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Buccal bifurcation cyst in the mandible



KEYWORDS

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Buccal bifurcation cyst (BBC) is a rare inflammatory odontogenic cyst, which was first described in 1983 by Stoneman and Worth,¹ and its etiology remains uncertain. The BBC had also been named as mandibular infected buccal cyst-molar area, juvenile paradental cyst, inflammatory collateral/paradental cyst, and inflammatory lateral periodontal cyst.² These synonyms reflect their clinical features. The BBC usually affects the vital first or second permanent mandibular molar in children aged between 4 and 14 years with clinical signs such as swelling, delayed eruption, and increased periodontal probing depths.^{3,4} Hereby, we presented a case of BBC with its follow-up data.

An eight-year-old boy came to our Department of Oral and Maxillofacial Surgery for a painful sensation in his left mandibular posterior tooth for a week. Upon oral examination, percussion pain of tooth 36 and swelling over the buccal area of tooth 36 and the left mandibular buccal space were noted. Panoramic radiograph revealed a well-defined unilocular radiolucent lesion of the periradicular area of tooth 36 (Fig. 1A), and electric pulp testing showed a positive result for tooth 36. Cone beam computed tomography displayed bony expansion and perforation of the buccal cortical plate of tooth 36 (Fig. 1B and C). The clinical impression was an infected odontogenic cyst or tumor, and enucleation for the lesion without tooth extraction was performed under general anesthesia. Histopathological examination showed a cystic lesion lined by nonkeratinized stratified squamous epithelium. Dense

infiltrates and aggregates of inflammatory cells in the connective tissue wall were noted (Fig. 1D and E). Based on clinical, radiographic, and histopathologic findings, a diagnosis of BBC was rendered. The patient has been followed up regularly and the radiographic examination after 8 months demonstrated the bone healing (Fig. 1F). Periapical radiograph revealed no recurrent lesion and the fully developed tooth 36 with a closed apex at the 3-year follow-up (Fig. 1G).

The histopathological features of BBC are non-specific, and the final diagnosis is made based on correlation of clinical, radiographic, and histopathologic findings. Lateral radicular cyst, dentigerous cyst, and Langerhan cell histiocytosis (LCH) are possible differential diagnoses for BBC. In contrast to BBC, the tooth associated with lateral radicular cyst should be non-vital. Dentigerous cyst occurs more frequently in the pericoronal area of the impacted third molar. Mandibular involvement of LCH is characterized by scooped-out appearance and causes the tooth as “floating in the air” in extensive bony involvement.⁵ However, BBC arises on buccal area of mandibular first and second molar with infectious clinical signs. No recurrence was reported in the previous studies.³ Conservative treatment such as curettage or enucleation without extraction of the associated tooth was preferred. Non-surgical strategies including marsupialization, and periodontal irrigation also revealed success in some cases. The watch-and-wait approach is recommended for asymptomatic cases.³

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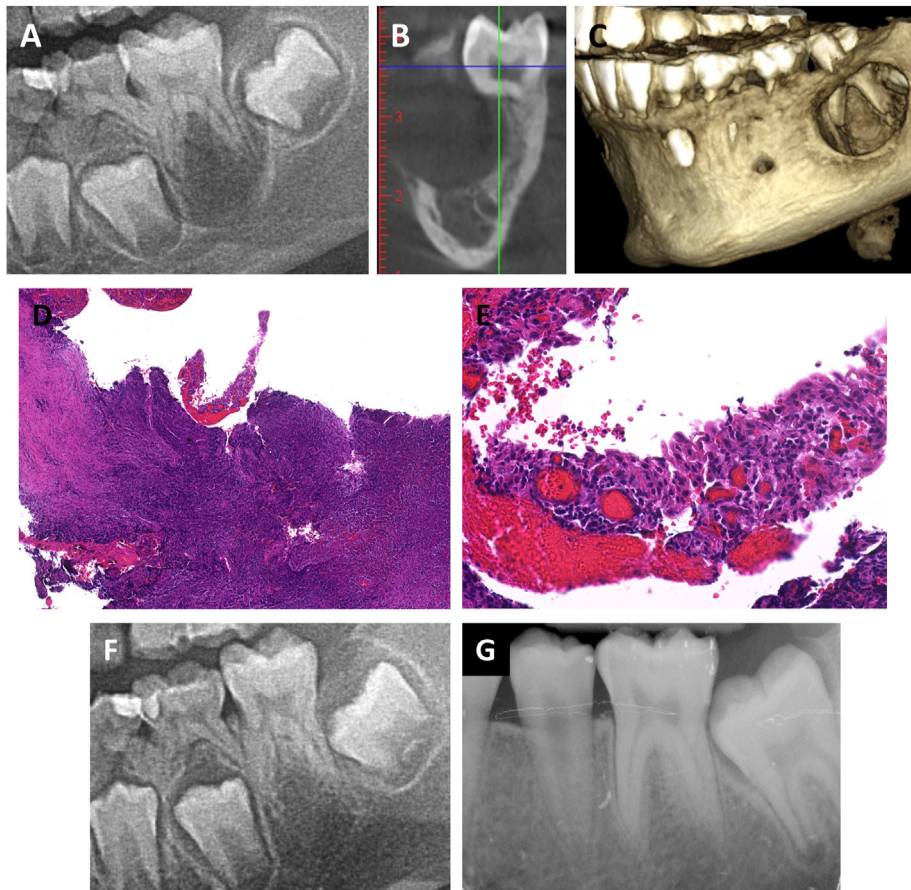


Figure 1 Radiographic and microscopic photographs of the current case of buccal bifurcation cyst in the left mandible. (A) A well-defined unilocular radiolucent lesion at the periradicular area of tooth 36. (B and C) Bony expansion and perforation of the buccal cortical plate of tooth 36. (D and E) A cystic lesion lined by nonkeratinized stratified squamous epithelium with dense aggregates of inflammatory cells in the connective tissue wall (Hematoxylin and eosin stain; original magnification; D, 100 \times ; E, 400 \times). (F) The radiograph taken 8 months after surgical treatment demonstrating the bone healing. (G) Periapical radiograph 3 years after enucleation revealed no recurrent lesion and the fully developed tooth 36 with a closed apex.

Declaration of competing interest

The authors have no conflicts of interest relevant to this article.

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