

Traumatic Bone Cyst of mandible: A Case Report with CBCT findings

Abstract

Traumatic bone cyst is a rare intraosseous non neoplastic lesion that usually affects young individuals. The following case report describes a case of traumatic bone cyst with a classical feature and its features in Cone Beam Computed Tomography.

Key Words

Trauma; bone; cyst; mandible

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INTRODUCTION

The traumatic bone cyst is an intra-osseous cyst. It was first discovered by Virchow in 1876.^[1] Traumatic bone cyst are common findings in long bones and rarely occurs in jaw. Other names given to this cyst is simple bone cyst, solitary bone cyst, extravasation cyst and idiopathic cyst. Traumatic bone cyst are common in young patients in the second decades of life with no sex predilection.^[2] These cyst are asymptomatic and are commonly discovered on accidental radiographic findings^[3]. Traumatic bone cyst in jaws is more common in the mandible than maxilla. In the mandible body and symphysis region is more common.^[4] Radiographically, traumatic bone cyst appears as a unilocular cyst with well-defined or poorly defined margins with characteristic feature of “scalloping effect”.

CASE REPORT

A 16-year old female patient reported to the department of Oral Medicine and Radiology with the chief complaint of mal-aligned protruded teeth in upper anterior region (Fig.1). On examination overcrowded lower incisors with increased overjet and protruded upper incisors were evident. No significant medical history was reported. As a routine pre-operative treatment planning protocol orthopantomography was done. Orthopantomograph revealed well-defined unilocular periapical radiolucency in the right side of mandibular symphysis region measuring approximately 4 x 3

cm extending from 46 and crossing the midline upto 33. Impacted lower third molars were also evident on orthopantomograph (Fig. 2). Intra oral periapical radiograph revealed no resorption of tooth roots involved (Fig. 3). On clinical examination, the overlying mucosa was normal (Fig. 4). There was no history of pain, swelling or trauma. Electrical pulp testing revealed vital teeth in the involved region. Differential diagnosis of traumatic bone cyst, Odontogenic Keratocyst and unicystic ameloblastoma was considered. Cone Beam Computed Tomography revealed large, uni-cystic radiolucent midline crossing lesion is noted with scalloped, corticated margins, extending from 46 till the 33 region. Slight thinning of adjoining cortical boundaries was noted (Fig. 5a, Fig. 5b & Fig. 5c). Incisional biopsy specimen when examined histologically revealed loose connective tissue stroma with high vascularity and extravasated RBCs surrounding lamellar bone with osteoblast lining in few areas and ruffled borders in few other areas indicating osteoclastic activity, suggestive of simple bone cyst. Surgical exploration of the lesion with bone curettage was done. Postoperative 6 months follow up was done for every three month which revealed uneventful healing and normal mandibular contour. Postoperative panoramic radiograph showed bone formation without any fracture of curreted bone region (Fig. 6a & Fig. 6b).



