



Odontogenic Cyst Case Report and Review

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ABSTRACT

Introduction: Odontogenic cysts are defined as epithelial cell lined cysts. Maxillary sinus is closely related to the upper premolar and molar teeth. Any infection / pathology involving the root of these teeth will also have its effect on the maxillary sinus.

Case report: To present a case of Odontogenic cyst in the left maxillary sinus following history of trauma. Patient complained of swelling. The swelling was bony hard. CT revealed a lesion in the left maxillary sinus with breach in its anterior wall. All routine investigation normal. The swelling was excised via Caldwell luc approach and sent for histopathological examination.

Histopathological finding came as odontogenic keratocyst.

Conclusion: Odontogenic cysts are difficult to diagnose with clinical findings alone and a combination of clinical, radiological and pathological input will help in proper diagnosis. Most of these odontogenic cysts are defined by their position than by their histology.

INTRODUCTION:

Odontogenic cysts are defined as epithelial cell lined cysts. Maxillary sinus is closely related to the upper premolar and molar teeth. Any infection / pathology involving the root of these teeth will also have its effect on the maxillary sinus. We present a case of a odontogenic cyst which followed trauma and histopathologically proved as odontogenic keratocyst.

CASE REPORT

A 35 years male came with complaints of swelling in left side of face following trauma to left side of face 1 month back. He also had paresthesia over left side of face. He had neither nasal obstruction nor epistaxis. On Examination he had 3 X 2 cm bony hard swelling over left cheek. There was no egg shell crackling.

Oral cavity showed fullness in the left gingivo buccal sulcus from canine to second molar teeth. There were no loosened teeth or opening. Examination of Nose was normal and neck showed no lymph node enlargement.

CT revealed a lesion in the left maxillary sinus with breach in its anterior wall. There were no radiological evidence of any unerupted tooth or dental root abscess hence Dentigerous cyst or a dental or radicular cyst were ruled out. Our clinical diagnosis was TRAUMATIC BONE CYST. We proceeded with Caldwell luc surgery and the cyst was excised in Toto and the specimen was sent for histopathological examination.

Patient Profile:



CT scan Images:





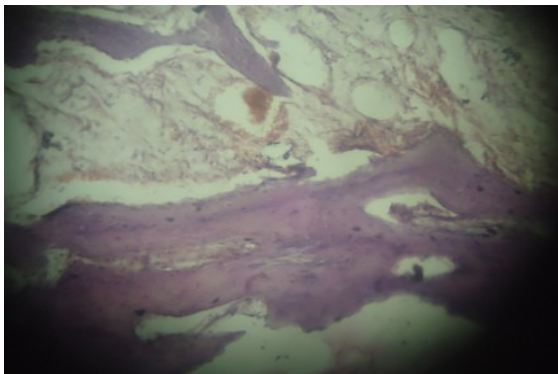
Caldwell luc surgery:





Histopathology:

Showed features of odontogenic keratocyst.



Photomicrograph showing cyst lined by odontogenic epithelium with orthokeratin.

DISCUSSION

Common odontogenic cysts in order of frequency are ^{1,4}

1. Radicular cyst
2. Dentigerous cyst
3. Primordial cyst
4. Residual cyst
5. Lateral periodontal cysts
6. Gingival cysts
7. **Odontogenic keratocyst**
8. Traumatic bone cyst

Odontogenic keratocyst are aggressive, difficult to remove and commonly recur^{1,3}. They commonly give rise to daughter cysts - must be completely removed to prevent recurrence. Histologically these cysts are lined by stratified squamous epithelium which is capable of producing orthokeratin and parakeratin. The lumen of these cysts is filled with foul smelling cheesy material - collected degenerated keratin. OKCs may be associated with Basal Cell Nevus Syndrome (hypertelorism, midface hypoplasia, relative frontal bossing and prognathism, mental retardation, schizophrenia, multiple basal cell carcinomas, calcification of the falx cerebri, bifid ribs, palmar pitting)

Traumatic Bone Cyst occurs following Bleeding within the bone caused by trauma². Defect in organisation of a blood clot which liquefactively necrotises. The bone is destroyed by enzymatic activity. The bone cavity enlarges by the increased pressure of its content.

Radicular cyst (Synonyms - Periapical cyst, DENTAL cyst) is commonest of all odontogenic cysts^{1,4}. Palpation egg shell crackling may be felt in the anterior wall of the maxilla over the canine fossa. Microscopically, the epithelium is a stratified squamous epithelium without keratin formation. Management is for small tumor endodontic therapy of the involved tooth and for large tumor excision or marsupialisation by Caldwell Luc surgery.

