

# AN UNUSUAL CYST OF THE MANDIBULAR JAW-TRAUMATIC BONE CYST: A CASE REPORT

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## ABSTRACT

The Traumatic bone cyst (TBC) is an uncommon, non-epithelial lined cavity of the jaws. Clinically, the lesion is asymptomatic in majority of cases and is often accidentally discovered on routine radiological examination, frequently during the second decade of life. Its pathogenesis is still not clearly understood. Normally, they are empty cavities sometimes having a thin lining of connective tissue without epithelium. They may contain serosanguinous fluid, clots, erythrocytes, fibrin and giant cells. In this report, we present a case with follow up of traumatic bone cyst in the posterior mandible which was associated with swelling.

**KEY WORDS:** Traumatic bone cyst, Solitary bone cyst, Hemorrhagic bone cyst, Cyst, Mandible.

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## INTRODUCTION:

Traumatic bone cysts (TBC) are classified as non-neoplastic lesions related to the bone by the WHO in 1992. They are defined as “intra-osseous cysts having a tenuous lining of connective tissue without epithelial lining” [Chapman and Romaniuk, 1985].<sup>[3]</sup> Solitary bone cyst (SBC) lesions were first recognized by Virchow in 1876. Jaffe and Lichenstein provided a discussion of the topic in 1942.<sup>[1]</sup> Traumatic bone cyst (TBC) was first described as a separate lesion in 1929 by Lucas and Blum.<sup>[1]</sup> However, it was not until 1946 that the diagnostic criteria of this cyst were established. These criteria remain valid today.<sup>[5]</sup> Its pathogenesis is still not clearly understood TBCs have been reported in the literature under a variety of names: solitary bone cyst, hemorrhagic bone cyst, extravasation cyst, progressive bone cavity, simple bone cyst and unicameral bone cyst when it occurs in long bones. The multitude of the names applied to this

lesion attests to the lack of understanding of the true etiology and pathogenesis. Different causal factors have been proposed: bone tumor degeneration, altered calcium metabolism, low-grade infection, local alterations in bone growth, venous obstruction, increased osteolysis, intramedullary bleeding, local ischemia, or a combination of such factors. It has been suggested that any form of trauma, including tooth extraction could give rise to a cyst of this kind. Although, it is important to underline that the TBCs' etiology is unknown.<sup>[4]</sup> This rare pathology accounts for only 1% of

maxillofacial cysts and tumours. It is generally an accidental finding during routine radiographic examination. In this report, we describe a case of traumatic bone cyst which presented to us with swelling in the mandibular posterior region.<sup>[7]</sup>

## CASE REPORT:

A 20 years old male reported to oral & maxillofacial department with a complaint of swelling in right side mandibular posterior region since 20 days. The swelling is fluctuant, compressible, firm in consistency and tender in nature on palpation. Patient was not aware about any history of trauma. Intraoral examination revealed obliteration of buccal mucosa and buccal vestibule. Swelling is diffused in relation to 45, 46, 47. No abnormality was observed in the mandibular posterior teeth and teeth were vital. [figure 1]. Panoramic radiography showed a well defined radiolucency measuring about 3×3cms in size with regular, non corticated borders. [figure 2] Surgical exploration of the area showed an empty bone cavity. [figure 3] The cavity was lined by thin connective tissue, curetted and tissue obtained submitted for histopathological examination. H & E stained section shows band of vascular connective tissue & large amount of extravasated RBCs. [figure 4] Based on histopathological features, it was diagnosed as traumatic bone cyst. Six months follow up OPG shows, there is remarkable bone regeneration at peripheral site. [figure 5].

## DISCUSSION

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Figure 1. clinical intraoral photograph showing normal mucosa with buccal vestibule swelling on right side of mandibular region



Figure 2: Panoramic radiograph showing oval shaped radiolucency with well defined, non corticated border in right mandibular body region.

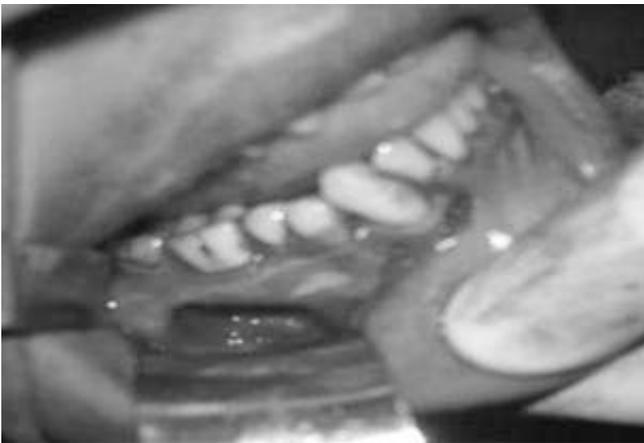


Figure 3: Surgical photograph showing empty cavity in mandibular right body region.