Fig. 1



Fig. 3: Orthopantomograph

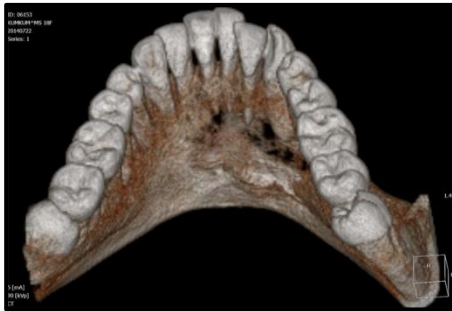


Fig. 5a: CBCT 3D view



Fig. 5c: CBCT cross sectional view

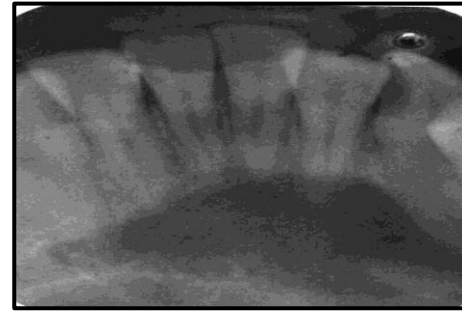


Fig. 2: Intra oral periapical radiograph



Fig. 4: Clinical oral examination

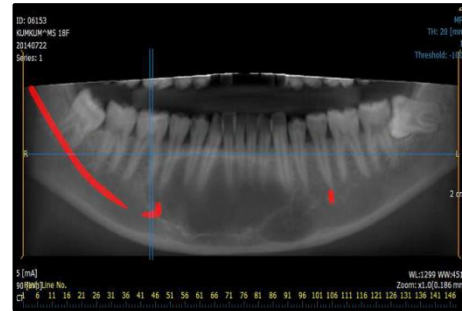


Fig. 5b: CBCT



Fig. 6a: Post-operative OPG

DISCUSSION

Traumatic bone cyst is among the rare lesions of the jaw. It is not a true cyst, as it lacks epithelial lining. Characteristic feature of this cyst is that, it is usually asymptomatic and discovered accidentally on a routine radiograph.^[2,6] World health organisation has classified it into intra-osseous lesions, such as ossifying fibroma, fibrous dysplasia of bone, central giant cell lesions and cherubism. Though the etiopathogenesis of traumatic bone cyst is not clear, the most common underlying cause is trauma. Traumatic-hemorrhagic theory suggests that the

lesion develop if intramedullary clots after trauma do not undergo lysis or resolution.^[7] Most cases are common in second decade of life with no sex predilection. Maxillofacial traumatic bone cyst is asymptomatic with no sign of pain and swelling, as it does not cause cortical expansion.^[8] Common radiographic finding include unilocular radiolucency with scalloped margin in the periapical region of the teeth involved.^[9] Teeth involved are vital. Histopathologically, traumatic bone cyst reveals connective tissue membrane lining the cavity. Cholesterol crystals, hemorrhagic foci and



Fig. 6b: OPG (3 month follow up)

cavity. Cholesterol crystals, hemorrhagic foci and osteoclasts may be evident.^[10]

CONCLUSION

In this case report, unilocular radiolucency with scalloped margin was evident, which was occupying the entire one quadrant of the jaw and crossing the midline. Patient was completely asymptomatic. Most probable cause for this lesion seems to be malocclusion, which due to repeated trauma has developed it. Management of traumatic bone cyst includes surgical exploration with curettage of the bone walls. Lesions with intact lamina dura, smooth margin and no bone expansion have good healing after surgery as compared to those lesions having root resorption and scalloped margin. Recurrence rate for this cyst is generally low.

REFERENCES

1. Lucas CD, Blum T. Do all cysts in the jaws originate from the dental system? *J Am Dent Assoc* 1929;16:647-61.
2. Xanthinaki AA, Choupis KI, Tosios K, Pagkalos VA, Papanikolaou SI. Traumatic bone cyst of the mandible of possible iatrogenic origin: a case report and brief review of the literature. *Head Face Med* 2006;2:40.
3. Tanaka H, Westesson PL, Emmings FG, Marashi AH. Simple bone cyst of the mandibular condyle: report a case. *J Oral Maxillofac Surg* 1996;54:1454-8.
4. Taguchi A, Tanimoto K. A comparative study of simple bone cysts of the jaws and extracranial bones. *Dentomaxillofac Radiol* 2007;36(3):125-9.
5. MacDonald-Jankowski DS. Traumatic bone cysts in the jaws of a Hong Kong Chinese population. *Clin Radiol* 1995;50(11):787-91.
6. Motta AFJ, Torres SR, Coutinho ACA. Traumatic bone cyst-report of a case diagnosed after orthodontic treatment. *Rev Odonto Cienc Porto Alegre* 2007;22:377-81.

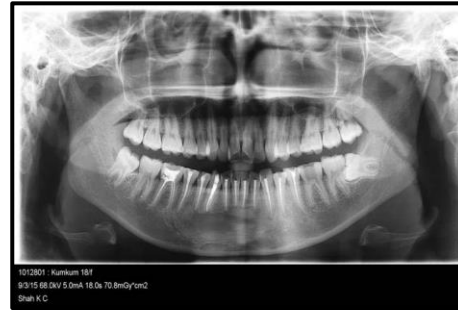


Fig. 6c: OPG (6 month follow up)

7. 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):23-45.
8. MacDonald-Jankowski DS. Traumatic bone cysts in the jaws of a Hong Kong Chinese population. *Clin Radiol* 1995;50(11):787-91.
9. Zehetgruber H, Bittner B, Gruber D, Krepler P, Trieb K, Kotz R, *et al.* Prevalence of aneurysmal and solitary bone cysts in young patients. *Clin Orthop Relat Res* 2005;439:136-43.
10. Wakasa T, Kawai N, Aiga H, Kishi K. Management of florid cemento-osseous dysplasia of the mandible producing solitary bone cyst: report of a case. *J Oral Maxillofac Surg* 2002;60(7):832-5.