

All Opaque Sinuses are not Sinusitis

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ABSTRACT

Opacity of maxillary antrum is encountered frequently in radiological reports, and often gets treated as inflammation of the maxillary sinus. However, there is a wide variety of differential diagnosis along with anatomical and technical factors, which can give rise to opacity of maxillary antrum. It is a dangerous trend to think mostly in terms of chronic infection and subject the patient to unnecessary antibiotics and undue procedures like antral lavage. An opaque maxillary antrum should be treated as a sign and not as a definite diagnosis and a detailed evaluation should be done to identify the cause. Here we present a case of dentigerous cyst that presented as an opacified maxillary sinus on X-ray.

Keywords: Dentigerous cyst, opaque sinus, odontogenic cyst, chronic maxillary sinusitis

Unilateral maxillary sinus opacity can be caused by many diseases, the most common being chronic rhinosinusitis (52.6%), fungus ball (29.3%), antrochoanal polyp (2.6%), benign tumor (10.4%) and malignancy (5.1%).¹ However, possibility of other causes like mucocele, dentigerous cyst and ameloblastoma should be kept in mind.²

Dentigerous cyst is a type of odontogenic cyst that forms between the enamel epithelium and the enamel of the crown of the unerupted or impacted tooth.³⁻⁵ Around 20-24% of all the jaw cysts can be attributed to dentigerous cysts.⁶ It's peak incidence is during the 2nd and 3rd decade of life and is more common in males (2:1). It is commonly observed in the mandibular third molar region (75%) followed by maxillary third molar (2nd most common), maxillary canine and mandibular second premolar.

Dentigerous cysts are painless and most commonly are discovered during a routine radiographic examination. Sometimes, they may be large and result in a palpable mass. Additionally, as they grow, they displace adjacent teeth.⁷ Cysts extending in the maxillary sinus can mimic a sinus infection. Rarely, these cysts may present as recurrent head and neck infections.

Radiological examination is the choice of investigation to diagnose a dentigerous cyst. However, a histopathological confirmation leads to a final diagnosis.⁷

Surgical excision of the entire cyst along with the tooth is the treatment of choice and is done through a Caldwell-Luc approach. Few cases of marsupialization have also been reported.⁷

CASE REPORT

A 24-year-old overweight female with a chubby face presented to our clinic with pain and puffiness of the right cheek since 3 months (Fig. 1) and also had yellowish discharge from the right nasal cavity. She had undergone right-sided antral lavage for similar complaints in another hospital 1 month back as the



Figure 1. Preoperative image showing fullness of the right cheek.

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X-ray for the paranasal sinuses showed complete opacification of the right maxillary sinus (Fig. 2).

When she presented to us with persistence of the symptoms, we observed that there was prominence of the right cheek and the right 3rd maxillary molar was missing. A CT scan of the paranasal sinuses was performed. This revealed a unilocular well-defined large cystic lesion confined to the right maxillary sinus with expansion and thinning of its walls. An unerupted tooth embedded in the cyst wall was noted, suggestive of a dentigerous cyst (Fig. 3).

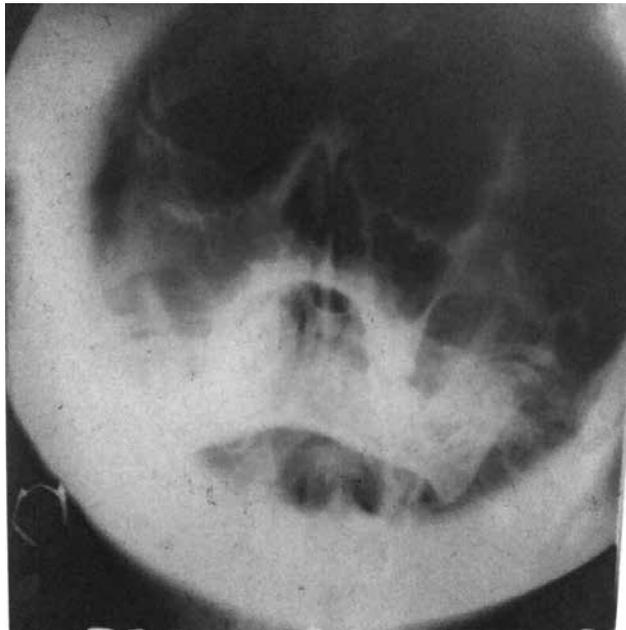


Figure 2. X-ray image showing opacity of the right maxillary sinus.

