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Large traumatic bone cyst masquerading as an odontogenic keratocyst

Marzella M. Lestari

Department of Oral Maxillofacial Surgery, Faculty of Dentistry, Trisakti University, Jakarta, Indonesia,
marzella_ml@hotmail.com

Dwi N. Juanda

Department of Oral Maxillofacial Surgery, Faculty of Dentistry, Trisakti University, Jakarta, Indonesia

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CASE REPORT

Large traumatic bone cyst masquerading as an odontogenic keratocyst

Marzella M. Lestari, Dwi N. Juanda

Department of Oral Maxillofacial Surgery, Faculty of Dentistry, Trisakti University, Jakarta, Indonesia
Correspondence e-mail to: marzella_ml@hotmail.com

ABSTRACT

Traumatic bone cyst (TBC) is a jaw disorder that is asymptomatic, slow growing, and usually detected during routine panoramic examinations. The etiology and pathogenesis of TBC are still unknown. The lack of information and scarce research efforts on TBC has made it difficult for operators to appropriately diagnose and monitor cases, which often requires extensive treatment. Here, we report the case of a moderate-sized TBC, scalloping and passing through the mandibular midline and suspected to be a malignant lesion.

Key words: odontogenic keratocyst, traumatic bone cyst, bone cyst

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INTRODUCTION

Traumatic bone cyst (TBC) is a benign pseudocyst that occurs in the bones and is characterized by either empty or fluid-containing bone cavity. TBC is also known as simple bone cyst, hemorrhagic bone cyst, solitary bone cyst, and idiopathic bone cavity.¹ It occurs most commonly in the mandibular bodies, with an incidence of 25%–27% in the anterior region between the canines and 20% through the midline as well as in the third molar region of the mandibular angle.^{2,3} It most commonly occurs in the second decade of life. Experts differ in their opinions on the sex predilection of TBC.

Around 10%–30% of TBC patients experience pain.⁵⁻⁷ The other symptoms that patients usually complain of include tooth sensitivity, paresthesia, fistula, delayed eruption of permanent teeth, displacement of inferior alveolar nerve, and mandibular fracture.^{2,8-10} The radiological features of this disorder are characterized by radiolucent areas, with clear but irregular borders with or without sclerotic borders at the edge of the lesion. TBC has a characteristic scallop-shaped border when present between the roots of the teeth.¹¹ As a result, clinical images of TBC are not very clear because these cysts rarely lead to facial asymmetry.

Past studies have reported several treatments for curettage, bone grafting, corticosteroids, and jaw

resection. However, the recommended treatment for TBC is through surgical exploration, followed by curettage throughout the bone wall. Surgical exploration often results in bleeding in the cyst cavity, which forms a blood clot that is later replaced by the bone.¹²⁻¹⁴ In the present case, surgical exploration was the treatment of choice. However, the process of diagnosis of the present case was of primary concern as the radiographic features resembled those of a malignant lesion.

CASE REPORT

A 44-year-old woman visited our private clinic with the chief complaint of pain at tooth number 46. On clinical examination, no facial asymmetry or lymphadenopathy was found. On intraoral examination, no soft tissue abnormalities or bone expansion was identified. The periodontal tissues appeared healthy, with no visible gingivitis, periodontal pockets, or tooth mobility. No occlusion disorder was also detected. As the patient did not remember any previous trauma, history of trauma could not be ascertained. Before referral to our clinic, the patient was diagnosed with odontogenic keratocyst (OKC) by another surgeon, who removed teeth number 47 to number 34 and enucleated the cyst.

Figure 1. The panoramic radiograph shows radiolucent lesions with clear borders and a scallop-shaped border running from the mesial roots of the tooth 47 through the mandibular symphysis to reach the distal root of the tooth number 34.

Figure 2. (A) (B). Flap opening from the distal tooth number 47 to distal tooth number 35. Surgical exploration was performed and it revealed an empty cavity with no epithelial lining.

Figure 3. Panoramic radiograph was obtained 5 months after the treatment. As can be seen, the cavity cysts had begun to be filled by bone.

Clinical examination and panoramic radiography provided the differential diagnosis of TBC lesions as OKC, odontogenic myxoma, and central giant cell granuloma.

Flap opening was performed from the distal tooth number 47 to distal tooth number 35. When the flap was opened, an intact buccal bone, no apparent bone damage, and no bony swelling were seen. Surgical explorations and curettage were performed in several places, but the lesion was found in an empty bone cavity with no epithelial lining (Figure 2A,B). Surgical exploration of the lesion was then performed, followed by curettage to cause bleeding in the cyst cavity so that the cavity gets covered by a blood clot that will be later filled by the bone. Panoramic follow-up radiographs of

the previously affected site at 1 week, 2 months, and 5 months after surgical intervention showed bone repair (Figure 3).

DISCUSSION

The etiopathogenesis of TBC remains controversial among researchers. One hypothesis is that TBC is a synovial cyst—a cyst that develops from the displacement or herniation of the synovial lining. Another hypothesis states that TBC develops as a result of developmental abnormalities in which synovial tissue joins intraosseously.¹⁵ Few more hypotheses state that TBC occurs due to increased osteolysis, low-grade infection, local ischemia, inter medullary bleeding, or a combination of these factors.¹⁶ However, trauma is the most accepted cause today. Trauma from fractures, trauma to the bone that does not cause fracture, tooth extraction, or orthodontic treatment is suspected result in TBC.¹⁷

Panoramic radiographic features are important for the diagnosis of TBC. However, this typical radiographic picture may also create possibilities of bias for diagnosis, especially in moderate-sized TBC. The scalloping or pseudo septa of TBCs bear a resemblance to OKCs, which have a scallop-shaped border between the teeth roots and no rare jaw expansion.¹⁹

Surgical exploration followed by curettage bone wall is the most common treatment strategy for TBC.²⁰ Although some studies support filling of the cavity with blood, bovine lyophilized bone, or autologous blood with bone from the patient or the use of bone grafting, the effectiveness of any of these treatment options is not well studied.²¹

CONCLUSION

Traumatic bone cyst is an asymptomatic lesion of unknown etiopathogenesis. These lesions are most commonly found during routine radiographic examinations. Operators are often confused with regard to the determination of the radiodiagnosis of this lesion, which creates confusion in the determination of the planning plan, often leading to radical therapy, such as jaw resection. Further research is required to facilitate monitoring and diagnosis to avoid overtreatments undertaken for large TBC lesions.

CONFLICT OF INTEREST

All authors declare no conflict of interest.

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