

Case Report

Simple Bone Cyst of the Anterior Mandible: A Case Report

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Abstract:

Simple bone cyst (SBC) is a benign pseudocystic cavity in the bone that is either empty or contains fluid. It is an uncommon disorder of the jaw bones as well as the other skeletal bones, particularly the long bones. The body of the mandible is the most common site of the jaw bones. Its onset occurs mainly during the first two decades of life. The etiology is unclear and the trauma cannot be definitely determined as its cause. This article will describe the case of a SBC located in the anterior mandible of a 15 years old female patient including clinical, radiographic, histopathologic features and its treatment.

Keywords: ● Simple bone cyst ● Anterior mandible ● Differential diagnosis

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รายงานผู้ป่วย

ถุงน้ำธรรมดาในกระดุกบริเวณส่วนหน้าของขากรรไกรล่าง: รายงานผู้ป่วย

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บทคัดย่อ

ถุงน้ำถุงน้ำธรรมดาในกระดุก คือ ถุงน้ำเทียมพบในกระดุกขากรรไกร ซึ่งภายในเป็นช่องว่างหรือบรรจุด้วยของเหลวถุงน้ำชนิดนี้พบได้น้อยและบริเวณกระดุกขากรรไกร ส่วนกระดุกทั่วไปมักพบบริเวณส่วนปลายของกระดุกขึ้นยาว สำหรับบริเวณกระดุกขากรรไกรพบบ่อยสุดที่ได้บริเวณขากรรไกรล่างส่วนล่างตัว ส่วนใหญ่พบในวัยรุ่น ช่วงอายุ 10-20 ปี ไม่ทราบสาเหตุในการเกิดของถุงน้ำชนิดนี้อย่างแน่ชัด และภัยอันตรายต่อบริเวณดังกล่าวอาจเป็นสาเหตุหนึ่งในการเกิด รายงานผู้ป่วยนี้จะนำเสนอถุงน้ำธรรมดาในกระดุกบริเวณ ส่วนหน้าของขากรรไกรล่างในผู้ป่วยหญิงอายุ 15 ปี พร้อมทั้งอาการทางคลินิก ภาพรังสี ลักษณะทางพยาธิวิทยา และการรักษา

คำสำคัญ: ● ถุงน้ำธรรมดาในกระดุก ● ส่วนหน้าของขากรรไกรล่าง ● วินิจฉัยแยกโรค

เวชสารแพทย์ทหารบก 2561;71:223-7.

Introduction

Simple bone cyst (SBC) was first recognized by Lucas and Blum in 1929¹. Blum reported the first three cases in dentistry in 1932². It has been identified with many names such as solitary bone cyst, traumatic bone cyst, hemorrhagic bone cyst, unicameral bone cyst, progressive bone cavity, extravasation cyst, primary bone cyst and idiopathic bone cavity³. Trauma is the most frequently discussed about its etiologic factor in the formation of SBC. Most of SBC are diagnosed incidentally in panoramic radiograph and most of the individuals affected are in teens⁴. Radiographically, it manifests as a well-defined unilocular, radiolucency which occasionally presents a typical festooned pattern around the apices of the adjacent teeth^{5,6}. Definite diagnosis of SBC is inevitably reached during surgery when a cavity lacking epithelial lining is either empty or with content or filled with serous or sanguineous fluids⁶. This report describes a rare SBC case of anterior mandible with incidental finding from panoramic radiograph.

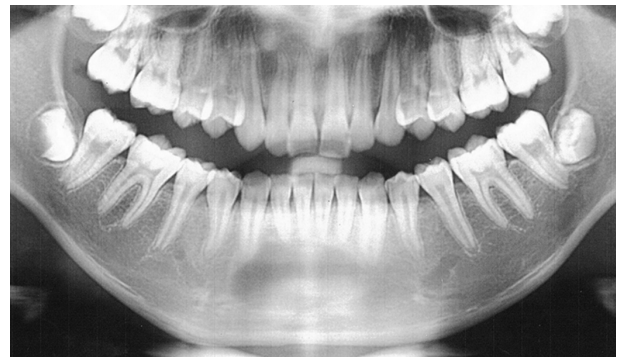
Case Report

A 15 years old female was referred to the clinic by a general dentist for evaluation of an asymptomatic radiolucent lesion located in the anterior mandible. The medical history was not contributed and she could not recall a history of trauma. Extra- and intraoral examinations revealed no abnormal findings. The lower anterior teeth were not mobile and positive for the vitality tests. No palpable lymph node was presence.

Panoramic radiograph revealed a well-defined unilocular radiolucent area of size 2 x 3.5 cm extending from inferior aspect of the roots of lower right canine to lower left canine (Figure 1A). The inferior border of the mandible was not affected. The lateral cephalometric radiograph revealed a mild labial expansion with a thin labial cortex (Figure 1B). The radiographic differential

diagnosis comprised odontogenic keratocyst, unicystic ameloblastoma, central giant cell granuloma and SBC.

Under local anesthesia, a biopsy was performed before the determination of the definitive treatment. On surgical exploration, the lesion was found to be an empty cavity, with no evidence of epithelial lining or tumoral tissue, and contained small amount of fluid mixed with blood. The operative findings were suggestive of SBC; therefore, curettage of the cavity was performed. The removed pieces of bone with minimal amount of soft tissue were sent for histopathological examination. Histopathologically, the section revealed thin strips of osseous wall and overlying fibrous connective



A



B

Figure 1 Radiological examination

A: Cropped panoramic film reveals a well-defined unilocular radiolucency in the anterior mandible.

