

Mandibular osteolytic lesion in a 17-year-old girl: A dentigerous or radicular cyst? A case report and discussion.

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ABSTRACT: Dentigerous cyst (DC) is one of the most common odontogenic cysts which envelops abnormally around unerupted maxillary or mandibular teeth. It is often asymptomatic and can be found incidentally on dental radiography with delayed eruption of teeth. However, it can be large and cause symptoms related to expansion and impingement on contiguous structures. Pain and swelling may be the major complaints of patients. However, DC seldom causes inflammation or infection. Here, we present a case of surgically managed 17-year-old female, with a suspected DC with a diagnostic dilemma between a radicular cyst and dentigerous cyst arising from left mandibular third molar extending up to roots of second, first molar and an over-retained deciduous second molar teeth.

Key word: Odontogenic Cyst, Dentigerous Cyst, Radicular Cyst

I. Introduction

Dentigerous cysts are the second most common odontogenic cysts after radicular cysts, accounting for approximately 24% of all true cysts in the jaws. ⁽¹⁾ Dentigerous cysts are incidentally and most frequently discovered when radiographs are taken to investigate a failure of tooth eruption, a missing tooth or malaligned one. There is usually no pain or discomfort associated with the cyst unless it is secondarily infected. Radiological picture characteristically presents as a unilocular, radiolucent lesion with a well-defined sclerotic margins and is typically associated with the cemento-enamel junction of an unerupted tooth. While a normal follicular space is 3 to 4 mm, a dentigerous cyst can be suspected when the space is more than 5 mm. ⁽²⁾ Usually dentigerous cysts arising from mandibular third molars are confined to ramus area whereas in this case, cyst was extending up to roots of first and second molars. So, we present a case of mandibular cyst with a diagnostic dilemma between a dentigerous and a radicular cyst owing to its radiological and clinical presentation.

II. Case Report

A 17-year-old female patient reported with the chief complaint of decayed mandibular first molar, the cystic lesion was found in routine radiographical investigation. (Fig 1) No obvious swelling or facial asymmetry was noted on extra oral examination. No sinus or fistula was evident *extra orally*. Regional lymph nodes were non-palpable, non-tender.

Intraoral examination. (Fig 2)

36 was grossly decayed by caries. 36 and 37 were found to be nonvital by electrical pulp testing method. None of the involved teeth were mobile, and pain on percussion was absent. No paraesthesia was noted. Orthopantomogram revealed a cariously involved 36. Over-retained 75 and 85 with congenitally missing 35 and 45 were seen. A large unilocular radiolucency extending from 36, 37 to unerupted 38 was observed with resorption of both the roots of 37. Lesion showed well-defined, well-corticated borders. The inferior border of the mandible was intact. (Fig. 1) Inferior alveolar canal was displaced inferiorly in affected region. Considering the extensive nature of the lesion, CBCT was advised which revealed that buccal cortical plate was intact

whereas the lingual cortical plate was perforated in 36 region. (Fig 3) Slight expansion of the lingual cortical plate was seen in the 37 region. The lesion was of dimension 5cm x 2cm x 2cm. (Fig.1)The lesion posed a difficulty in diagnosis because there were decayed and nonvital 36 which led to the suspicion of radicular cyst whereas unerupted 38 with lining attached to its CEJ led to a differential diagnosis of dentigerous cyst. Considering the cystic nature of the lesion it was decided to surgically enucleate the lesion under local anesthesia and an informed consent was taken from the patient. An acrylic stent was prepared preoperatively to aid in healing of surgical wound and to prevent wound contamination & soft tissue collapse after the operative procedure.

