



SOLITARY BONE CYST IN A 4 YEAR OLD CHILD.

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ABSTRACT

Solitary bone cyst has been extensively discussed here. It provides diagnostic difficulties, but its etiology remains obscure. The cyst does not imply any specific mode of formation. It has non-epithelial cavity lining usually common in mandible than maxilla. The lesion is asymptomatic in nature discovered on routine radiographic examination.

KEYWORDS : bone cyst, solitary bone cyst, traumatic bone cyst.**INTRODUCTION**

Traumatic bone cyst is a term coined by Lucas in 1929. He described it as a bone cavity of irregular shape which has an appearance of a cyst when viewed in a radiograph but on histo-pathological examination there is no confirmation of the diagnosis of a cyst.¹

Traumatic cyst, Traumatic hemorrhagic cyst, Progressive bone cavity, Solitary bone cavity, Solitary bone cyst, Simple bone cyst, Idiopathic bone cavity, Hemorrhagic bone cyst, Extravasation cyst, Hemorrhagic cyst, Hemorrhagic extravasation are few other terms used for the lesion.² It is defined as intraosseous cyst having lining of connective tissue with no epithelial lining,

According to WHO cyst is defined as an unusual, benign, asymptomatic, slow growing, non-expansile, intra-osseous, empty or fluid filled cavity having a tenuous lining of connective tissue with no epithelium.³

Aetiology And Pathogenesis

Literature has quoted many different modes of pathogenesis which can be summed up as Degeneration of bone tumors, Calcium metabolic disorder, Mild infections, Local disorder of bone growth, Venous obstruction, Osteolysis intensified, Subperiosteal hematoma caused by trauma, Ischemia with bone necrosis, Bone cyst degradation. Still etiology of the cyst is unclear.

The most widely accepted theory is of bleeding in the bone post trauma, the clot liquefies or is resorbed in different ways. The enzymatic activity destroys the bone surrounding it, thus the cavity enlarges due to pressure from its contents which is the cause of poor venous drainage.

Clinical Manifestations**Localization And Incidence**

Solitary Bone Cyst occurs more in mandible (89%), in the posterior segment (75%), while they are rare in the maxilla and happen mostly in the anterior region. The incidence is higher in 10-20 years of males. Mostly found as a unilateral lesion.⁴

Clinically there are no changes in the soft tissues overlying, no changes in mobility or color of the teeth as well. Rarely a pain or a paresthesia is reported. Usually no bone expansion is noted, in early stages. On blood examination the figures are found to be normal. The cyst is generally asymptomatic and is detected on a radiograph recommended for different reasons.

Lesion can be associated with other pathological conditions such as necrotic pulp, facial cellulitis, impacted third molar and odontogenic keratocyst.⁵

Diagnosis And Differential Diagnosis

The extent of the lesion may range from 1cm to the involvement of almost whole of the mandible, which might cause the fracture of mandible, while some of the lesions regress spontaneously. Few cases of condyle or zygomatic arch have also been reported.

Radiographically, the lesion appears to be well circumscribed, isolated and unilaterally radiolucent, lying below the apices of the teeth. Mandibular canal may or may not be involved. Generally no resorption of the roots is seen. Cortical layer of the bone as well as lamina dura may or may not be preserved.

During surgical operation an empty bone cavity is usually seen which may have a clear liquid of straw color or blood colored. Cystic epithelia usually found in cysts is not present, rather a thin layer of connective tissue may be seen on the walls. The hydrostatic pressure is much lower than that found in other cysts. The protein composition is similar to that of serum. The walls are semi-permeable, with no epithelial sheath. There is osteoclastic activity seen on the surrounding bone.

CASE REPORT

A four year old girl reported with a chief complaint of painless swelling in the lower left posterior third of face since 2 months. Parents gave history of trauma in same region when she was 1 yr old. (Fig 1). Consent of parents was taken before proceeding to the procedure and were explained regarding the same. Intra-oral examination revealed asymptomatic bony hard swelling in the buccal aspect of 73, 74, 75 (Fig 2). Surgical exposure of area along with curettage was planned (Fig 5). Prior to surgical exposure patients upper and lower impressions were made working models were prepared. Acrylic splint was fabricated and cemented using luting cement covering full lower arch (Fig 6). Splint was given to prevent fracture after surgery.^{6,7} On surgical exposure of the cavity small bone chips and minimal amount of soft tissue was seen which was sent for histopathological report. Bleeding was induced and site was approximated with sutures. Patient was recalled regularly to assess the bone formation which revealed uneventful healing and normal mandibular contour.

Investigations

Orthopantomograph and CT scan (Fig 3) revealed a unilocular well-defined radiolucency on left side of body of mandible crossing the midline. Superiorly extending between the developing tooth follicle and producing scalloped appearance showing thinning of inferior cortex.

The histopathological report was suggestive of solitary bone cyst.

DISCUSSION:

Solitary bone cyst is not classified as true cyst as it lacks an epithelial lining. It is found to be empty or filled with connective tissue.⁸ Etiopathogenesis is still unknown most widely accepted theory for the development of cyst is associated with intra-medullary hemorrhage due to trauma which fails to organize and subsequent degeneration of clot, producing empty cavity within the bone.^{3,9,10}

Surgical exposure of the area along with curettage was planned. Acrylic splint was planned prior to surgery. Acrylic splint was made for the mandibular arch which was cemented using luting glass ionomer cement. The splint was given for prevention of fracture in mandibular walls after surgery. On surgical exposure of the cavity small bone chips and minimal amount of soft tissue was seen which was sent for histopathological report. The cavity was approximated by giving sutures. Microscopic examination typically shows the cystic wall as a connective tissue membrane with numerous collagen fibers, with no epithelial lining. Numerous fibroblasts and giant cells like osteoclasts are sometimes visible, with some newly formed trabecular bone surrounded by numerous osteoblasts. Numerous congested capillaries and cholesterol crystals are seen. The present case on surgical intervention leading to diagnosis of solitary bone cyst was confirmed on histopathological examination.

Patient was on regular follow-up to check for bone formation. On clinical examination after 4 months revealed uneventful healing with regression of swelling and normal contour of mandible.

CONCLUSION:

Solitary Bone Cyst is a bone cavity of irregular shape with an appearance of cyst in the radiograph. The cyst is difficult to diagnose clinically. One can suspect this cyst on radiological examination and by surgical intervention or by MRI. Early treatment and follow-up are recommended till the cyst regress.



Fig 1: Pre-operative



Fig 2: Orthopantomograph Showing Cyst Extending From Lateral Incisor To 2nd Primary Molar.



Fig 3: CT Scan



Fig 4: Surgical Site



Fig 5: Surgical Exposure Of Cavity



Fig 6: Placement Of Occlusal Splint

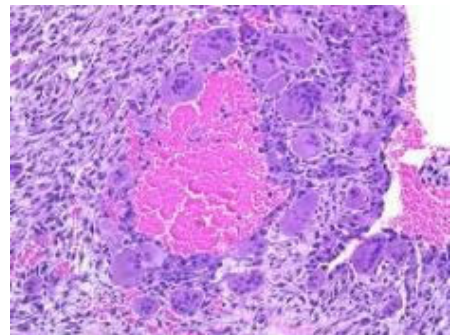


Fig 7: Photomicrograph Of Histologic Picture (Hematoxylin-eosin stain under 10X)



Fig 8: Post-operative Extra-oral

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