Dentigerous cyst is second commonest always associated with unerupted tooth^{1,4}. Most are asymptomatic incidental discoveries. Radiology - a well-demarcated radiolucent lesion attached at an acute angle to the cervical area of an unerupted tooth^{1,4}. Histologically a normal dental follicle is lined by enamel epithelium, but dentigerous cyst is lined by non keratinising stratified squamous epithelium¹. It may give rise to mucoepidermoid carcinoma or pathological fractures. Management is by Caldwell Luc approach.

Primordial cyst develops in place of tooth. The formed dental follicle undergoing cystic degeneration^{1,4}. It is lined by stratified squamous epithelium.

Residual cyst is caused by retained periapical cysts after the teeth is removed^{1,4}. The cyst wall is formed by stratified squamous epithelium.

Lateral periodontal cysts are associated with lateral canals within the tooth structure^{1,7}. The lining epithelium is made of thin cuboidal cells.

Gingival cysts are small cysts located in the alveolar ridges^{1,4}.

OKCs of maxilla have diagnostic difficulties due to lack of specific clinical and radiographic characteristics. They are less common in maxilla than mandible with only 31.3% in maxilla. But then they do occur, they are more common in the canine region^{1,3} which was the case in our patient also. Patient's radiographic image in such cases may be misinterpreted⁵ as radicular cyst or lateral periodontal cyst.

In our patient radiographically the lesion was radiolucent, which can be seen in dentigerous cyst, ameloblastoma or odontogenic keratocyst but there was no associated impacted tooth or root resorption, therefore the dentigerous cyst and ameloblastoma were less likely.

Maxillary OKC tended to exhibit a unilocular, smooth, round border while mandibular ones scalloped border³. The occurrence of OKC in maxilla is relatively rare and invasion of the maxillary sinus is unusual, which was seen in our case. In the CT scan the lesion appeared to be aggressive and destructive as seen by the large size, irregular borders, perforation of the sinus and bone loss⁵. It is very rare for the maxillary OKC's to show perforation of the sinus and seems that less than 1% of cases showing this feature.

In OKC the extension is more in anteroposterior direction and the pressure of the fluid is quite low and grows by extension rather than by expansion^{3,5}. The extension here is due to reasons like fingerlike projections from the cyst wall into the marrow spaces, and enlarges slowly but relentlessly along the path of least resistance. So, not much of cortical expansion is seen in the initial stages, and by the time it shows clinical swelling the lesion would have been quite huge.

Histopathologically our case showed orthokeratinised lining. A diagnosis of OKC was made^{3,4}.

Cawson et al in 2004 have considered OKCs as keratinising cysts and have divided it into para-keratinised and orthokeratinised linings³. They have called para-keratinised cysts as odontogenic keratocysts or keratocystic odontogenic tumor (OKC/KCOT). Ortho-keratinised cysts have been called as orthokeratinised odontogenic cysts (OKOC). Philipsen and Riechert have suggested that OKC should be considered as a benign tumour and hence be called as KCOT or keratocystic odontogenic tumour.

The neoplastic nature of the lesion when debated in 2006 at The International Association of Oral Pathologists, it was concluded that only the ⁶molecular findings were not sufficiently definitive to support the thesis that the lesion was a benign neoplasm.

Although the genetic theory⁶ may be convincing that OKC may be a neoplasm, neoplasms are defined on the basis of their relentless growth and not on their molecular genetics. The OKCs may show relentless growth but respond well to marsupialisation provided all the locules are opened to the surface. This is not a feature of a neoplasm.

Carolina Cavalieri Gomes et al in their review of the molecular pathogenesis⁶ of the OKC have concluded that genetic alterations, epigenetic alterations, miRNA expression need more translational research as advances in one area may improve the overall knowledge related to different tumours. Therefore the debate whether OKC are neoplastic or not still continues. Further studies are required to conclusively call it either as a cyst or a neoplasm.

Conclusion

In conclusion, the present case report emphasizes that any cystic lesion should be evaluated cautiously. Though OKC's are rare in maxilla when radicular cyst would have been a more probable diagnosis, biopsy and CT Scan should be done to evaluate the exact lesion and its extension. Considering the lesion's extension, this type of infiltrative growth and not expansion is consistent with neoplastic behaviour. The current dilemma of the various terminologies of OKC is also discussed.

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