

CASE REPORT

Mandibular Osteolytic Lesion in Adolescents: A Dentigerous or Radicular Cyst?

¹Vaishali Das, ²Harshal Suryawanshi, ³Angad Shetye

ABSTRACT

Dentigerous cyst (DC) is one of the most common odontogenic cysts that develops abnormally around unerupted maxillary or mandibular teeth. It is often asymptomatic. It is incidentally observed on dental radiography with delayed eruption of teeth, could be large, and can cause symptoms related to expansion and impingement on contiguous structures. Pain and swelling may be the major complaints of patients. However, DC rarely causes inflammation or infection. In this study, the case of a surgically managed 17-year-old female, with a suspected DC with a diagnostic dilemma between a radicular cyst and DC arising from left mandibular third molar extending up to roots of second, first molar, and an overretained deciduous second molar teeth is presented.

Keywords: Dentigerous cyst, Odontogenic cyst, Radicular cyst.

How to cite this article: Das V, Suryawanshi H, Shetye A. Mandibular Osteolytic Lesion in Adolescents: A Dentigerous or Radicular Cyst? *Int J Oral Care Res* 2017;5(4):348-351.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Around 24% of all true cysts in the jaws are DCs.¹ Dentigerous cysts are most frequently and incidentally discovered when radiographs are taken to investigate a failure of tooth eruption, a missing tooth, or malaligned one. There is usually no discomfort or pain associated with the cyst unless it is secondarily infected. A unilocular, radiolucent lesion with well-defined sclerotic margins is typically associated with the cemento-enamel junction (CEJ) of an unerupted tooth. Radiologically, a DC can be suspected when the follicular space is >5 mm.² The DCs arising from mandibular third molars are restricted to

ramus area. Somehow in this case, cyst was extending up to roots of first and second molars. Therefore, this case presents mandibular cyst with a diagnostic dilemma between a DC and a radicular cyst owing to its radiological and clinical presentation.

CASE REPORT

A 17-year-old female patient reported to the Department of Oral and Maxillofacial Surgery, YMT Dental College and Hospital, Navi Mumbai, Maharashtra, India, with the chief complaint of decayed mandibular first molar. The cystic lesion was found in routine radiographical investigation (Fig. 1). Obvious swelling or facial asymmetry was not noted. Neither sinus nor fistula was evident extraorally. Lymph nodes were nonpalpable, nontender regional. Examination (Fig. 2) showed grossly carious #36. By using electrical pulp testing method, #36 and #37 were found to be nonvital. The involved teeth were not mobile, and pain on percussion was absent. No paresthesia was recorded. Orthopantomogram (OPG) showed a cariously involved #36. Overretained #75 and #85 and 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. Well-defined, well-corticated borders were seen. Intact inferior border of the mandible was seen (Fig. 1). Inferior alveolar canal was displaced inferiorly in affected region. Considering the extensive nature of the lesion, cone beam computed tomography was advised which revealed



Fig. 1: Preoperative OPG

^{1,2}Reader, ³Fellow

^{1,2}Department of Oral and Maxillofacial Surgery, Dr. G. D. Pol Foundation's YMT Dental College & Research Institute, Navi Mumbai, Maharashtra, India

³Department of Oral and Maxillofacial Surgery, Swiss Cleft & Craniofacial Centre, Mumbai, Maharashtra, India

Corresponding Author: Vaishali Das, Reader, Department of Oral and Maxillofacial Surgery, Dr. G. D. Pol Foundation's YMT Dental College & Research Institute, Navi Mumbai, Maharashtra India, Phone: +919892094812, e-mail: vaishalidas71@gmail.com



Fig. 2: Preoperative intraoral view



Fig. 3: Cone beam computed tomography revealed that buccal cortical plate was intact, whereas the lingual cortical plate was perforated in 36 region

