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A Massive Dentigerous Cyst and Its Treatment – A case report.

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Abstract

Dentigerous cyst may be developmental or inflammatory in origin. The latter is found only in mixed dentition with a low frequency. Treatment of inflammatory type of dentigerous cyst in children should be done with the aim of saving developing permanent teeth which should not be sacrificed as far as possible.

This is a case report of a large inflammatory dentigerous cyst in a 11-year-old female patient treated conservatively by marsupialization method saving all teeth (mandibular unerupted premolar) in relation to the cyst. A large dentigerous cyst in child is a rare entity and its conservative management by marsupialization is rarely reported. This report emphasizes on conservative management in a child with a large inflammatory dentigerous cyst.

Keywords: Dentigerous Cyst, Inflammatory, Marsupialization.

Introduction

The frequency of dentigerous cysts in children has been reported low in dental literature. Shear[1] has estimated about 9% while Donath[2] about 4% of dentigerous cysts to occur in the first decade of life. Two types of dentigerous cysts are reported, viz. developmental and inflammatory in origin.[3] Developmental type of cyst develops in a mature tooth as a result of fluid

accumulation. Inflammatory type develops in an immature permanent tooth as a result of spread of inflammation from an overlying non-vital primary tooth. Clinically, the cyst is generally asymptomatic and discovered occasionally during routine radiographic examination. Larger cysts may cause springiness of the bone, expansion of cortical plates and mild sensitivity without any pain. Radiographically, the cyst presents as a well-defined unilocular radiolucency surrounding a crown of unerupted tooth. Histologically, the cyst consists of a fibrous wall lined by non-keratinized stratified squamous epithelium of myxoid tissue, odontogenic remnants and rarely, sebaceous cells.[4] Treatment of the dentigerous cyst is done by Enucleation or Marsupialization/Decompression methods.[5] The latter approach is preferred for larger cysts and is especially helpful in Pediatric patients to conserve the unerupted permanent successors of the cystic tooth. However, enucleation is a safe and effective method of treatment in small cysts. Excision of cyst should be accompanied by removal of the responsible primary tooth for an inflammatory type cyst. The choice of treatment protocol is based on the size and swelling with respect to unerupted tooth and the activity of the lesion. Long term follow-up is indicated for all cases of dentigerous cysts to detect recurrence and/or malignant transformation.[6]

Case Report

A 11-year-old female patient was referred to the Department of Pediatric and Preventive dentistry, Peoples Dental Academy, Bhopal, MP, on May 2023 with the chief complaint of extra oral swelling and pain for one- month duration on right side of the lower jaw. On examination, a slight buccal bulge was present in the mandibular right posterior region which was felt hard on palpation extra orally [fig 1.]. Intra-oral examination revealed the presence of deep carious lesion in mandibular primary right second molar (85). Buccal swelling was visible in the 84, 85[fig 2.] region. An orthopantomogram radiograph and an occlusal radiograph was advised to the patient. Patient orthopantomogram radiograph revealed the presence of a well-defined unilocular radiolucency in relation to the roots of 85[fig 3a.]. The radiolucency also involved unerupted mandibular right second premolar (45), and occlusal radiograph revealed expansion of buccal cortical plates [fig 3b.]. The dimensions of the radiolucent lesion were approximately 2.5 to 3.3 cm in size. Based on clinical and radiological findings, a provisional diagnosis of dentigerous cyst was made. Decompression of the lesion was planned to save the unerupted permanent tooth.

Clinical Procedure

Routine blood examinations were advised before decompression, which were within normal limits. Extractions 85 was done under local anaesthesia which led to opening of the cavity. A thick brown-coloured fluid was drained during the procedure. A small soft tissue lesion attached with the extracted 85 and from the cavity was obtained which was sent to Department of Oral Pathology for histopathological examination. Histopathological examination revealed that wall of the cyst lined by stratified squamous epithelium having features of inflammation including numerous proliferating blood vessels and mixed inflammatory cells. Histopathological examination of tissue and of fluid confirmed the diagnosis of inflammatory dentigerous cyst. The cortical plates were compressed and the cavity was left open for continuous drainage. Antibiotics and analgesics were prescribed and the patient was dismissed after giving post operatory instructions. The follow up examination was scheduled one week after the procedure followed by recall every 3

months. A space maintainer was planned after sign of initial healing was seen so as to allow space for eruption of 45.

Fig. 1: Initial preoperative photograph with buccal swelling.

Fig. 2. Clinical view showing swelling in relation to 84,85

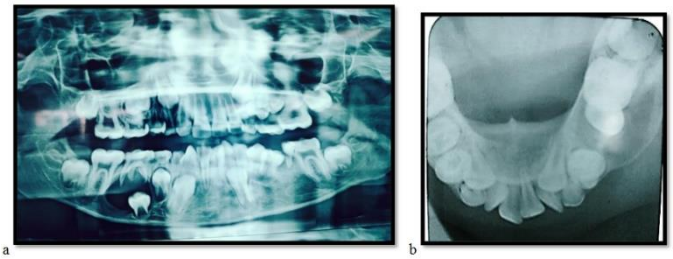

Fig. 3: a. Preoperative OPG showing a large well-defined radiolucent lesion and b. occlusal radiograph showing expansion of buccal cortical plate.

