

## **ECTOPIC MAXILLARY WISDOM TOOTH INTO THE MEDIAL WALL OF MAXILLARY SINUS WITH ODONTOGENIC KERATOCYST: CASE REPORT**

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### **Abstract**

It is uncommon for a tooth to break-outside of the oral-cavity. Ectopic eruption of the chin and nasal. Cavities have been reported in the past. This is a representation of an ectopic wisdom-tooth with a cystic lesion in the maxillary sinus and roots that extend into the lateral wall of the nose. Surgical removal of an impacted wisdom tooth with cystic lesion have been done to a 17 years old boy, the histopathological examination reveals odontogenic keratocyst. To our knowledge, the combination of an ectopic wisdom tooth at medial wall of the maxillary sinus and odontogenic keratocyst (The case under discussion) is not reported before

**Keywords:** ectopic wisdom tooth, odontogenic keratocyst, maxillary sinus

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### **Introduction:**

Odontogenic keratocyst (OKC) is developmental odontogenic cyst with distinct clinical and histopathologic characteristics <sup>(1)</sup>. In 2005, its classification by the World Health Organization have been changed from an odontogenic cyst to a benign odontogenic-tumor known as the keratocystic odontogenic-tumor because of its aggressive behavior <sup>(2)</sup>. The World Health Organization in 2017 has reversed the-classification and considered it as an odontogenic cyst again <sup>(3)</sup>. With 10–20 % of all odontogenic cysts, OKC is the third mostly frequent cyst affecting the jaws. While OKCs can appear at any age, men are more likely to develop them in their second or third decade. In 60–80% of cases, the mandible is affected, with the posterior body and ramus showing a clear preference. Unless secondary infected, OKCs are typically asymptomatic and discovered inadvertently by radiographic screening for other causes. Because bones have a propensity to expand in a posteroanterior orientation, even huge cysts only experience minimal bone augmentation. On radiographs, OKCs have well defined, unilocular. to multilocular radiolucencies, either with or without an ameloblastoma-like scalloped edge <sup>(3)</sup>.

The complicated interactions that take place between the oral epithelium and the underlying mesenchymal tissue resulted in the development of the tooth. The creation of mature teeth is the consequence of complex tissue interactions. Ectopic tooth development and eruption are possible outcomes of any aberration in these tissue interactions during tooth formation. <sup>(4)</sup>.

Ectopic tooth eruption into the dental environment is usual, in contrast to ectopic tooth eruption in other sites, which is unusual <sup>(5)</sup>. One such site for ectopic-tooth-eruption in a nondental region is the-maxillary-sinus <sup>(4)</sup>. The three potential reasons of ectopic tooth eruption are iatrogenic activity, pathological issues, and disturbances in development <sup>(6)</sup>. Surgery is used to treat this issue because tooth eruption into the maxillary sinus might have harmful effects <sup>(4)</sup>.

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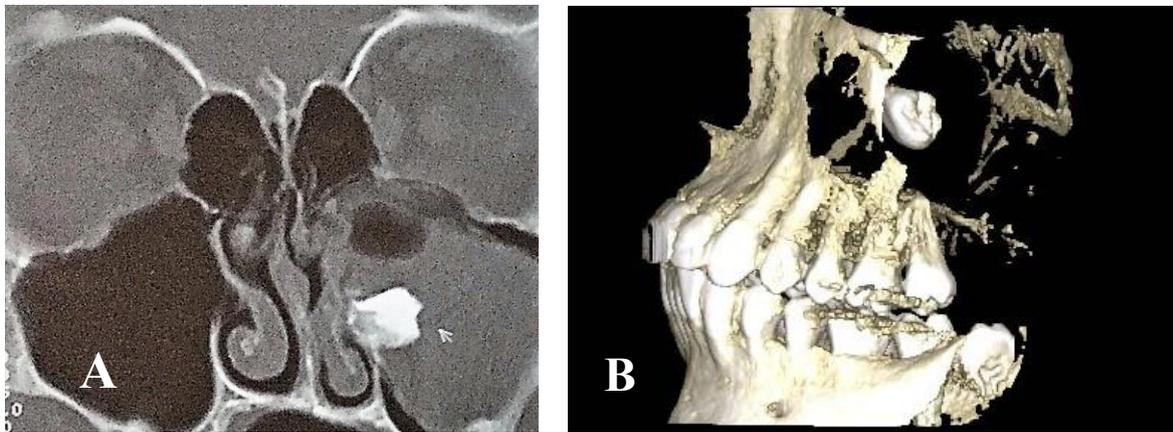
### **Case Report**