The patient was prepared as per the routine surgical protocol. A crevicular incision was taken buccally extending from 75 to 38 and an envelope flap was raised. (Fig 4) Extraction of 75,36,37,38 was done. (Fig 5) Derooting of the cyst was done with the help of micromotor handpiece and round bur no. 6 and straight bur 702 to expose the cyst lining. With the help of curette and periosteal elevator the lining was separated from the underlining bone starting anteriorly from 36 and extending posteriorly up to 38. (Fig 6) Cyst was enucleated in toto. After complete enucleation of cystic lesion the cavity was inspected for any sharp bony spicules which were smoothed off and curettage of any remaining residual soft tissue was done. The cavity was irrigated with povidone iodine solution followed by normal saline. The cavity was debrided and packed with absorbable gelatinous sponge (Abgel) for obliteration of the large dead space and hemostasis. The defect was closed with 4-0 vicryl suture. The specimen (Fig 7) was sent for histopathological (Fig 8) analysis which revealed that the cyst lumen lined by nonkeratinized stratified squamous epithelium proliferating with arcading pattern in most areas which gave a confirmatory diagnosis of infected dentigerous cyst.

III. Discussion

A dentigerous cyst is an epithelium-lined developmental cavity that encloses the crown of an unerupted tooth at the cemento-enamel junction. Dentigerous cyst is second most common odontogenic cyst after periapical cyst. By definition, a dentigerous cyst occurs in association with an unerupted tooth, most commonly mandibular third molars.⁽³⁾ Other common associations are with maxillary third molars, maxillary canines, and mandibular second premolars.⁽⁴⁾ They are occasionally associated with supernumerary teeth.⁽⁵⁾ It presents mostly in the second or third decade of life.⁽⁶⁾ The DCs are mostly asymptomatic and may be found on routine dental radiographic check-up. They may sometimes cause symptoms like pain or swelling with the enlargement of the cyst size. Radiographically, the typical DC shows a well-defined radiolucency with sclerotic border associated with the crown of an unerupted tooth.⁽⁴⁾ Some of them are reports of few cases in which there are no strong criteria to differential diagnostic between radicular and dentigerous cyst. Shaw et al. hypothesized that "If a primary periradicular cyst were to develop in the path of developing unerupted tooth, it is likely that union of the follicle and cyst would take place, resulting in a continuity of the reduced enamel epithelium and cyst lining".⁽⁷⁻⁸⁾ In this particular case, though the radiological picture showed distinct sclerotic borders, unilocular radiolucency associated with an unerupted tooth, which favored the diagnosis of a dentigerous cyst whereas the presence of nonvital 36 and continuity of the radiolucency with the periapical region of 36 led to a confused diagnosis of a radicular cyst. Nevertheless, since the surgical protocol for both radicular and dentigerous cyst is enucleation, we performed enucleation and subjected the specimen for histopathological analysis.

The histopathological report was awaited for confirmatory diagnosis which was reported as infected dentigerous cyst.

Three varieties of the cyst-to-crown relationships can be seen on radiographic examination. They are central variety, lateral variety and circumferential variety. (4) In the case presented here, the cyst-to-crown relationship was classified as a lateral variety. Although it is very unusual for a cyst to cause resorption of the roots of the adjacent teeth, however, remarkable resorption of both the roots of left second molar was observed. Cyst extended from mesial root of left first molar to mesial root of unerupted left third molar.

The differential diagnosis of DC includes odontogenic keratocyst (OKC), adenomatoid odontogenic tumor (AOT), calcifying epithelial odontogenic cyst (CEOC), calcifying epithelial odontogenic tumor (CEOT), and unicystic ameloblastoma (UAs).⁽⁹⁾ In addition to the histopathologic differences between the feature of the epithelium of OKC and DC, the differential diagnosis can also include the development and the recurrence tendency of these cysts. About 40% unilocular OKC contain impacted tooth. The OKC is more aggressive with higher recurrence risk than DC and may be associated with nevoid basal cell carcinoma syndrome. The AOT and COC generally are more frequently seen in maxillary anterior area with some degree of calcification within the cyst cavity, which may be observed from radiography.⁽⁶⁾

The surgical approach to cystic lesions of the jaws is either by marsupialization or enucleation.⁽¹⁰⁾ Enucleation of the cyst contents with extraction of the associated tooth is sufficient for DC. Cysts are usually enucleated, where the cystic lining is separated from its inner bony surface and removed and the cavity allowed filling with blood clot. For extremely large lesions, or in cases when the involved tooth is desired

to be retained in the arch, marsupialization may be done. In this case, we did the enucleation of the cystic lesion followed by placement of an acrylic stent.