B: Cropped lateral cephalometric film reveals mild labial expansion with thin labial cortex.

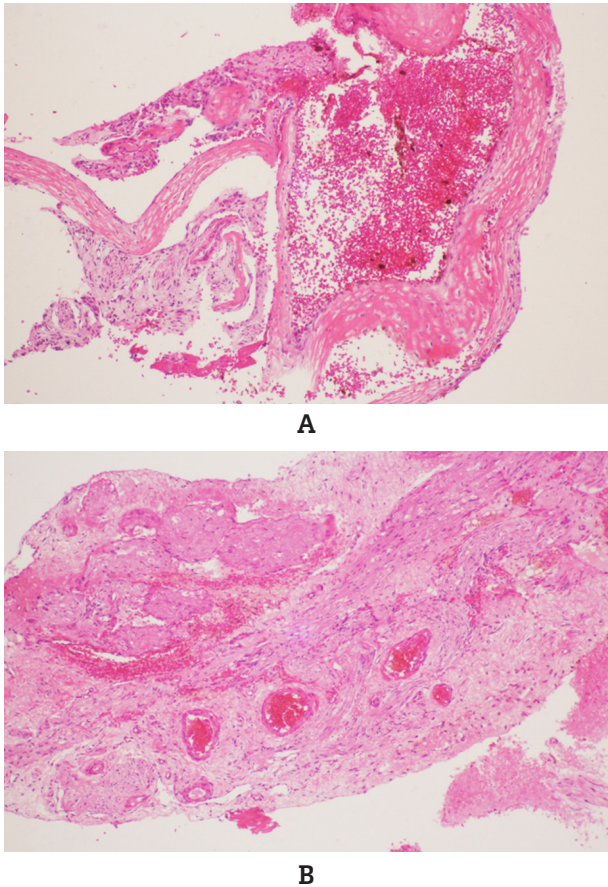


Figure 2 Histopathological examination

- A:** An osseous wall and overlying fibrous connective tissue with hemorrhage are seen. (Original magnification x40, H.E.)
- B:** A strip of fibrous connective tissue with congested blood vessels is present. (Original magnification x100, H.E.)

tive tissue with no epithelial lining (Figure 2A and 2B). Extravasated erythrocytes and congested blood vessels were also seen. On the basis of clinical, radiological and histopathological findings, thus, a final diagnosis of SBC was made.

The postoperative recovery was uneventful and the complete healing was observed one year later.

Discussion

The SBC is an uncommon nonepithelial-lined cavity of the jaws, found mainly in young patients⁷. Most

of them are found in the posterior mandible between the canine and the third molar followed by the mandibular symphysis⁷. Clinically, the lesion is generally asymptomatic and is often incidentally discovered during routine radiological examination⁴. Pain is infrequent and presents in 10-30% of patients⁸. Radiographically, the SBC generally shows up as unilocular radiolucency, which its margins are characteristically scalloped among dental roots^{4,7,9,10}. Definitive diagnosis of SBC is done with surgery when an empty space without epithelial lining is observed, with very little amount of fluid^{8,10}. Associated conditions such as cement-osseous dysplasia and fibrous dysplasia were reported and it seemed to be occur in the older patients^{11,12}.

In this present case, the patient was a young female without any symptoms. The age, the clinical finding and the site of the lesion led the clinician to suspect benign lesion. Radiographic features of this case can be confused with a wide variety of odontogenic and non-odontogenic radiolucent lesions of the anterior lower jaw such as the unicystic ameloblastoma, odontogenic keratocyst, glandular odontogenic cyst and central giant cell granuloma. Therefore, a surgical exploration is needed to establish the correct diagnosis. The diagnosis of this SBC case is achieved in conjunction with the clinical, radiographic and histological features.

The pathogenesis of SBC remains unclear. The most accepted version of the SBC is the traumatic-hemorrhagic theory, which suggests that lesions develop if intramedullary clots due to trauma do not undergo lysis or resolution⁴. Other causative factors have been proposed in the etiology of SBC include low-grade chronic infection of bone marrow, loss of blood supply to hemangioma or lymphoma, cystic degeneration of existing bone tumor, reduction in the osteogenic activity, faulty calcium metabolism as a result of parathyroid diseases, ischemic necrosis of the fatty bone marrow,

developmental defect, failure of mesenchymal tissue to form bone and cartilage, and instead becomes immature multiple bursa-like synovial cavities¹³⁻¹⁶.

In this case, the patient could not experience of previous trauma or interventions in the interested area. However, microtrauma could not be excluded.

The most commonly recommended treatment for SBC is surgical exploration of the lesion followed by curettage of the bony walls. This surgical exploration serves both as diagnostic maneuver and definitive therapy by producing bleeding in the cavity. This bleeding helps to form a clot which is eventually replaced by the bone³. The recurrence rate of SBC is between 20% and 30%. Cases of multiple cysts or associated with florid cemento-osseous dysplasia have high recurrence rates-respectively about 71% and 75%^{17,18}.

Conclusion

SBC is a rare pseudocyst of the jaw bones with an unclear etiology. Most of them are found in the body of the mandible and the second most common site is the mandibular symphysis. Diagnosing SBC is a challenging since it can be achieved in conjunction with the clinical, radiographic and histological features. The most commonly recommended treatment for SBC is curettage after surgical exploration of the lesion. It is generally associated to a good prognosis with a low recurrent rate.

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