www.sada.co.za / SADJ Vol. 79 No.6

MAXILLOFACIAL RADIOLOGY

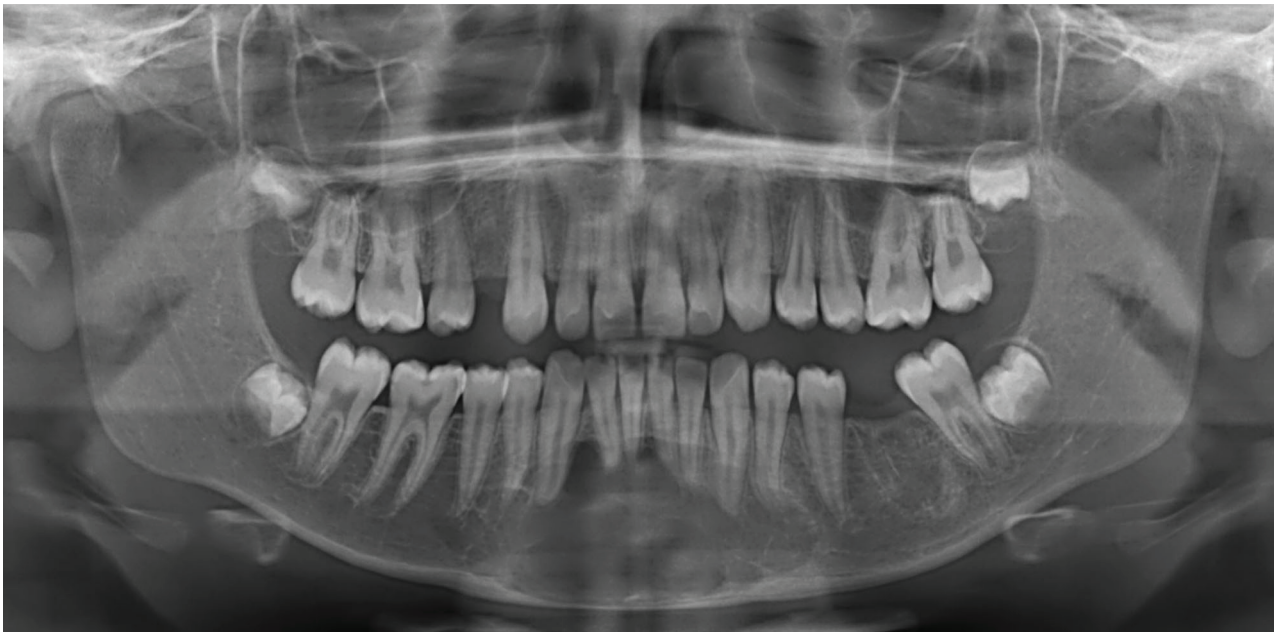
Simple bone cyst

SADJ JULY 2024, Vol. 79 No.6 P338-339

J Simpson[1], S Indermun [2]

CASE

A 15-year-old male presented to the dental clinic after noticing a mild swelling in his lower jaw. Radiographic examination (Figure 1) revealed a well-defined, non-corticated, unilocular radiolucency with scalloped margins in the anterior mandibular symphyseal region. Notably, no root resorption or displacement was noted on this view. All associated teeth were vital, and the patient had no history of trauma. During surgical exploration, no cystic lining was discovered in the lesion; instead, a bony wall was present. Histological examination showed small fragments of viable bone, some of which were covered by a thin fibrovascular lining. No epithelial lining was observed in the examined sections.



INTERPRETATION

A simple bone cyst (SBC), also known as a solitary bone cyst or traumatic bone cyst, is a lesion surrounded by a bony wall without an epithelial lining.[1] As a result, SBCs are classified as pseudocysts and are typically empty or filled with blood, serum or a serohaematic fluid.[2]

Typically, SBCs occur in the metaphyseal region of long bones but can also appear in the maxillofacial region, most commonly in the mandible.[1] Most of these lesions in the jaws are found in the body of the mandible, between the canine and third molar, followed by the mandibular symphysis region.[3]