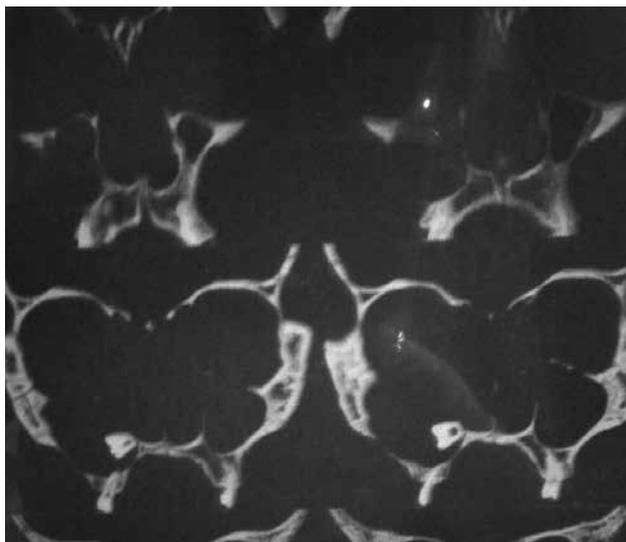


Figure 3. CT image showing the dentigerous cyst in the right maxillary sinus.

After obtaining all the relevant blood investigations and surgical fitness, the patient was taken up for surgery. Complete obliteration of the upper gingivolabial sulcus and egg shell crackling of the anterolateral wall of the right maxilla was noted. Complete excision of the cyst along with the tooth was done through a sublabial approach (Caldwell-Luc operation) (Figs. 4 and 5). The right maxillary sinus cavity was irrigated with

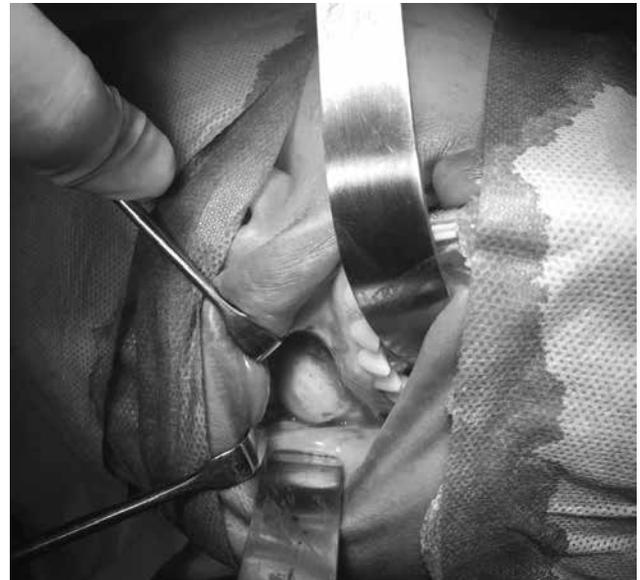


Figure 4. Visualization of the dentigerous cyst seen through the Caldwell-Luc approach.

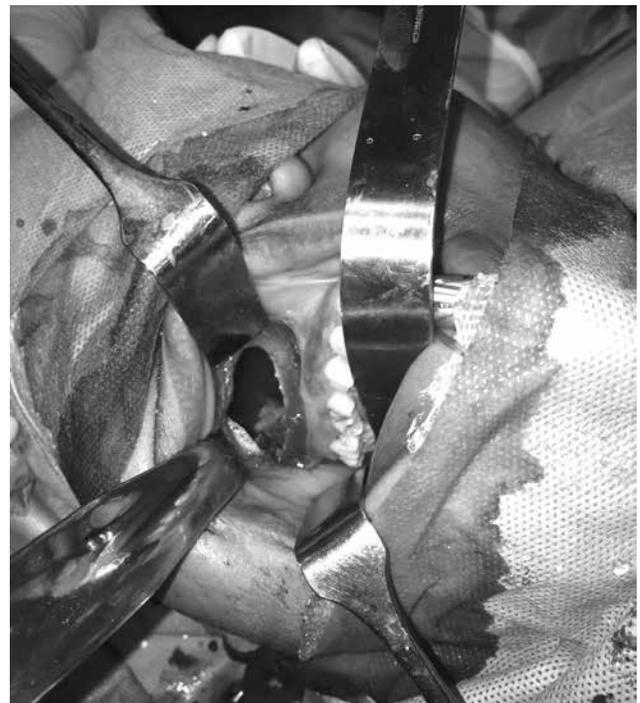


Figure 5. The maxillary sinus cavity after complete excision of the cyst.



Figure 6. The dentigerous cyst.

betadine solution and the sublabial wound was closed in layers. A check endoscopy was done. As the accessory ostium on the right side was wide and patent, an intranasal antrostomy was not performed. The cyst measured about 5 × 6 cm and also contained a molar tooth (Fig. 6). Postoperative period was uneventful and the patient was discharged the following day. Histopathological examination confirmed the diagnosis of dentigerous cyst.

