

COMMENTARY



## Solitary bone cyst: An incidental radiographic finding in an asymptomatic teen

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### Abstract

**Aim:** Traumatic bone cyst or solitary bone cyst (or unicameral bone cyst) as it is commonly called as an asymptomatic, slow-growing lesion commonly diagnosed incidentally during routine radiographic examination of the jaw bones appearing as a radiolucent lesion. The aim of this commentary is to present a case of solitary bone cyst in an asymptomatic teenage patient who had visited us for an orthodontic extraction. **Conclusion:** An interesting case of traumatic bone cyst has been presented here with its management. Curettage remains the frontline treatment option. **Clinical Significance:** Surgical exposure and curettage are the treatment of choice, and it is curative for solitary bone cyst. Surgeons should keep an eye out for incidental pathologies on routine radiographs.

**Keywords:** Curettage, cyst, jaw cyst, maxilla, non-epithelial, odontogenic cyst

### Introduction

A simple bone cyst is classified by the World Health Organization as a non-neoplastic lesion related to bone. It is defined as "an intra-osseous cyst having a tenuous lining of connective tissue with no epithelium."<sup>[1]</sup> It is a lesion found mainly in the body and symphyseal regions of the mandible.<sup>[2]</sup> The purpose of this report is to present an unusual case of asymptomatic solitary cyst.

### Case Report

A 19-year-old male patient reported to the department of oral and maxillofacial surgery for routine orthodontic extractions of bilateral upper and lower first premolars. On examination, the patient was having bimaxillary protrusion with crowding in the upper and lower anterior teeth. On intra- and extraoral examination, no other abnormality was evident clinically. On routine radiographic examination of the orthopantomograph advised for the purpose of orthodontic extraction, a localized, solitary, unilocular, radiolucent lesion of about 1.5 cm × 1.5 cm in greatest dimension was identified in the right angle region of the mandible, distal to third molar extending distally up to

anterior one-third of the ramus. Extraction of 14, 24, 34, and 44 was carried out under local anesthesia.

Clinical and aspiratory findings were inconclusive, and hence, an explorative diagnostic biopsy was planned. Explorative diagnostic biopsy along with surgical removal of 48 was carried out under general anesthesia. 48 was exposed by giving a regular Ward's incision. Full-thickness mucoperiosteal flap was raised. Moreover, buccal guttering was done, and 48 was elevated. After extraction of 48, the underlying cavity was exposed after creating a bony window distal to 48. On careful exploration of the cavity, no cystic lining was found. Inferior alveolar neurovascular bundle was seen toward a lingual portion of the cavity. On curettage, a small granulation tissue was excavated. The granulation tissue, the piece of bony window, and the extracted 48 were sent for histopathological evaluation. The surgical site was then closed with interrupted sutures using 3-0 absorbable vicryl suture material. The histopathological diagnosis was a solitary bone cyst in the right angle of mandible.

The patient was discharged 1-day post-surgery. Suture removal was done 1-week post-operatively. The patient was then followed up for 6 months, and the radiolucency was found to have resolved [Figures 1-3].