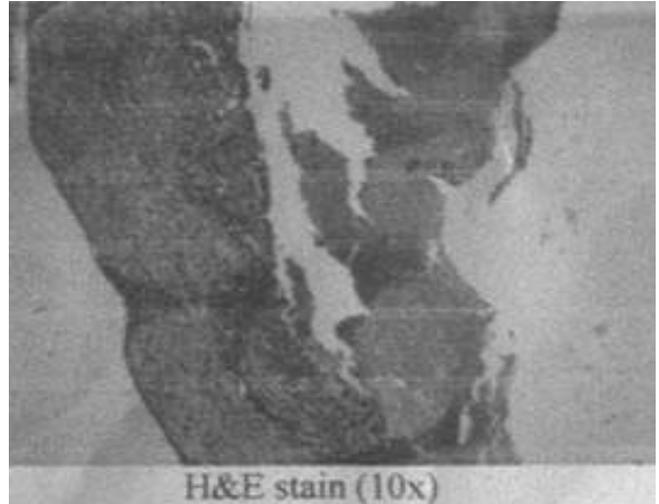


Figure 4: Photomicrograph (H & E, 10 X) showing band of vascular connective tissue & large amount of extravasated RBCs.



Figure 5: Six months follow up OPG shows, there is remarkable bone regeneration at peripheral site.

Traumatic bone cyst of the jaws is uncommon, representing approximately 1 % of all jaw cysts. The Present case presented by us is a 20-year-old male with a traumatic bone cyst present in the right body of the mandible. These findings are in accordance with the reports by Kaugars and Cale, who said that traumatic bone cysts have an equal prevalence in both genders, 75% occur in first 2 decades of life (mean age of 13 years), and most often (75%) affect the posterior mandible, predominantly the body region.

The etiology of traumatic bone cyst is unknown and many hypotheses have been proposed. The most widely accepted explanation, though far from being based on evidence, is that trauma is followed by intramedullary hemorrhage that fails to organize leaving an empty cavity proposed by Olech et al. Other theories for pathogenesis include—(1)

infection of bone marrow; (2) loss of blood supply to a hemangioma or lymphoma; (3) cystic degeneration of an existing bone tumor; (4) changes and reduction in the osteogenic activity; (5) faulty calcium metabolism as a result of systemic disease, such as parathyroid diseases; (6) ischemic necrosis of the fatty bone marrow; (7) low grade chronic infection; (8) imbalance between the osteoclastic and osteoblastic activity due to trauma; (9) developmental defect; (10) failure of mesenchymal tissue to form bone and cartilage, and instead becomes immature as multiple bursa-like synovial cavities.[1]

Although usually asymptomatic, one study reported symptoms in 30% cases. The commonest symptom was pain; other symptoms were swelling, tooth sensitivity, tenderness, hypoesthesia and pathological fracture. Our case reported with swelling and tenderness on palpation on affected area.

On radiological examination, between 61 and 79% of solitary bone cysts are radiolucent. However, 21% have radiopaque foci, and 7% may show cloudiness. The border, although irregular, can vary from well-defined to a complete absence of cortical outline. Scalloping or interdigitation between the roots of teeth was a common feature in 44 to 68% of the cases. Loss of lamina dura is predominantly in patients over 30 years of age and there is minimal involvement in younger people. Displacement of teeth and root resorption are rare although in one series they were reported in 9 and 22% of the cases,

respectively.<sup>[1]</sup> One study categorised the radiographic morphology of SBC into 4 categories i.e. cone (64%); oval (16%); irregular (16%); round (4%). we observed a round shaped radiolucency in the mandibular posterior region with loss of lamina dura and root resorption.

Histopathological examination revealed a band of vascular connective tissue & large amount of extravasated RBCs. The band of connective tissue was composed of collagen fibers, fibroblast, blood vessels. Large no. of giant cells with average 3-4 number of nucleus were also noted. Large no. of extravasated RBCs also noted. Treatment consists of surgical exploration and curettage of the bone wall. We followed similar treatment protocol. This report highlights a symptomatic presentation of traumatic bone cyst in posterior mandibular region and also describes its clinical and radiographic features.

## CONCLUSION

In conclusion, TBC is a rare jawbone pathology with an unclear etiology. The traumatic bone cyst is usually asymptomatic with occasional findings, and its etiology is unknown in majority of the cases. The cavity is usually seen to be empty and without epithelial lining. Careful curettage of the lesion favors progressive bone regeneration, offering a good prognosis and an almost negligible relapse rate.

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