


MASSIVE RADICULAR CYST IN THE MAXILLARY SINUS, CASE REPORT
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ABSTRACT

The radicular cyst is the most common cyst of the oral and maxillofacial region. It is usually caused by pulpal necrosis which is secondary to trauma or dental caries. The radicular cyst is usually asymptomatic, but a secondary infection can occur and cause pain. Radicular cyst is also known as periapical cyst, apical periodontal cyst or dental cyst. On radiographs, it appears as radiolucency around the apex of a tooth's root. These cysts may persist even after extraction of offending tooth; these cysts are called residual cysts. The vast majority of the radicular cysts are small, but they can reach a large and even a massive size. In such cases, the cyst may cause displacement of the surrounding structures. In the posterior part of the maxilla, a massive radicular cyst can cause displacement of the floor of maxillary sinus. In this situation, a careful review of plain radiographs and/or CT images is necessary to determine the origin of the lesion, whether it is from the maxillary sinus or from the maxilla. This article reports the case of a massive radicular cyst that caused displacement the floor of the maxillary sinus, the diagnostic approach and the surgical intervention. The article had been given the approval of the ethical committee of the hospital and an informed consent of the patient was taken.

KEYWORDS: Maxillary Sinus; Maxilla; Radicular Cyst; Inflammatory Cyst; Massive lesion.

INTRODUCTION

A Cyst is defined as a benign pathologic cavity that is filled with fluid, lined by epithelium, and surrounded by a connective tissue wall.^[1]

Cysts of the jaw can be classified as follows:

Odontogenic Cysts

- Radicular cyst
- Residual cyst
- Dentigerous cyst
- Parodontal cysts
- Odontogenic Keratocyst
- Basal cell nevus-bifid rib-OKC syndrome
- Lateral periodontal cyst
- Calcifying odontogenic cyst

Non-Odontogenic cysts

- Nasopalatine cyst
- Nasolabial cyst
- Dermoid cyst
- Epidermoid cyst
- Branchial cyst

Radicular cysts are the most common Odontogenic cysts in the jaws, approximately 62%; they usually occur when a tooth becomes infected leading to necrosis of the pulp.^[2]

The cyst then arises from the epithelial residues in the periodontal ligament as a result of periapical periodontitis.^[3] Toxins exit the apex of the tooth, which leads to periapical inflammation. This inflammation will cause stimulation of the Malassez epithelial rests, which are typically found in the periodontal ligament, leading to the formation of a periapical granuloma that may be infected or sterile.

Consequently this epithelium undergoes necrosis because of lack of blood supply, and the granuloma becomes a cyst. When the lesions are small they are not usually clinically detectable.

In some cases, a cyst associated with molars or premolars may enlarge that it encroaches on almost the entire sinus, and can reach very large dimensions so as to reduce the maxillary sinus into a small space.^[4]

The purpose of this article is to report a case of a massive radicular cyst that has displaced forward the maxillary sinus floor involving lateral wall of the nose and almost reaching the orbital floor.

CASE REPORT

A 44 year old male patient, presented to the Oral Maxillo- Facial surgery clinic at Al Habeeb Hospital,

Riyadh/ KSA with a complaint of left sided facial swelling of more than three months duration.

The swelling increased gradually over time. The patient didn't recall any recent trauma.

Past medical history was unremarkable and the patient was nonsmoker.

On examination, there was moderate swelling of the left side of the face with obstruction of the left nasal side. The swelling was reaching the orbital floor yet, not affecting the globe.

Intra oral examination revealed gross mobility of teeth number 23, 24, 25, 26, 27 and reaching the left maxillary sinus with buccal bony expansion with pain and tenderness on percussion.

On the same day, the patient was sent to the Radiology Dept. for cone beam CT scan, which revealed a massive lesion involving the whole left maxillary sinus extending to the lateral left nasal wall and reaching the orbital floor without eroding the orbital rim.

Patient was scheduled for incisional biopsy under local anesthesia next day.

Prior to the procedure, the patient was sent to the endodontist to evaluate the vitality of the involved teeth. The teeth were non vital and root canal treatment of teeth number 21, 22, 23 was done while the rest were non restorable.

The biopsy was sent to the histopathology department to R/O malignant lesion.

Provisional diagnoses included Odontogenic tumor; ameloblastoma, keratocyst, Radicular cyst.

4 days later, the histopathology report was submitted to the clinic. Microscopic examination revealed a benign cystic lesion with no evidence of malignancy and the report concluded a diagnosis of Radicular Cyst.

Two days later, the patient was admitted to the minor surgical ward and total enucleation of the lesion was done, in addition to extraction of the non-restorable teeth.

The procedure was done under IV sedation. Infra orbital nerve block and intra oral infiltration were done. Bleeding was controlled by electro cautery and local hemostatic agent; Surgiceal.

Closure of the intra oral wound was done using Vicryl 3/0 sutures and intra oral pack adapted.

Pin Rose drain adapted at the wound bed for the first three days post op to prevent hematoma and for drainage. Amoklan oral and Vibrocil Nasal Drops were administered in addition to pain killers.



Figure 1 : Intraoral view of mucoperiosteal flap raising.