A 17 years old male was presented to the-clinics with recurrent pus discharge from the gum of the upper posterior teeth left side with unknown cause. On clinical examination there was no obvious soft tissue problems, teeth were caries free and absent left maxillary third molar.

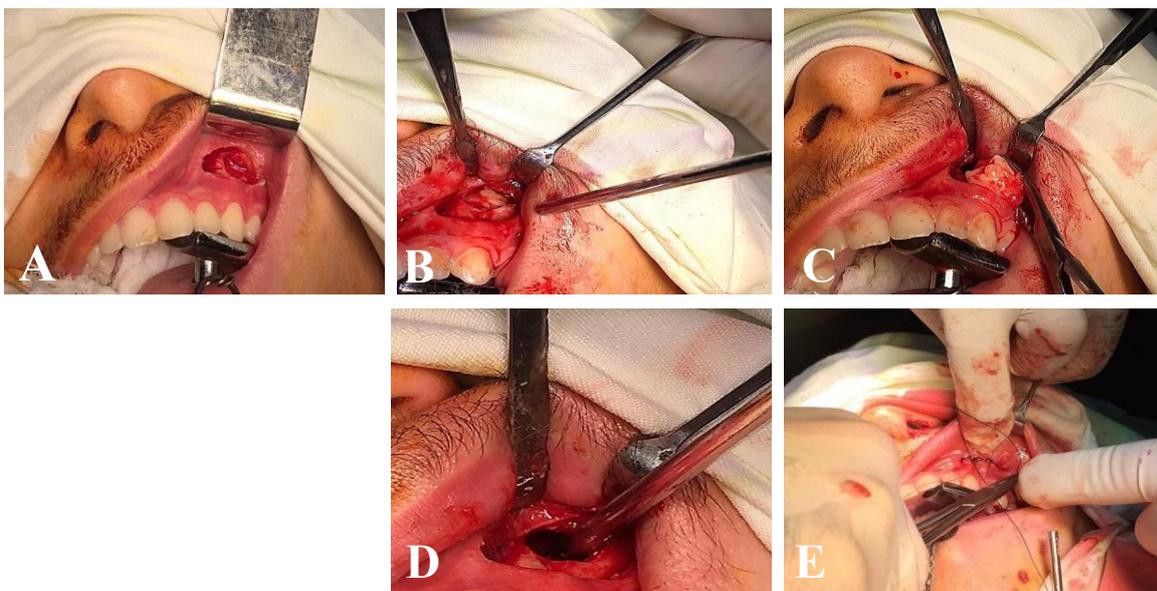
Cone beam computerized tomography (CBCT) was done and showed ectopic 3<sup>rd</sup> molar in the left maxillary sinus by the medial-wall, of the-sinus with its root embedded in the sinus wall. Cystic lesion was around the crown of the tooth. (Figure 1)

Surgery was scheduled for the patient and removals was done successfully with no complication. Caldwell-Luc procedure was performed for the removal of the tooth and its cystic lesion under general anesthesia. (Figure 2)