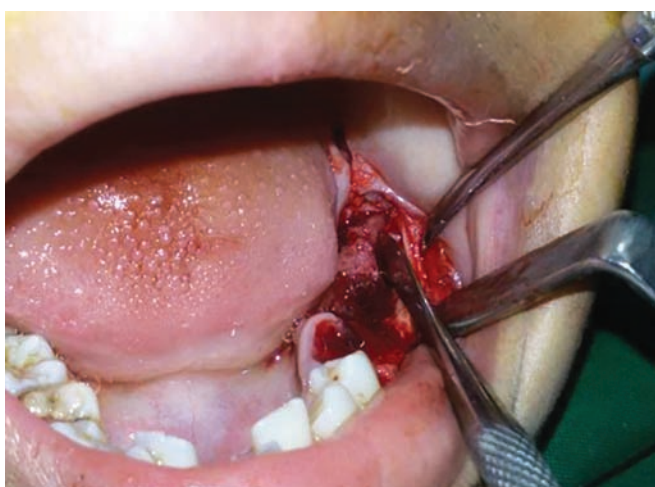


Fig. 4: An acrylic stent



Fig. 5: Envelope flap

that buccal cortical plate was intact, whereas the lingual cortical plate was perforated in #36 region (Fig. 3). Minor expansion of the lingual cortical plate was seen in the #37 region. Dimension of $5 \times 2 \times 2$ cm lesion was seen (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 DC. 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. Preoperatively, an acrylic stent was made to aid in healing of surgical wound for preventing wound contamination and soft tissue collapse postsurgery (Fig. 4). 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. 5). Extraction of #75, #36, #37, and #38 was done (Fig. 6). Deroofing of the cyst was done with the help of round bur

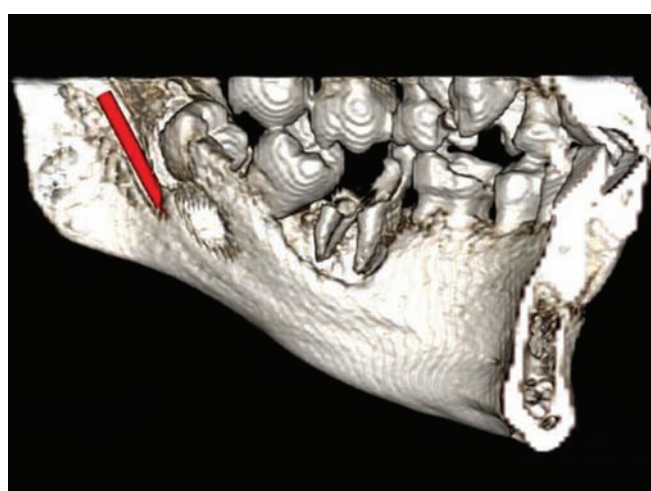


Fig. 6: Extraction of 75, 36, 37, 38 was done

no. 6 and micromotor handpiece and further straight bur 702 was used 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

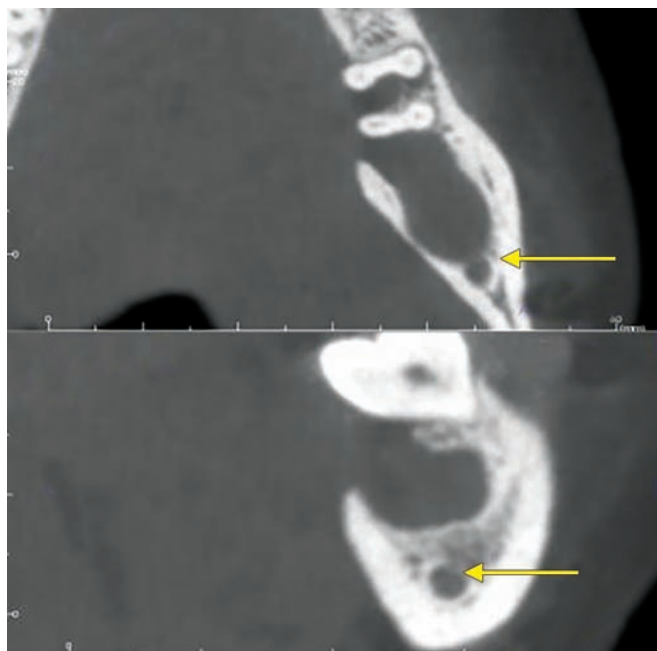


Fig. 7: Cystic lining was separated from the underlining bone

extending posteriorly up to #38 (Fig. 7). Cyst was enucleated *in toto*. The cystic lesion of the cavity was inspected for any sharp bony spicules after complete enucleation. They were smoothened off and curettage of any remaining residual soft tissue was done. The cavity was irrigated with povidone iodine solution and later by normal saline. The cavity was debrided. It was 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 was sent for histopathological analysis. The analysis revealed that the cyst lumen is lined by nonkeratinized stratified squamous epithelium proliferating with arcading pattern in most areas, which gave a confirmatory diagnosis of infected DC.