DISCUSSION

Odontogenic cysts are lesions derived from epithelial elements that have been part of the tooth-forming apparatus. They arise as a result of proliferation and cystic degeneration of odontogenic epithelial rests. Dentigerous cysts are among the most common odontogenic cysts.⁸

Two types of dentigerous cysts have been reported in the literature: Developmental and inflammatory types.

Pathogenesis: The developmental type of dentigerous cyst is formed around the crown of an unerupted tooth by accumulation of fluid either between the reduced enamel epithelium and the enamel or in between the layers of the enamel organ. The pressure exerted by an erupting tooth on an impacted follicle obstructs, the venous outflow and induces rapid transudation of serum across the capillary wall forming a cyst. The other theory is that the origin of the dentigerous cyst is due to the breakdown of proliferating cells of the follicle after impeded eruption.

The inflammatory type of dentigerous cyst is from the overlying nonvital necrotic deciduous tooth. The periapical inflammation spreads to involve the follicle of the unerupted permanent tooth and an inflammatory exudate ensues to form a dentigerous cyst.⁶

Differential diagnoses of a dentigerous cyst are a large periapical cyst, odontogenic keratocyst, central giant-cell granuloma and unicystic ameloblastoma.⁶ As it can present as an opacified maxillary sinus when the sinus is involved, differentials of sinus inflammation, fungal ball, AC polyp, benign and malignant tumors of the sinus are also considered.¹

The cyst may be an incidental radiological finding as it is painless. Sometimes, it may present as a palpable mass when large and very rarely presents with infection.⁷

The ideal investigations to diagnose a dentigerous cyst are orthopantomogram and CT scan although a histopathological confirmation is necessary to rule out the other differentials.⁷

The treatment of choice is complete surgical excision of the cyst along with the tooth. When the cyst is involving the maxillary sinus, a Caldwell-Luc approach is done. Marsupialization or decompression of the cyst is reserved for very large or infected cysts.⁹

CONCLUSION

In our routine practice, we often come across an opaque sinus when an initial X-ray of the paranasal sinuses is performed. Even though inflammation of the sinuses is the most common cause of an opaque sinus, other causes should always be considered. We had one such experience where a previously misdiagnosed sinusitis turned out to be a dentigerous cyst. Hence while evaluating an opaque sinus, knowledge of the various etiologies and a stepwise approach when reviewing images can be helpful in both narrowing the differential and formulating a correct diagnosis.

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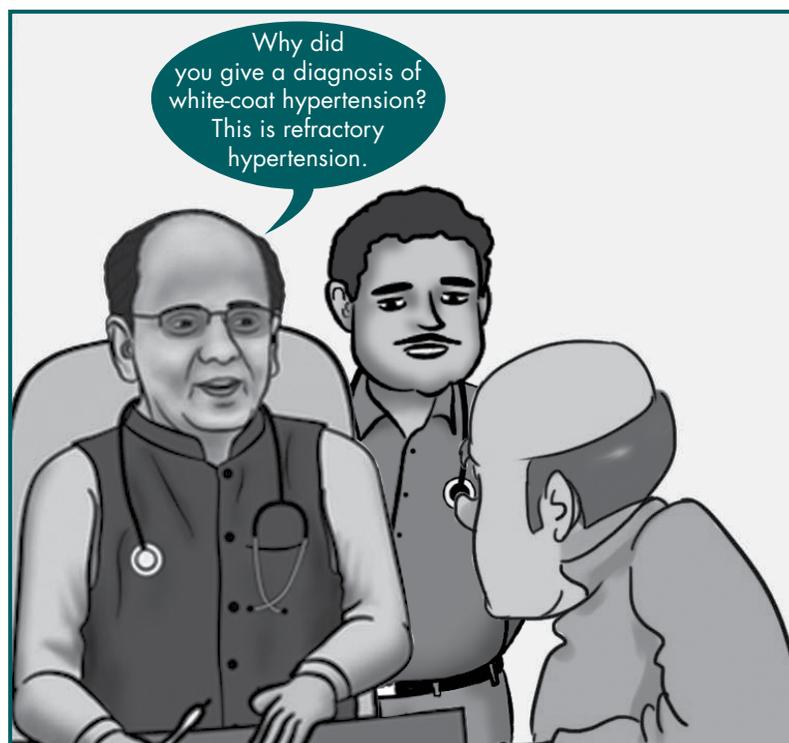
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Make sure

DURING MEDICAL PRACTICE

SITUATION: A patient on triple combination antihypertensive therapy who consistently had office blood pressure (BP) measurement >135/85 mmHg was given a diagnosis of white-coat hypertension.



LESSON: Make sure to remember that white-coat effect is largely absent in patients with refractory hypertension. White-coat effect is not a common cause of apparent lack of BP control in patients failing maximal antihypertensive treatment.

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