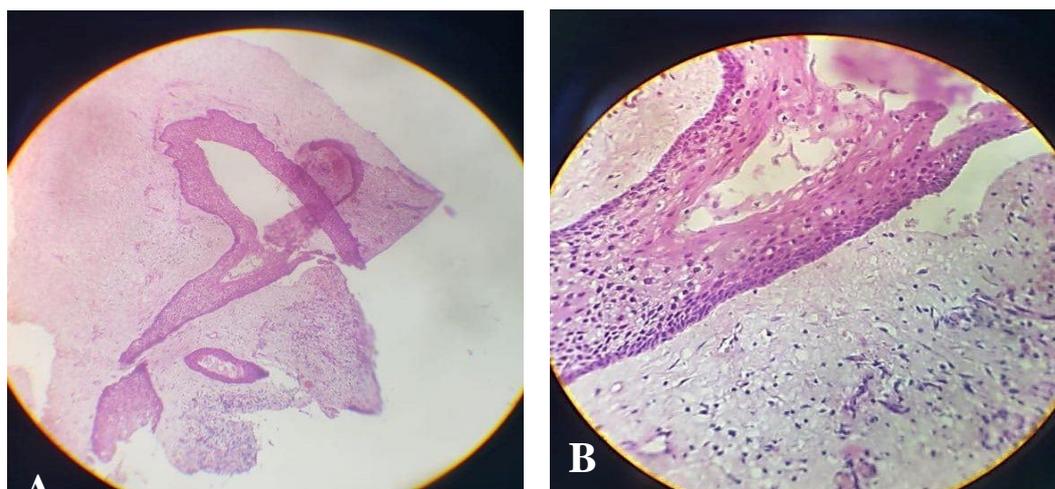
The histopathological examination showed cystic cavity focally lined with thick orthokeratinized stratified squamous epithelium with palisaded columnar layer, the wall is thick with focal heavy inflammatory cells infiltrate, this picture in favor of an inflamed orthokeratinized odontogenic keratocyst. (Figure 3)



**Figure 1: A- CBCT (coronal view), B- 3-D view**



**Figure 2: A, B, C, D., E. Surgical steps**



**Figure 3: A- Low and B- high magnification of histopathological picture.**

## **Discussion**

Teeth development result from the oral epithelium and underlying mesenchymal tissue interaction, which start at the sixth week of the intrauterine life and result in the formation of dental lamina of maxilla and mandible at the region of future alveolar processes. The undergone proliferation of this ectodermal derivative result in the formation of the permanent dentition, this occurs between the 5th and the 10th months. The mature tooth composed of a crown and a root <sup>(7)</sup>. Although the ectopic tooth eruption is rare in areas other than the oral cavity but it was reported in some cases as ectopic tooth in the nasal septum, condyle of the mandible, palate, and coronoid process <sup>(8,9,10,11)</sup>. For the diagnosis of such conditions radiographically, plain sinus X ray and CBCT would be beneficial. The CBCT is the best view for its accuracy and multiplane views and 3D reconstruction facility and its low dose of radiation makes it the first choice in localizing objects.

The keratinized and thin nature of the epithelial lining further distinguishes it. Epithelial budlike proliferations can occasionally arise from the-basal-layer into the-wall of the surrounding connective tissue. A satellite microcyst may also develop from islands of epithelium in the-wall, which increases the likelihood of recurrence. The cyst may contain a viscous or cheesy substance generated from the epithelial lining. <sup>(12)</sup>. Since the cyst wall is thin and fragile, complete removal of the OKC may be challenging in order to prevent recurrence <sup>(13)</sup>.

Cysts can be removed by endoscope when they are close to the osteomeatal complex, but Caldwell-Luc approach provides direct vision for laterally or posteriorly placed ones, a combination of the two approaches is possible too <sup>(14)</sup>. Al-Qahtani in 2011 utilized endoscopic sinus technique to remove an impacted third molar in close proximity to the medial-wall of the maxillary-sinus, and he stated that the new advances in this approach enable the surgeons to perform it at any level of impaction, and in most sinonasal diseases <sup>(15)</sup>.

After surgery, close monitoring and follow-up with repeated clinical and radiographic exams are required to look for any recurrence. Recurrent lesions typically appear within the first five years; however, they can appear up to ten years afterwards. <sup>(12)</sup>.

## **Conclusion**

Good understanding of the dental tissues' development by the surgeon and careful preoperative work-up and thinking out of the box is a key for accurate diagnosis of such rare and unique case. Concerning the possible approaches for each case individually is important for successful treatment with least complications.

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