DISCUSSION

A DC is an epithelium-lined developmental cavity that encloses the crown of an unerupted tooth at the CEJ. It occurs in association with an unerupted tooth, most commonly mandibular third molars.³ Other frequent associations are with maxillary third molars, maxillary canines, and mandibular second premolars.⁴ They are occasionally associated with supernumerary teeth.⁵ It occurs in the second or third decade of life.⁶ The DCs are asymptomatic maximum times and may be found on routine dental radiographic examination. Rarely pain or swelling with the enlargement of the cyst size is observed. Radiographically, the typical DC shows a well-defined radiolucency with sclerotic border associated with the crown of the unerupted tooth.⁴ Case reports have shown no strong criteria to differential diagnostic between radicular cyst and DC. It was 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.⁷⁻⁹ In our case, though the radiological picture showed distinct sclerotic borders, unilocular radiolucency associated with an unerupted tooth favored the diagnosis of a DC, 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. The surgical protocol for both radicular cyst and DC is enucleation, so we performed enucleation and subjected the specimen for histopathological analysis. The histopathological report showed infected DC. Three varieties of the cyst-to-crown relationships, the central variety, lateral variety, and circumferential variety, were seen.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, calcifying epithelial odontogenic tumor, and unicystic ameloblastoma.¹⁰ 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 calcifying odontogenic cyst are frequently seen in maxillary anterior area with some degree of calcification within the cyst cavity.^{6,11} The surgical approach to cystic lesions is either by marsupialization or enucleation.¹² 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. In large lesions, or in cases when the involved tooth is desired to be retained in the arch, marsupialization may be done. According to Takase et al¹³ and Neaverth and Burg¹⁴ marsupialization consists of de-roofing the outer wall of a cyst by surgical incision and establishing a permanent opening by suturing the remaining cystic wall to the mucosal surface followed by placement of an obturator. With decompression, the involved tooth may erupt spontaneously or orthodontically into occlusion. For other odontogenic tumors are suspected, radical removal of the lesions or removal of the cyst with surrounding bony structures is recommended.

In this case, we did enucleation of the cystic lesion followed by placement of an acrylic stent.

CONCLUSION

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

REFERENCES

1. Daley TD, Wysocki GP, Pringle GA. Relative incidence of odontogenic tumors and oral and jaw cysts in a Canadian population. *Oral Surg Oral Med Oral Pathol* 1994 Mar;77(3): 276-280.
2. Goaz, PW, White, SC. Cysts of the jaws. In: *Oral radiology, principles and interpretation*. 3rd ed. St. Louis (MO): 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 Jan;65(1):49-51.
4. Neville, BW.; Damm, DD.; Allen, CM.; Bouquot, JE. *Oral and maxillofacial pathology*. 2nd ed. Philadelphia (PA): WB Saunders; 2002. pp. 590-593.
5. Lustmann J, Bodner L. Dentigerous cysts associated with supernumerary teeth. *Int J Oral Maxillofac Surg* 1988 Apr;17(2): 100-102.
6. Regezi, JA.; Sciubba, JJ.; Jodan, RCK. *Oral pathology, clinical pathologic correlations*. 4th ed. St. Louis (MO): WB Saunders; 2003. pp. 246-288.
7. Bloch-Jorgensen K. Follicular cysts. *Dent Cosmos* 1928;70: 708-711.
8. Azaz B, Shteyer A. Dentigerous cysts associated with second mandibular bicuspid in children: report of five cases. *ASDC J Dent Child* 1973 Jan-Feb;40(1):29-31.
9. Shaw W, Smith M, Hill F. Inflammatory follicular cysts. *ASDC J Dent Child* 1980 Mar-Apr;47(2):288-290.
10. Vijayakumar R, Gunashekhar M, Bhokhari K, Dutta B. Dentigerous cyst in a 8 year old child—a case report. *SRM Univ J Res Dent Sci* 2010 Jul-Sep;1(2):190-193.
11. Goaz, PW.; White, SC. *Oral radiology, principles and interpretation*. 2nd ed. St. Louis (MO): Mosby; 1987. pp. 426-692.
12. Bodner L. Cystic lesions of the jaws in children. *Int J Pediatr Otorhinolaryngol* 2002 Jan;62(1):25-29.
13. Takase T, Wada M, Nagahama F, Yamazaki M. Treatment of large radicular cysts by modified marsupialization. *J Nihon Univ Sch Dent* 1996 Dec;38(3-4):161-168.
14. Neaverth EJ, Burg HA. Decompression of large periapical cystic lesions. *J Endod* 1982 Apr;8(4):175-182.