IV. Conclusion

Owing to the complexity of the diagnosis of the lesion in this particular case, we arrive to a conclusion that a clinico-radiological-histopathological correlation is mandatory for a definitive diagnosis.

References

- [1] Daley TD, Pringle GA. Relative incidence of odontogenic tumors and oral and jaw cysts in a Canadian population. *Oral Sur Oral Med Oral Pathol* 1994; 77: 276-80.
- [2] Goaz PW, Stuart CW. Cysts of the jaws. In: *Oral radiology, principles and interpretation*. 3rd ed. St. Louis: Mosby; 1994. p. 400.
- [3] Ko KS, Dover DG, Jordan RC. Bilateral dentigerous cysts: Report of an unusual case and review of the literature. *J Can Dent Assoc* 1999; 65:49-51
- [4] Neville BW, Damm DD, Allen CM, Bouquot JE. *Oral & Maxillofacial Pathology*, 2nd ed. Philadelphia: WB Saunders. 2002: 590-3.
- [5] Lustmann J, Bodner L. Dentigerous cysts associated with supernumerary teeth. *Int J Oral Maxillofac Surg*. 1988;17: 100-102
- [6] Regezi JA, Sciubba JJ, Jordan R.C.K. *Oral pathology, clinical pathologic correlations*. 4th ed. St. Louis: WB Saunders. 2003: 246-88RANCES
- [7] Bloch-Jorgensen K. Follicular cysts. *Dent Cosmos*. 1928; 70: 708-11.
- [8] Azaz B, Shteyer A. Dentigerous cysts associated with second mandibular bicuspid in children report of five cases. *J Dent Child*.1973; 40: 29-31.
- [9] Vijayakumar R, Gunashekhar M, Bhokhari K, Dutta B. Dentigerous cyst in a 8 year old child - A case report *SRM journal of Research in dental sciences*. 2010: Volume1: Issue 2: 190-193
- [10] BodnerL.Cystic lesions of the jaws in children.*Int J PediatOtorhinolaryngol* 2002 Jan 11; 62(1):25-9.

Figure legends:

Fig 1: preoperative OPG

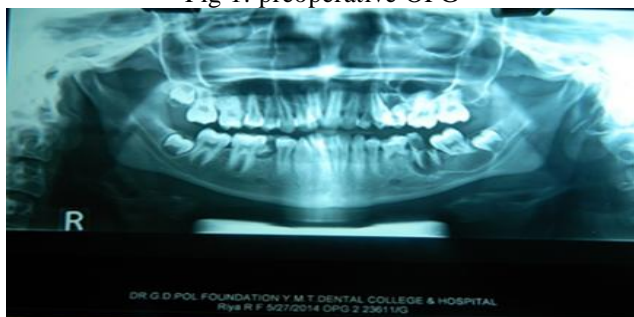


Fig2: preoperative intraoral view



Fig 3 : CBCT revealed that buccal cortical plate was intact whereas the lingual cortical plate was perforated in 36 region.

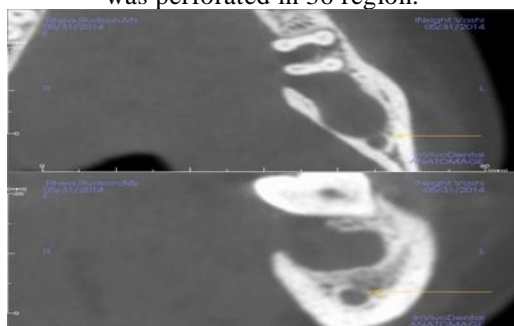


Fig 4: envelope flap



Fig 5: Extraction of 75,36,37,38 was done



Fig 6: The cystic lining was separated from the underlining bone.



Fig7 Specimen



Fig 8 histopathologically

