ISSN 2347-5579

Unique Journal of Medical and Dental Sciences

Available online: www.ujconline.net

Case Report

TRAUMATIC BONE CYST: A CASE REPORT WITH REVIEW OF LITERATURE

Mohammed Abidullah[1*], Tanveer Karpe[2], Kavitha Gaddikeri[3], MD Javeed Hussain S[4]

[1]Assistant Professor, Department of Oral & Maxillofacial Pathology, S.B Patil Dental College and Hospital, Bidar, Karnataka, India
[2]Professor, Department of Oral & Maxillofacial Surgery, S.B Patil Dental College and Hospital, Bidar, Karnataka, India
[3]Reader, Department of Oral & Maxillofacial Pathology, S.B Patil Dental College and Hospital, Bidar, Karnataka, India
[4]Senior Lecturer, Department of Oral & Maxillofacial Surgery, Saraswathi Dhanawamtri Dental College, Parbhani, Maharashtra, India

Received: 28-06-2014; Revised: 22-07-2014; Accepted: 20-08-2014

*Corresponding Author: **Dr. Mohammed Abidullah**
Assistant Professor S.B. Patil Dental College & Hospital Bidar, Karnataka, India
Phone number- 8297650424

ABSTRACT

Traumatic bone cyst is a non epithelial lined pseudo cyst mostly seen in long bone & less frequently in gnathic bones. There is a lot of debate regarding the etiology & pathogenesis of this cyst & many authors have proposed various hypotheses to establish thesis lesion. Of those the trauma haemaraghic theory is most accepted one. Traumatic bone cyst is mostly encountered in 2 & 3 decade of life. Predominantly these are asymptomatic & are discovered on routine radiologic examination. The striking radiologic feature is the dome shaped projection with upward scalloping. More confirmatory diagnosis can be arrived at the time of surgical exploration of the lesion when the surgeon enters an empty cavity without epithelial lining. After the curettage the tissue is histopathologically examined, a vascular connective tissue with normal bone spicules is noticed. Here we present a case of traumatic bone cyst with well supported clinical, radiological & surgical findings. The literature is reviewed briefly.

Keywords: Mandible, Pseudo Cyst, Trauma- Hemorrhage, Traumatic Bone Cyst.

INTRODUCTION

The traumatic bone cyst is an uncommon benign empty or fluid containing cavity within bone that is not lined by epithelium[1,2]. This lesion in the literature is mention under variety of names: solitary bone cyst [3], Hemorrhagic bone cyst[4], progressive bone cyst[5], simple bone cyst[6]. But since 1992, WHO proposed the term "solitary bone cyst" for this lesion but simple bone cyst is term most frequently used for documentation. Because of such varied nomenclature, the etiology & pathogenesis is uncertain & less understood. For explaining this lesion various theories have been put forth by many authors like the trauma hemorrhagic theory (most accepted), inadequate venous drainage of interstitial fluid, local disturbance of bone growth, localized alteration in bone metabolism, ischemic marrow necrosis[1,2,7-9]. In this article we use the term traumatic bone cyst (TBC).

Traumatic bone cyst is frequently encountered in young patients during the second and third decade of life[10-12]. The sex distribution is quite even[10,11] or M.>F[11,12].

With respect to location, mandibular body is most common site followed by symphsis, ramus, and condyle region[11, 12]. In maxilla, anterior maxilla is affected often[11, 12]. Looking at the clinical symptoms, it basically produces no symptoms & is usually diagnosed on routine radiographic examination[1,2,8,11,12]. About 20% have painless swelling [1, 2] & 10 to 20% of patients exhibits pain[1,11,12]. Paresthesia, displacement of inferior alveolar canal, cortical expansion & pathologic fractures are also seen in few cases[1-10].

On radiologic evaluation, the lesion exhibits unilocular or multilocular radiolucency with well defined or ill-defined margins.

When multiple teeth are affected the radiolucencies involving the roots shows a dome like projections that scallops between the roots[1,2,7-9] teeth are vital with resorption[1,2].

On surgical intervention, the first evidence seen is that a empty cavity is encountered or fluid containing cavity. There is no evidence of epithelia lining & when curetted fibrous tissue is obtained with normal bone.

The histopathological evaluation reveals a vascular connective tissue or a thick myxofibromatous proliferation intermixed with normal bone. There is no epithelial lining. In some areas, erythrocytes, occasional giant cells are evident[1, 2].

CASE REPORT

A 37 year old female patient reported to the department of oral medicine with a chief complain of pain in left lower back teeth region since 4 months

HOPI-

Patient complains of pain which was moderate & intermittent in nature. During anamnesis, patient gives history of trauma to the affected region 4 years back as she had a fall on that side.

