extending from apical aspect of incisors along with its root resorption and a tooth like radiopacity found in the radiolucency suggestive of impacted mesiodens.

CT examination showed hypodense with small foci of complete hyperdense area in the superior aspect considering the positive findings, diagnosis of “Dentigerous cyst” was given.



Figure 4: Most of the lesion is hypodense with small foci of complete hyperdense area in the superior aspect

Complete enucleation of the cyst was done under GA with extraction of supernumerary tooth in relation to 11 and 21 and specimen was sent for histopathologic evaluation which revealed in section - A, a thin non-keratinised squamous epithelial lining 3-4 cell thickness and a stromal wall of thick fibrous connective tissue. Rete ridge formation is seen where moderate inflammatory cells are noted. Haemorrhage is seen. Section - B showed multiple bits of tissue showing fibrous connective tissue and skeletal muscle tissue suggestive of Dentigerous cyst.

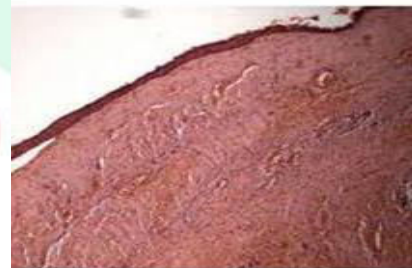


Figure 5: A thin non-keratinised squamous epithelial lining 3-4 cell thickness and a stromal wall of thick fibrous connective tissue.



Figure 6: Postoperative follow up after enucleation and extraction of supernumerary tooth

This led to the final diagnosis of dentigerous cyst associated with impacted mesiodens. Patient was followed up and wound healing was uneventful.

DISCUSSION

Supernumerary teeth are normally found in the maxillary anterior DVXZCregion and may cause disorders in dental eruption or alterations in the neighbouring teeth. These teeth appear in less than 1% of the general population. Developmental abnormalities and hyperactivity of the dental plate is the most accepted theory explaining their formation⁶. Dentigerous cysts are the second most common odontogenic cysts of the jaws after periapical or radicular cysts, while a dentigerous cyst associated with a supernumerary tooth is a rare entity. A review of the literature since 1988 disclosed 16 reported cases of dentigerous cysts associated with premaxillary supernumerary teeth.⁷ Most reports revealed a peak incidence of dentigerous cysts in the second and third decades of life. The age range of reported cases varies widely, from 9 to 71 years of age. Dentigerous cysts are odontogenic epithelial origin and they affect the crown of unerupted teeth. These cysts begin to form after the tooth crown is totally formed, and are caused by the accumulation of fluid between the reduced epithelium of the enamel organ and the crown of the underlying tooth that was already formed⁸.

A mesiodens usually have a cone-shaped crown and a short root. It is a rare entity with a reported incidence of 0.15% to 1.9%, and it has a slight predominance towards males#. Dentigerous cyst formation is another pathology that may be associated with supernumerary teeth. Primosch reported an enlarged follicular sac in 30% of the cases, but the histological evidence of cyst formation was found in only 4-9% of the cases⁹. According to Asaumi et al, dentigerous cyst formation arising from the supernumerary teeth comprises 11% of cases¹⁰. A further study found that 6% of supernumerary teeth have dentigerous cyst development, and Hurlen and Humerfelt suggested that dentigerous cysts associated with the supernumerary teeth occur in 7% of cases¹¹. Mesiodens may be single or multiple, erupted or impacted and is rarely seen associated with a dentigerous cyst. Scolozzi et al reported an unusual case of a large dentigerous cyst associated with an impacted mesiodens, resulting in a slow-growing swelling in the upper lip¹². Khan et al also described an upper lip swelling caused by a large dentigerous cyst associated with mesiodens¹³. Dinkar et al described an unusually early presentation of multiple mesiodens with associated dentigerous cyst¹⁴. Large dentigerous cysts arising from unerupted mesiodens should be kept in mind in the differential diagnosis of upper lip swellings,

particularly if associated with dental anomalies of the maxillary incisors such as malposition and diastema.

Radiographically, the dentigerous cyst typically appears as a well-circumscribed, unilocular, usually symmetric radiolucency around the crown of an impacted tooth. An important diagnostic point is that this cyst attaches at the cemento-enamel junction. The internal aspect of the cyst is completely radiolucent except for the crown of the involved tooth. One of the most difficult conditions to distinguish in the differential diagnosis is hyperplastic follicle. Other conditions that must be excluded in the diagnosis are odontogenic keratocyst, ameloblastic fibroma, and cystic ameloblastoma. Water's view, panoramic, and skull radiography are simple and inexpensive preliminary diagnostic methods. Although, the structure of a tooth can be clearly detected on panoramic radiographs than CT, they are inadequate for localizing maxillary ectopic teeth due to their inherently less sharp image and ghost image. CT scan provides superior bony detail, size and extent of the lesion with determination of orbital or nasal invasion or involvement¹⁵. Therefore, CT may be more valuable than plain film radiographs, not only for definitive diagnosis, but also for evaluation of the associated pathology, exact localization of the ectopic tooth, and proper treatment planning.

Histologically, dentigerous cysts are lined by a layer of non-keratinized stratified squamous epithelium, with a surrounding wall of thin connective tissue containing odontogenic epithelial rests. Cases of ameloblastoma or epidermoid carcinomas developing from the lining epithelium of a dentigerous cyst are adequately documented, whereas mucoepidermoid carcinomas are less well-documented.¹⁶ Also, very rarely squamous cell carcinoma may develop from the lining epithelium of a dentigerous cyst

A broad range of conditions may lead to a clinical presentation of painless swelling along the upper lip. Differential diagnosis of median palatine cyst, nasopalatine duct cyst, radicular cyst, odontogenic keratocyst (OKC) or adenomatoid odontogenic tumor (AOT) was considered. Median palatine cysts and nasopalatine duct cysts are not associated with non-vital teeth as non-odontogenic cysts of the hard palate^{12,13}. Most radicular cysts appear as round or pear-shaped, unilocular, lucent lesions in the periapical region, and the associated tooth usually has a deep restoration or large carious lesion radiographically. Approximately 40% of OKCs contain an impacted tooth, and the

lumen of the cyst often contains 'cheesy' material and has a parakeratinized epithelium lining. They are more likely to show aggressive growth than other odontogenic cysts and may have undulating borders and a multilocular appearance upon radiography¹⁷. AOTs are more common in young people, affect females more than males, commonly located in anterior maxilla and most importantly, the radiolucency in cases of AOTs extends apically beyond the cemento-enamel junction.¹⁸

The standard treatment for a dentigerous cyst is enucleation and extraction of the associated tooth. In large cysts, an initial marsupialization to diminish the size of the osseous defect, followed by enucleation and tooth extraction, has been advocated. The major disadvantage of marsupialization is recurrence or persistence of the lesion. Endoscopic approach for its management is also described in the literature, which is associated with lesser operative as well as post-operative morbidity.¹

CONCLUSION

Dentigerous cysts arising from impacted supernumerary teeth in the anterior maxilla should be considered in the differential diagnosis for painless swelling along the upper lip, especially when there is discrepancies in the upper anterior tooth eruption and position.

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