

Case Report

Dentigerous Cyst: A Conservative Approach with Orthodontic Intervention

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ABSTRACT:

Dentigerous cyst is a type of odontogenic cyst, characterized by a unilocular radiolucent lesion that encloses permanent tooth buds or, under certain circumstances, displaced tooth buds. Dentigerous cyst always includes a tooth which cannot complete the eruption process and occurs around the crown by the fluid accumulation between the layers of enamel organ.. The majority of these lesions are usually a radiological finding and are capable of quite large before being diagnosed. The standard treatment for these cysts is the enucleation and the extraction of the affected tooth. However, if the patient is a child and the affected tooth is not developed, a more conservative attitude should be considered. This case report presents a mandibular dentigerous cyst in a 10-year-old boy. Marsupialization was the treatment of choice and orthodontic correction was provided. Long-term follow-up revealed good healing of the bony lesion.

Keywords: Dentigerous cyst, Enucleation, Marsupialization, Decompression.

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INTRODUCTION

Dentigerous cyst is a type of odontogenic cysts and has a rate between 20% and 24% in all the jaw cysts. A greater incidence in young men has been reported with a ratio of 1.6:1. It is usually associated with impacted or unerupted teeth. Mandibular third molars, maxillary canines and mandibular premolars are involved most frequently. Rarely, a dentigerous cyst is associated with odontome, deciduous teeth and supernumerary teeth.

Different options were advised for the treatment of these cysts such as the elimination of the damage on the affected permanent tooth, enucleation of all pathological tissues with the removal of the involved tooth, or marsupialization. In these options, the removal of the cystic lesion and the extraction of the unerupted tooth is the main treatment to prevent the recurrence of the cystic lesion.

CASE REPORT

A 10-year-old male referred to the department of Pedodontics because of a painless swelling in the right side of the mandible for the last 3 months. On general examination, the patient was apparently healthy without any significant past medical history. Extraoral examination revealed a swelling present near the right side lower margin of the mandible (Fig.1). Intraoral examination revealed an oval non fluctuating swelling which caused bulging of the cortical bone in the right primary mandibular first molar region (Fig.1). The right primary mandibular first molar tooth was non vital, and the crown had been eradicated by a carious lesion. The adjacent mucosa was apparently normal, and there were not any signs of inflammation.



Fig.1 : Extra oral view & Intra oral view



Fig.2. Pre treatment Radiographs (OPG & CBCT) images

Panoramic (OPG) radiograph was taken for radiological examination, and it revealed the presence of a unilocular radiolucent cystic lesion with sclerotic border associated with the mandibular right first premolar crown canine crown. The root apices of these teeth were still not closed. Root resorption were seen with mandibular right deciduous molars. (Fig. 2). The crown of the mandibular right first premolar was lying horizontally and coronally displaced. Additionally, the radiolucent cystic lesion extended to the lower border of the mandible was revealed on cone beam computed tomography (CBCT) image evaluation. Based on the clinical and radiological examination, a differential diagnosis were dentigerous cyst /odontogenic keratocyst / unilocular ameloblastoma. It was decided to go for fine needle aspiration cytological (FNAC) evaluation for cystic swelling. The FNAC report revealed that thick, straw

coloured fluid with chronic inflammatory cells and cholesterol crystals suggestive of dentigerous cyst.

The treatment plan considering the age of the patient, extend of lesion and conservation of adjacent structural anatomy. It was planned for marsupialization of the cystic lesion with preservation of all the involved teeth. All the procedures according to treatment plan was explained to patient and his parents in regional language and informed consent for same was duly signed and taken from them. The patient was treated under local anaesthesia with extraction of the 2nd deciduous molar. Followed by marsupialization of the cystic lesion by creating a window of 1 × 1 cm in the lower right buccal vestibule over the cystic cavity (fig.3). The marsupialized wound was sutured and packed with iodoform gauze for a week (fig.3). The post operative instruction was explained to the patient was instructed to maintain strict oral hygiene and clean the wound.