Authors' information
1. J Simpson, BDS, PgDip, MSc (Oral and Maxillofacial Radiology), Department of Craniofacial Biology, Pathology & Radiology, Faculty of Dentistry, University of the Western Cape, South Africa
ORCID: 0009-0009-6757-6577
2. S Indermun, BDS, PgDip, MSc (Oral and Maxillofacial Radiology), Department of Craniofacial Biology, Pathology & Radiology, Faculty of Dentistry, University of the Western Cape, South Africa
ORCID: 0000-0001-6954-0281

Corresponding Author
Name: J Simpson
Email: jasimpson@uwc.ac.za

Author's contribution
J Simpson – 80%
S Indermun – 20%

Most SBCs are asymptomatic and are discovered incidentally on panoramic radiographs.[1] However, some patients may experience symptoms such as pain, paraesthesia, cortical expansion, failure of permanent teeth to erupt, pathological fractures and displacement of the inferior alveolar nerve canal.[3] The current case corresponds to reported literature, as these lesions typically occur in young individuals, in the first and second decades of life, with a male-to-female ratio of 2:1.[3]

Radiographically, SBCs appear as well-defined radiolucencies with sharp to irregular margins. A characteristic feature is the scalloping of the superior border of the lesion between the roots of teeth. The differential diagnosis includes odontogenic keratocyst, central giant cell granuloma, glandular odontogenic cyst, ameloblastoma and odontogenic myxoma.[4] Microscopically, the cystic wall is composed of a connective tissue membrane packed with numerous collagen fibres and lacks an epithelial lining. Occasionally, numerous fibroblasts and giant cell-like osteoclasts may be present, along with newly formed trabecular bone encircled by osteoblasts.[2] Haemorrhage and hemosiderin pigment may often present within the lesion.[1]

The pathogenesis of SBCs is not well understood but is believed to be a reactive lesion rather than a true bone

neoplasm.[2-5] Several theories have been postulated including cystic degeneration of fibro-osseous lesions, alteration of bony metabolism and low level of infection. The most widely accepted theory suggests that following trauma, the blood clot is resorbed, resulting in the destruction of the surrounding bone by enzymatic activity, thereby causing enlargement of the bone cavity.[4]

Surgical exploration and curettage of the bony walls has been the most widely recommended treatment for SBC.[4] This process allows for the induction of osseous neoformation while simultaneously preserving vital structures. Most patients obtain total healing in the region of the bone defect within three months, but others may possibly require more than six months to achieve the same bone healing status.[6] Therefore, regular follow-up is mandatory. The prognosis is usually good and recurrence is rare. [2-5]

AUTHORS' DECLARATION

Funding

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Conflict of interest

The authors declare that they have no conflict of interest.

Ethics approval

According to the University of the Western Cape Biomedical Research Ethics Committee, ethics review was not warranted for this case report.

REFERENCES

1. Suomalainen A, Apajalahti S, Kuhlefelt M, Hagström J. Simple bone cyst: A radiological dilemma. Dentomaxillofacial Radiol. 2009;38(3):174-7
2. Harnet JC, Lombardi T, Klewansky P, Rieger J, Tempe MH, Clavert JM. Solitary Bone Cyst of the Jaws: A Review of the Etiopathogenic Hypotheses. J Oral Maxillofac Surg. 2008;66(11):2345-8
3. Babu HS C, Rai B Das, Nair MA, Astekar MS. Simple Bone Cyst of Mandible Mimicking Periapical Cyst. Clin Pract. 2012;2(3):e59
4. Razmara F, Ghoncheh Z, Shabankare G. Traumatic bone cyst of mandible: A case series. J Med Case Rep. 2019;13(1):1-8
5. Madiraju GS, Yallamraju SR, Rajendran V, Srinivasa Rao K. Solitary bone cyst of the mandible: A case report and brief review of literature. BMJ Case Rep. 2014;2013-5
6. Lima LB, de Freitas Filho SA, Barbosa de Paulo LF, Servato JP, Rosa RR, Faria PR, Loyola AM, Cardoso SV. Simple bone cyst: description of 60 cases seen at a Brazilian School of Dentistry and review of international literature. Med Oral Patol Oral Cir Bucal. 2020;25(5):e616-e625