Discussion

Inflammatory dentigerous cyst (IDC) is a type of dentigerous cyst which is found in mixed dentition only. It develops when the inflammation present at the root apex of a non-vital primary tooth spreads to involve the follicle of the unerupted immature permanent successor6. In this case the infection was present at the root apex of a grossly carious and non-vital 85 which spread to involve the follicle of 45 resulting in formation of IDC. In the differential diagnosis of IDC, an odontogenic keratocyst, unicystic ameloblastoma, radicular cyst must be considered. All the above-mentioned lesions are rare in the first decade of life. Odontogenic keratocyst and unicystic ameloblastoma occur in the second and third decade of life and are found in the molar region of the lower jaw. Radiograph alone cannot differentiate the above-mentioned lesions so a histopathological examination should be performed wherever possible. However, as suggested by Kozelj and Sotosek[7] in 1999, leaking out of cystic fluid during an extraction of a primary tooth or during a decompression, respectively, confirm the clinical impression of the cyst. In our case, histopathological examination as well as leaking out of the fluid during the extraction of primary teeth confirmed the diagnosis of IDC[fig 4.]. Marsupialization or decompression technique has been advocated by several authors for treating dentigerous cyst in young patients.[8,9] In this conservative technique,

creation of an accessory cavity helps to relieve intracystic pressure and accelerate the healing of the cystic lesion10[fig 5, fig 6.]. The permanent teeth generally erupt in the oral cavity with or without the need of orthodontic correction. However, the patient should be followed up until the complete eruption of permanent teeth in their designated location.[11]

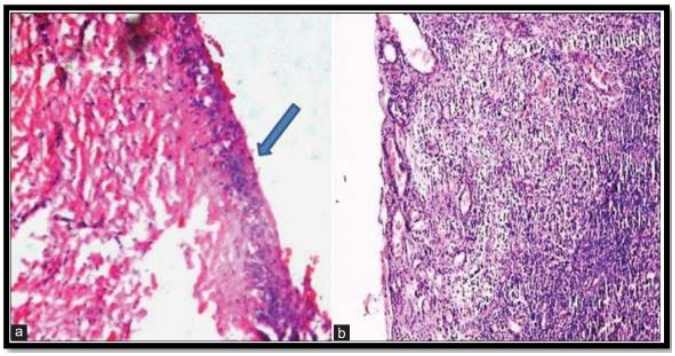

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Fig 5: 15 days follow-up photograph with reduced buccal swelling

Fig 6: 15 days follow-up OPG showing initiation of bone healing

Conclusion

From the discussion, it is concluded that marsupialization technique is an ideal approach to treat large dentigerous cysts in paediatric patients. Several authors have reported excellent results by this technique. However, the follow-up of the patient should be done until the complete eruption of permanent teeth in their right location in the oral cavity. It is observed that, if permanent teeth are left undisturbed then as the cyst heals in due course of time, these permanent teeth erupt in the oral cavity. Therefore, marsupialization technique should be considered as a viable and safe choice in the treatment of dentigerous cysts in paediatric patients.

References

1. Shear M. Cysts of the oral regions. 3rded. Write: Oxford, UK; 1992. p. 75-89.
2. Donath K. Odontogenic and nonodontogenic jaw cysts. Dtsch Zahnarztl Z 1985;40:502-9.
3. Benn A, Altini M. Dentigerous cysts of inflammatory origin: Aclinicopathologic study. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1996;81:203-9.
4. Tüzüm MS. Marsupialization of a cyst lesion to allow tooth eruption: A case report. Quintessence Int 1997;28:283-4.
5. Ziccardi VB, Eggleston TI, Schneider RE. Using fenestration technique to treat a large dentigerous cyst. J Am Dent Assoc 1997;128:201-5.
6. Bloch JK. Follicular cyst. Dent Cosm 1928;70:708-11.
7. Kozelj V, Sotosek B. Infl ammatory dentigerous cysts of children treated by tooth extraction and decompression-report of four cases. Br Dent J 1999;187:587-90.
8. Martinez-Pérez D, Varela-Morales M. Conservative treatment of dentigerous cysts in children: A report of 4 cases. J Oral Maxillofac Surg 2001;59:331-4.
9. Berdén J, Koch G, Ullbro C. Case series: Treatment of large dentigerous cysts in children. Eur Arch Paediatr Dent 2010;11:140-5.
10. Bodner L, Woldenberg Y, Bar-Ziv J. Radiographic features of large cysts lesions of the jaws in children. Pediatr Radiol 2003;33:3-6
11. Kumar R, Singh RK, Pandey RK, Mohammad S, Ram H. Infl ammatory dentigerous cyst in a ten-year- old child. Natl J Maxillofac Surg 2012;3:80-3