Clinical examination both extaroral & intraoral examination was carried out. Intraoral examination revealed that the teeth were firm & vital. A routine radiographic evaluation was carried out which revealed a large unilocular radiolucency in left posterior mandible in body of mandible measuring approximately 3x5cms. The margins were well defined & it was a dome like projection with upward scalloping between the roots. The lesion extended anterio-posterior from I st molar to the distal root of 3rd molar & inferior –superiorly from the roots portion of molars to inferior border of mandible. There was no root resorption.

On aspiration a positive aspirate of straw colored fluid was yielded. Further the lesion was surgically explored under L.A which revealed an empty cavity with fluid. There was no evidence of epithelial lining on its wall. The surgeons could only curette a fibrous connective tissue with normal bone. Following curettage the specimen was submitted to histological examination.

The operative finding was in favour of TBC. Correlating the clinical, radiological & surgical exploration a provisional diagnosis of TBC was arrived at.

The histological report revealed a normal appearing bone with predominate fibrous connective tissue devoid of epithelium. Few areas exhibit areas of hemorrhage & intense inflammatory cells. There was a wide zone of cholesterol clefts & multinucleated giant cells were also evident.

DISCUSSIONS

Traumatic bone cyst is a benign pseudo cyst with uncertain etiology & pathogenesis. There are many etiological theories postulated that has been suggested to elaborate this lesion. Among them the mostly accepted theory is the trauma hemorrhagic theory[1,2,7-9] which explains its clinical & histological features. The trauma- hemorrhagic theory suggests that trauma to bone unable to cause fracture results in intraosseous hematoma. If this doesn't undergoes organization & repair it may liquefy with consequent formation of a cystic defect[1,2,7- 9,12].

Other etiological theory includes the inefficient venous drainage of interstitial fluid from the bone, local disturbances in bone metabolism, ischemic necrosis & bone tumors undergoing cystic degeration[1,2]. In our case the trauma hemorrhagic theory holds good as the patient gives history of trauma. Our case is also in accordance with Pommer[11] & Blum, Thoma[12] who also advocated the trauma theory sating that trauma initiates a subperiostial hematoma that causes comprised blood supply to that area leading to osteolytic resorption. Thoma[12] stated that a history of past definite injury to the area may have occurred before the discovery of lesions clinically. The time gap between the trauma & discovery of TBC varies from 1 week to 20 years [9-11]. Howe[4] supported the theory that content of cavity depends on length of time that the cyst has existed. Initial lesions exhibits blood or sersangenious fluid & gradually as the lesion matures it becomes empty. In present case the cavity had small amount of fluid. The fact is in agreement with the hypothetic 4 year interval before discovery.

History of trauma is a varying phenomenon in literature from 17 % [12] to 70% [11]. These observations depicts that the intensity of trauma was the impressing feature in majority of cases & these findings suggest that trauma may play an important part in causation of at least large proportion of TBC.

As this lesion is predominantly seen in individuals under the age of 35 years in our case the age of patient at time diagnosis was 37 years but he gives history of trauma 4 years back so we can consider the age of patient at time of trauma as 32 years.

Though it is more seen in males [11, 12] but few authors suggest it has equal sex distribution. In our ace patient was female.

With respect to site our case is in accordance with Hansen[11], Forseell K[12] which mainly observed that the lesion is found mostly in body of mandible.

As the literature depicts the lesion in most cases is asymptomatic) & an accidental finding on radiographic evaluation[1-12]. Our case study is in coherent with these authors.

In present case the radiologic findings observe a domelike projection with upward scalloping encircling the roots. This in accordance with finding observes by Shaffer[1], Naveillie[2], Lucas C[7], MacDonald-Jankowski D [8], Kaugars[10], Hansen[11], Forseell K[12]. But radiological findings are not definitive diagnosis with the need to combine the analysis of clinical features, radiological features, surgical exploration & histological features.

In cases of TBC a positive aspirate of straw colored fluid is observed & histologically the predominant feature of this lesion is absence of epithelial lining with a fibrous connective tissue wall & normal bone. All these features were evident in our case study & is in accordance with observation of MacDonald-Jankowski D[8], Kaugars[10], Hansen[11].

The treatment is based on surgical exploration to induce bone formation. Time interval of 6 months to 12 months is required after initiation bleeding & healing of the area. Other alternative treatment is filling the affected area with a bovine lyophilized bone or autologous blood with bone from the patients[12] mainly useful for patients who are planning for an osteo integrated implant.

Recurrence is uncommon & prognosis is good.

CONCLUSION

On basis of literature study, traumatic bone cyst is a pseudo cyst with overlapping clinical & radiological features with wide variety of odontogenic & non odontogenic cyst. Because of this there are chances that this traumatic bone cyst might be confused with odontogenic & non odontogenic radiolucent lesions. So a definitive approach which includes a combine's analysis of clinical history, radiological imaging, surgical intervention & histopathological results will yield an accurate diagnosis.