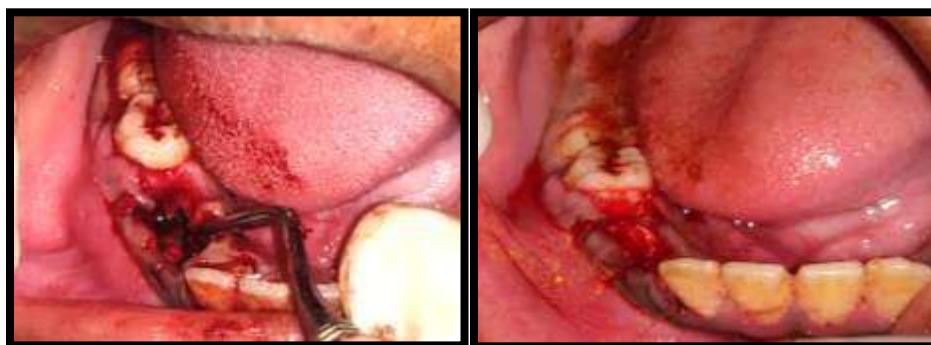


Fig.3: Intra operative procedure

Regular follow up was done and in between radiographs was taken that reveals the progressive regression and disappearance of the cystic lesion with with spontaneous eruption of the right canine and first premolar and eruptive movement toward occlusion (Fig. 4).



Fig. 4 : Follow up radiographs (at 3 months & 6 months) respectively.

The clinical and radiographic evidence after 8 months showed that the second premolar required space for its eruption and canine need to be aligned without rotation. So, orthodontic intervention was carried out for creating space for eruption of first premolar (Fig. 5).



Fig.5 : Orthodontic Intervention for better occlusion settlement

DISCUSSION

Dentigerous cysts (DCs) known as follicular cysts are thought to be caused by a developmental abnormality derived from the reduced enamel epithelium (REE) of the tooth forming organ. The WHO classification of jaw cysts refers to the DCs as an epithelial developmental odontogenic cysts. They are attached to or enclose the crown of the unerupted tooth at the cemento-enamel junction¹. The Dcs are seldom discovered in young individuals since they frequently occur in individuals between 20 and 40 year of age². Clinically, it is often asymptomatic; it is discovered as an incidental radiographic finding or when acute inflammation, infection or swelling develops².

Radiographically there are three types of dentigerous cyst, namely the central type, lateral type and the circumferential type. This case is of central type dentigerous cyst. A large radicular cyst, Odontogenic keratocyst, and unicystic ameloblastoma must be considered in the differential diagnosis of a dentigerous cyst³. The choice of treatment depends on various factors, such as age of the patient, location of the cyst, tooth position in relation to the cyst, and the degree of the axial inclination and root formation.

Though the usual treatment for a dentigerous cyst is careful enucleation of the cyst together with the removal of unerupted tooth, if eruption of the unerupted tooth is considered feasible, the tooth may be left in place after partial removal of the cyst wall⁴.

This permits the decompression of the cyst with a resulting reduction in the size of the bone defect. Some patients may need orthodontic treatment to assist eruption. Large dentigerous cysts may also be treated by marsupialization^{5,6}. Considering the age of the patient in this case, it was important to prevent the loss of a permanent tooth, which in turn will create the need for prosthesis. Hence, enucleation was decided against and the outcome turned out to be rewarding. The involved tooth is erupting and need some space which can be achieved with fixed orthodontic braces treatment which is in progress for better and stable occlusion of permanent dentition.

CONCLUSION:

The dentigerous cyst is very uncommon pathology seen in pediatric patients. When the children come with swelling during primary or mixed dentition period, we

should do thorough investigation to rule out dentigerous cyst, and if possible, the tooth should be saved. Treatment of choice is enucleation followed by removal of unerupted teeth, but in this case conservative method *i.e* marsupialization of the cyst lining is done followed by iodoform dressing without removing the unerupted permanent teeth was done. Later that shows favorable eruption of unerupted tooth, and helps in reducing further future complications as well.

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