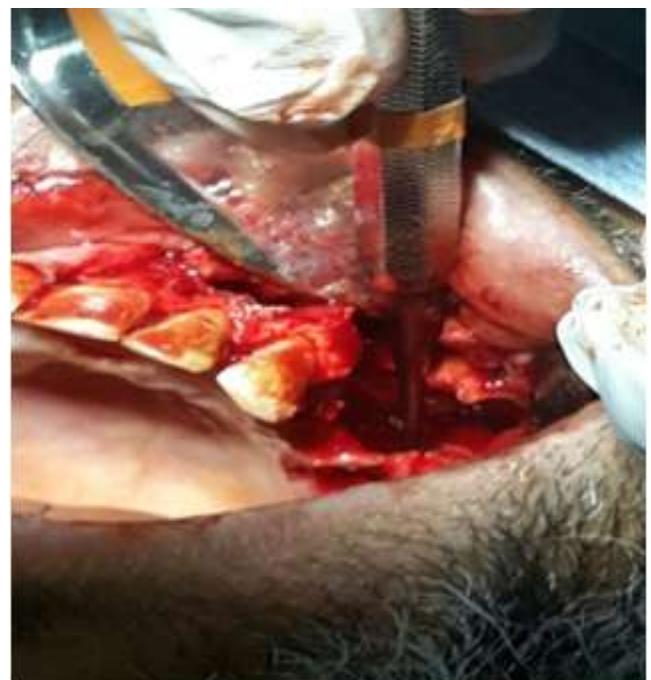


Figure2: Elevation of flap toward posterior teeth.



Figure 3 a



Figure 3 b

Figure 3 (a,b): Notice through and through huge defects in the left maxilla and maxillary sinus.



Figure 4: Dissection and elevation of the cystic lesion.



Figure 6: Specimen after total enucleation and extraction of posterior teeth.



Figure 5: After complete enucleation of the cyst, notice maxillary sinus cavity and orbital floor.

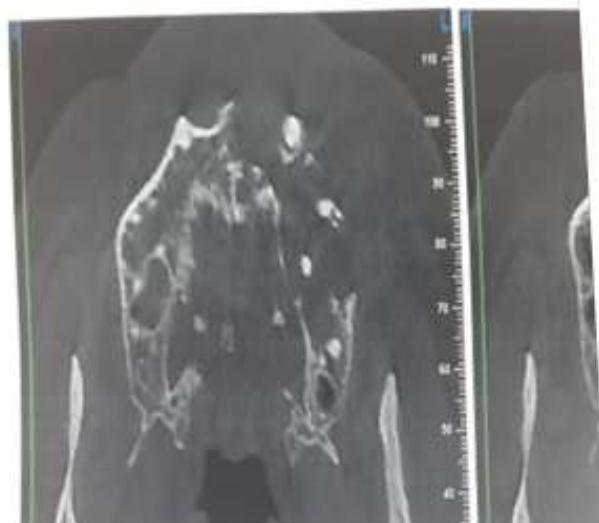


Figure 7: Axial cone beam CT scan view show huge defect of left maxilla.



Figure 8: Sagittal view.



Figure 9: Another coronal view comparing right normal maxillary sinus with left side showing the cystic lesion.

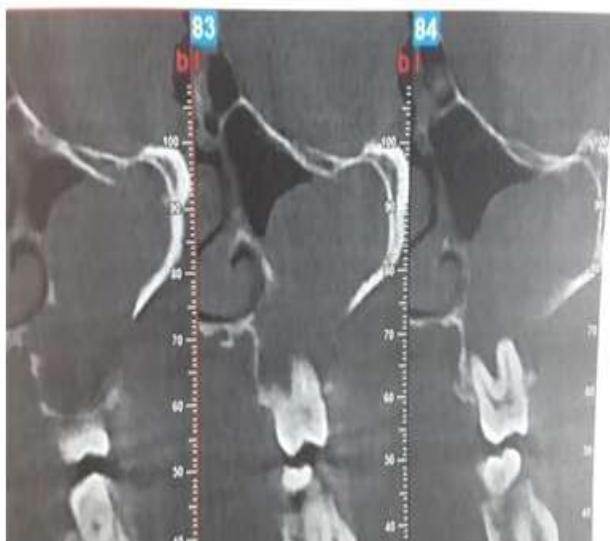


Figure 10: Coronal view of the lesion note the lesion involved lateral wall of the nose and reached orbital floor.

DISCUSSION

Radicular cysts are by far the most common inflammatory cystic lesions of the jaw; constituting approximately 52% of the jaw cysts and 62% of the odontogenic cysts.

They are commonly found at the apices of the involved teeth; however, they may also be found on the lateral aspects of the roots in relation to lateral accessory root canals.^[5]

They usually develop following pulpal necrosis caused by dental caries or trauma, which result in the proliferation of the epithelial rest cells of Malassez in the periodontal ligament.^[6]

Natkin et al. postulated that the larger the lesion, the more likely it is to be a cyst.^[7]

They usually occur in all tooth-bearing areas of the jaws, approximately 60% are found in the maxilla and 40% in the mandible, yet there is a high tendency to occur in the maxillary anterior region.^[5]

Radicular cysts are probably the most common cause of swelling of the jaws and patients usually complain of slowly enlarging swellings.

In some cases the cyst may enlarge that it may encroach on almost the entire sinus. A cyst that occupies the entire sinus usually causes expansion of the medial wall (middle meatus) of the sinus and will alter the sigmoid contour of the posterior-lateral wall of the sinus as viewed in axial CT images.

The choice of treatment is influenced by factors such as the extension of the lesion, origin, relation with nearby structures, and clinical characteristics of the lesion, in addition to general systemic condition of the patient. The treatment of these cysts is controversial and many professionals go for a conservative treatment by means of endodontic therapy if the cyst is a small one.^[8]

However, in larger lesions, the endodontic management alone is not efficient and it should be associated with surgical intervention.

CONCLUSION

In general, small radicular cysts may reach massive dimensions; In this case, the differential diagnosis with other cystic lesions of jaws may not be easy. A careful examination of clinical, radiological and histological data is vital to make the correct diagnosis and decide the proper management approach.

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