REFERENCES

1. Shafer WG, Hine MK, Levy BM.A text book of oral pathology**.** Philadelphia: WB Saunders; 6th edition 2009.
2. Neville, Damm, Allen, Bouquot. Oral & Maxillo-facial Pathology. 2nd edition.2009.
3. Howe GL: "Hemorrhagic cyst of the mandible. Br J Oral Surg 1965; 3: 55-91.
4. Boyne PJ: Treatment of extravasation cyst with freeze dried homogenous bone grafts. J Oral Surg 1956; 14: 206-212.
5. Whinery JG: progressive bone cavities of the mandible. Oral Surg Oral Med Oral Pathol 1955; 8: 903-916
6. Pindborg JJ, Kramer IR, Troloni H: Histological typing of odontogenic tumors, jaws cysts & allied lesions. International Histological classification of tumors. NO.5 Geneva: World Health Oraginization: 1971.
7. Lucas C, Blum T: Do all cyst of the jaws originate from the dental system. J Am Dent Assoc 1929; 16: 659-661.
8. MacDonald-Jankowski D: Traumatic bone cyst in the jaws of a Hong Kong Chinese Population. Clinical Radiology 1995; 50: 787-791.
9. Rushton M: Solitary bone cysts in the mandible. Br Dent J 1946; 81: 37-49.
10. Kaugars G, Cale A: traumatic bone cyst. Oral SURG 1987; 63: 318-323.
11. Hansen, Sapone J, Sproat R. Traumatic bone cyst of jaws. Report of sixty six cases. Oral Surg 1974; 37: 899-910
12. Forseell K, Forsell H, Happonean RP, NEVA m. Simple cyst- review of the literature & analysis of 23 cases. Int Oral Maxillofac Surg 1988; 17: 21-24.

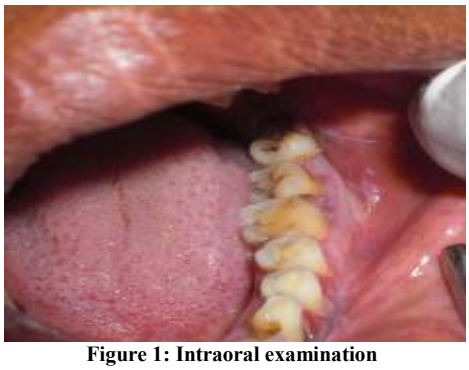

Figure 1: Intraoral examination

Figure 2: Orthopantomograph exhibiting unilocular radiolucency surrounding the roots of molars with upward scalloping

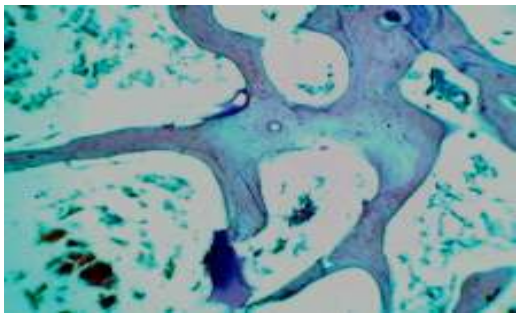

Figure 3: Photomicrograph exhibiting normal bone.

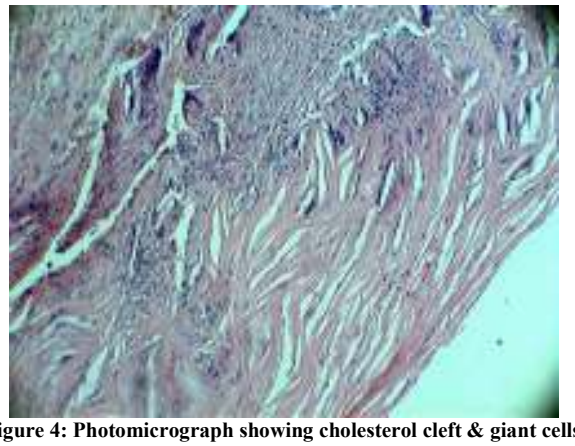

Figure 4: Photomicrograph showing cholesterol cleft & giant cells

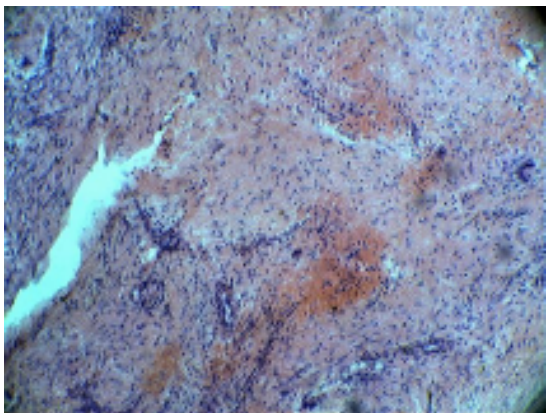

Figure 5: Photomicrograph showing connective tissue with hemorrhagic areas

Source of support: Nil, Conflict of interest: None Declared