

CASE REPORT

Conservative management of Dentigerous cyst associated with horizontally impacted mesiodens: 48 months follow up

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ABSTRACT:

A dentigerous cyst is a developmental odontogenic cyst, which develops by accumulation of fluid between the reduced enamel epithelium and the tooth crown of an unerupted tooth. It usually associated with unerupted impacted teeth and about 5% of the cases have been found to be associated with supernumerary teeth and are rare in the anterior maxilla. The present casehighlighted the successful management of a dentigerous cyst associated with an impacted mesiodensby Marsupialization followed by enucleation with 48 months follow up. Careful evaluation of the clinical and radiographic findings helps clinicians to diagnose the condition, identify the etiological factors and appropriate treatment.

Clinical significance: Large cystic cavities should be carefully evaluated clinically and radiographically which results in conservative management and long term follow up should be recommended in these cases.

Keywords: Dentigerous cyst, Marsupialization and Enucleation, Mesiodens, Supernumerary tooth, Reduced enamel epithelium, Iodoform

INTRODUCTION

Dentigerous cyst is aodontogenic cyst associated with the crown of an unerupted tooth, an odontome or a supernumerary tooth and accounts for more than 24% of jaw cysts.[1]The highest incidence of dentigerous cyst has been seen in second and third decade with slight male predilection.[2]It is formed by the accumulation of fluid betweenthe reduced enamel epithelium and the crown, with expansion of the tooth follicle. The cyst usually involves crown of impacted mandibular third molar, followed by maxillary canines, mandibular premolars, rarely supernumerary teeth and central incisors.[3] Approximately 5% of alldentigerous cysts are usually slow-growing lesions and may attain a considerable

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size with minimal or no symptoms. Radiographically, such a cyst appears as a welldefined radiolucency with sclerotic borders and associated with the crown of an unerupted tooth.

A case of dentigerous cyst present in anterior maxilla associated with a supernumerary tooth located between two central incisors and managed using the conservative approach i.e. Marsupialization and later on enucleationis reportedhere witha 48 months follow-up.

Case Description

A 14 year-old male patient reported to the out-patient departmentwith swelling in the premaxillaryregion for the last one month. Swelling was hard in consistency with tender on palpation. There was no pus discharge and no increase in temperature of the localized area. Intraoral examination revealed a hard swelling with a fluctuant base with cortical expansion in 21 to 23 region. Mesial inclination and grade II mobility present were noted respect to 21 & 22. Diagnostic orthopantomogramshowed a unilocular radiolucent lesion in anterior maxillawith cortical borders crossing the midline and supernumerary tooth enclosed within the lesion. (Fig.1) Five ml of straw colored cystic fluid could beaspirated through the cystic cavity. The management comprised of cystic marsupialization along with extraction of the supernumerary tooth (Fig.2 a,b). Histological examination showed characteristic thin cystic lining resembling reduced enamel epithelium and connective tissue stroma showed features of a primitive type ectomesenchyme.Histopathological findings confirmed the diagnosis of dentigerous cyst associated with the supernumerary tooth.(Fig.2 c)The cystic cavity was irrigated with normal saline and packed with sterile iodoform gauge twice a week for 4 weeks to achieve hemostasis. After 6 months follow up pulp vitality test was done and 21 was found to be non-vital. Convention root canal treatment was done and 21 wasobturated with gutta-percha and the access cavity was sealed with composite resin. (Fig 3) After 2 years of follow up size of the cystic cavity (Fig.4) was decreased and the cyst was enucleated under local anaesthesia. At present patient is asymptomatic and is on regular follow up. (Fig.5)



Fig. 1 Preoperative photograph showed intraoral swelling in 21-23 region and Orthopantomogram showed unilocular radiolucency associated with supernumerary tooth



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Fig. 2 Marsupialization was done (a) and supernumerary tooth was extracted (b) and histopathology of the cystic lining (c)



Fig. 3Orthopantomogram after 6 months follow up showed signs of radiographic healing



Fig. 4Orthopantomogram after 24 months follow up



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Fig. 5 Orthopantomogram after 48 months follow up

DISCUSSION

The dentigerous cyst is the second most common type of odontogenic cystassociated with the crown of an impacted, unerupted tooth or rarely with a supernumerary tooth.[1]Dentigerous cysts are typically asymptomatic, large, destructive expansile lesions of bone. In the present case the expansion of buccal and palatal bone was seen though the patient was asymptomatic.