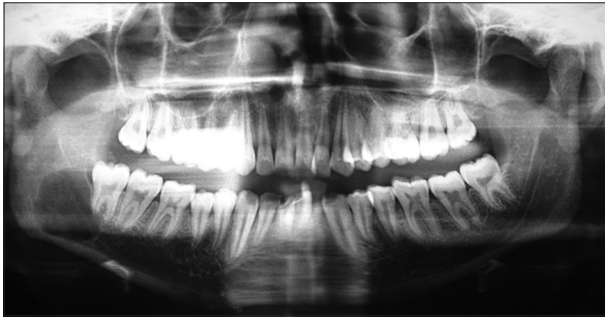


Figure 1: Pre-operative orthopantomograph



Figure 2: Intraoperative

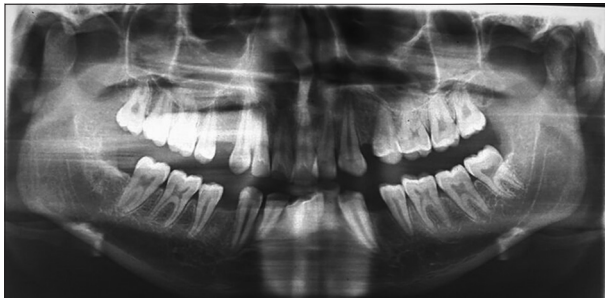


Figure 3: 6-month post-operative orthopantomograph

## Discussion

The simple bone cyst is a benign, empty, or fluid-containing cavity within the bone that is devoid of an epithelial lining first described by Lucas and Blum in 1929.<sup>[3]</sup> The lesion is undoubtedly more common in the jaws than the literature would indicate. The cause and pathogenesis are uncertain and controversial. Several theories have been proposed, but none of them explains all of the clinical and pathologic features of this disease.<sup>[4]</sup>

The trauma-hemorrhage theory suggests that trauma to the bone that is insufficient to cause a fracture results in an intraosseous hematoma. If the hematoma does not undergo organization and repair, it may liquefy, resulting in a cystic defect.

Some affected patients may recall an episode of trauma to the affected area,<sup>[5]</sup> but this anecdotal information is of uncertain significance and has not been subjected to detailed, controlled analysis. Other etiologic theories include inability of interstitial fluid to exit the bone because of inadequate venous drainage, local disturbance in bone growth, ischemic marrow necrosis, and localized alteration in bone metabolism resulting in osteolysis. Solitary bone cyst could be related to Fallot's tetralogy due to alterations found in the metabolism of calcium in patients afflicted with this disease.<sup>[6]</sup>

Simple bone cysts within the jaws are common and most frequently encountered in patients between 10 and 20 years of age.<sup>[7]</sup> The lesion is rare in children under age five and is seldom seen in patients over age 35.<sup>[8,9]</sup> Simple bone cysts of the jaws are essentially restricted to the mandible although there have been reports of the lesion in the maxilla. The simple bone cyst usually produces no symptoms and is discovered only when radiographs are taken for some other reasons.<sup>[7]</sup> About 20% of patients, however, have a painless swelling of the affected area. Pain and paresthesia may be noted in a few cases. Although any area of the mandible may be involved, simple bone cysts are more common in the premolar and molar areas. Although not characteristic, a simple bone cyst may rarely appear as a multilocular radiolucency associated with cortical expansion and slow enlargement. When expansion is present, an occlusal radiograph typically demonstrates a thin shell of cortical bone that exhibits no further reactive changes.<sup>[10]</sup> Extensive lesions involving a substantial portion of the body and ascending ramus are occasionally encountered. Similar simple cysts may be associated with lesions of cemento-osseous dysplasia and other fibro-osseous proliferations.<sup>[11]</sup> The walls of the defect may be lined by a thin band of vascular fibrous connective tissue or demonstrate a thickened myxofibromatous proliferation that often is intermixed with trabeculae of cellular and reactive bone.<sup>[12]</sup> This lining may exhibit areas of vascularity, fibrin, erythrocytes, and occasional giant cells adjacent to the bone surface. There is never any evidence of an epithelial lining. The bony surface next to the cavity often shows resorptive areas (Howship's lacunae) indicative of past osteoclastic activity.<sup>[12]</sup>

The radiographic features of the simple bone cyst, although often suggestive of the diagnosis, are not diagnostic and may be confused with a wide variety of odontogenic and non-odontogenic radiolucent jaw lesions.<sup>[13]</sup> Radiopaque foci and cloudiness can be observed in a few cases.<sup>[14]</sup> Surgical exploration is necessary to establish the diagnosis. As little to no tissue often is obtained at the time of surgery, the diagnosis of simple bone cyst is primarily based on the clinical and radiographic features, together with the surgical findings.

Although devoid of complications, if left untreated, it may result in pathological fracture as a result of the hollowing out of the affected bone.<sup>[15]</sup>

It is recommended that for treatment of the simple bone cyst, curettage of the cavity be carried out though it might look like cavity lining is absent. Almost no recurrence has been reported, and complete resolution takes place. Prognosis is excellent.<sup>[5]</sup>

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