The prevalence of supernumerary teeth in the primarydentition is 0.2-0.8%[4], and in the permanent dentition is 1.5-3.5%.[5]Supernumerary teeth causes different local problems such as retention of the primary tooth, delayed/failure of eruption of the permanent tooth, ectopic eruptions,tooth displacements, follicular/dentigerous cysts and other alterations requiring surgical or orthodontic intervention.[6]The present case also signifies the association between a supernumerary tooth and dentigerous cyst.

Dentigerous cysts associated with supernumerary teeth are rare and estimated to constituteonly 5-6% of all dentigerous cysts. [7]Primosch reported an enlarged follicular sac in 30% of anterior supernumerary cases, but histological evidence of cyst formation was found in only 4-9% of cases.[8]Asaumi et alreported dentigerouscyst formation in association with supernumerary teeth in 11% of the cases while other authors have observed it in 6-7% of cases.[9]

Lustmann and Bodner (1988) suggested that dentigerous cyst associated with supernumerary teeth constitute vast majority and about 90% of these are associated with a maxillary mesiodens.[3]Dentigerous cyst associated with mesiodens result in the failure of eruption of the involved teeth leading to compromised aesthetics and orthodontic problems and dilacerationof the adjacent teeth in the rare cases.Dentigerous cysts mostly develop around a mesiodens which are usually conical in shape.

Radiographically, the dentigerous cyst appears as a unilocular radiolucency of variable size with well-defined sclerotic borders, associated with the crown of an unerupted tooth. In an infected cyst, the borders may be ill-defined. It has been suggested that any follicular space of >4 mm should be suspected to be a dentigerous cyst.[10] The radiographic appearance of such a cyst, though quite typical, is not diagnostic. Other lesions which may mimic this radiographic appearance are: odontogenickeratocyst, radicular cyst, and some odontogenic tumors like ameloblastoma, Pindborg's tumor, adenomatoidodontogenic tumor, calcifying odontogenic cyst, and ameloblastic fibroma.



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In most instances, microscopic evaluation is therefore necessary to reach a definitive diagnosis.

Histologically, the dentigerous cyst displays a thin fibrous cyst wall with a myxomatous appearance. The epithelial lining often contains focal areas of orthokeratinised or mixture of mucin secreting and ciliated cells. Histological findings of the present case fitted into this description. Untreated dentigerous cysts have potential to transforminto odontogenic tumors like ameloblastoma and adenomatoidodontogenic tumor in some cases.[11]

Asaumi et al suggested that mesiodens impacted for prolonged periods of time possess a higher risk of associateddentigerous cysts.[9]Resorption of roots adjacent to a supernumerary tooth (mesiodens)or its cyst is a rare complication. This may be related to the longer duration of the impacted mesiodens and the associated lesion. In the present case however, there was no evidence of resorption of the roots of the teeth adjacent to the dentigerous cyst involving the mesiodens. The characteristic feature of the lesion involving an unerupted supernumerary tooth crown in the anterior region of the maxilla along with the radiographical and histopathological examination confirmed the diagnosis of dentigerous cyst in the present case.

Management of a supernumerary tooth depends on the type and position of the tooth and its effect on the adjacent teeth. Removal of the supernumerary tooth has been recommended where there is evidence of the associated pathology, eruption disturbances, displacement of the incisors or where spontaneous eruption of the supernumerary tooth has occurred.[5]

Surgical removal of the dentigerouscyst has been considered as the preferred choice of treatment. Marsupialization has been recommended for large dentigerous cysts in children where enucleation and tooth removal might result in damage to the nerve and blood vessels supplying the adjacent teeth and allows eruption of the teeth.[12] In the present case, surgical removal of the impacted mesiodensand marsupilization was done initially.Iodoform gauge used as a initial dressing has a role in hemostasis and prevents haematoma formation.[13] Later on enucleation of the cyst was performed with no recurrence during follow up periods.

CONCLUSION

When the supernumerary tooth is evident, the direction of the crown, the location, the influence on adjacent teeth, the resorption of adjacent roots and the formation of dentigerous cysts should be carefully evaluated. Conventional radiographical examination involving panoramic, occlusal and periapical views have been used to locate their exact position for proper treatment plan and surgical removal. Computed tomography (CT) and Cone-beam CT have emerged as diagnostic techniques to assess supernumerary teeth.

Clinical Significance

Dentigerous cyst should be carefully evaluated clinically and Radiographically and long term follow up should be needed in these cases to rule out any recurrence or malignant transformation.

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