



## **Unsuspected Ectopic Tooth in the Maxillary Sinus**

**Komal Sharma, Astha Chaudhry, Gayatri Mehrotra and Puneeta Vohra**

Department of Oral Medicine and Radiology SGT University, Gurgaon

Department of Oral Medicine & Radiology, SGT University, Gurgaon

MDS Oral Medicine and Radiology

Department of Oral Medicine & Radiology, SGT University, Gurgaon

**Corresponding author:** [komalsharma48@gmail.com](mailto:komalsharma48@gmail.com)

### **ABSTRACT**

*Ectopic tooth are the ones that do not erupt in its normal location. It is a frequent clinical finding to find ectopic tooth eruptions in dentate regions. But these teeth can be found in non-dentate regions such as palate, mandibular condyle, mandibular sigmoid notch, maxillary sinus and orbit to name a few. Many a times these unusual eruptions are asymptomatic and are only diagnosed during routine radiographic examination. Here, we present a similar case of accidental diagnosis of an unsuspected ectopic tooth in the maxillary sinus.*

**Keywords:** Cone Beam Computed Tomography, Ectopic Tooth, Maxillary sinus

Received 09.10.2022

Revised 23.11.2022

Accepted 25.12.2022

### **INTRODUCTION**

Ectopic tooth can be defined as a tooth that is not erupting in its normal location. Ectopic eruption in dentate region is a common finding in clinical practice. It is frequently seen in the mandible when compared to maxilla with increased prevalence among females [1]. But such abnormal tooth eruptions in a non-dentate region is also not uncommon. In the literature, ectopic tooth have been found in multiple locations such as hard palate, mandibular condyle, mandibular sigmoid notch, mandibular coronoid process, chin, nasal cavity, maxillary sinus and orbit [2] [3]. Large numbers of such non dentate ectopic eruptions and case series have been reported in the literature [4]. Finding of such ectopic tooth is usually an accidental finding during routine radiographical examinations or in cases where impacted ectopic tooth is associated with pathological changes such as cysts, tumors, sinusitis, numbness or ophthalmic symptoms [5]. Ectopic tooth is rarely found outside oro-facial region except when associated with teratomas [6].

In this article, we present one such case of an incidental finding of Ectopic tooth impacted in the maxillary sinus.

### **Case report**

A 62 year old male was referred to Centre of Maxillofacial Imaging, Department of Oral Medicine and Radiology, SGT University, Gurgaon for presurgical implant planning with respect to missing teeth. Patient was otherwise healthy and did not given any history of pain or swelling in the oro-facial region. Cone Beam Computed Tomographic (CBCT) scan revealed missing teeth with respect to 11, 12, 14, 16, 17, 25, 26, 27, 28, 31, 32, 41 and 42. Scan also revealed generalized apical migration of the interdental bone up till the middle to apical one third of the roots which was suggestive of generalized horizontal bone loss. Blunting of root apex of 37 was appreciated which was suggestive of external root resorption. Further evaluation of CBCT scan revealed an incidental finding of an impacted left maxillary third molar with in the left maxillary sinus.

Coronal, Axial and Sagittal scans revealed a well-defined tooth like hyperdensity in the postero-lateral wall of the left maxillary sinus at the level of middle portion of the sinus cavity. The tooth was present lateral to the lateral pterygoid plates on the left side. The impacted tooth had a normal morphology and was approximately 14.2 mm x 8.40 mm in its largest dimensions supero-inferiorly and mesio-distally. The roots was completely formed i.e. 3 roots with 3 root canals which seemed to have fused to form a single bulky root. The palatal aspect of the tooth was present within the confines of the left maxillary sinus. There was no evidence of any pathology associated with the impacted tooth. There was no sign of chronic

sinusitis such as thickening of the lining mucosa of the left maxillary sinus in the region of the impacted tooth. The implant planning was done for the required regions and as our patient was asymptomatic he was kept of regular follow up.

## DISCUSSION

Odontogenesis is the process of tooth formation, eruption and integration. The morphological aspect of formation of the tooth has been described in various studies based on the histological sections of embryonic teeth [7]. The formation of the tooth takes place by the series of complex interactions between the oral epithelium and the underlying mesenchyme [8]. Disruption of any of these interactions can lead to ectopic tooth eruptions [2].

Ectopic tooth eruptions of the maxilla have mostly been reported in the maxillary sinus and the nasal cavity [9] [10][11] [12].

In maxilla ectopic tooth eruptions have been seen in different areas of the sinus: antrum, floor, roof, orbital floor, superomedial and anterosuperior aspects, and posterior and anterolateral walls. [4] [9].

Exact aetiology of ectopic tooth eruptions have not been elicited. It can depend on multiple factors mainly iatrogenic tooth displacement, pathological cause, developmental cause among others. [4] (Table 1)

**Table 1: Various etiological factors proposed in literature for ectopic tooth eruption [4][9]**

- |  |
|--|
| <ul style="list-style-type: none"> <li>● Iatrogenic tooth displacement (Tooth germ placement)</li> <li>● Pathological cause (Cysts and tumors)</li> <li>● Developmental abnormalities (Cleft Palate)</li> <li>● Infections</li> <li>● Genetic factors</li> <li>● Inadequate space in the arch</li> <li>● Trauma</li> <li>● Systemic factors (Osteoporosis, Metabolic disorders such as Rickets)</li> <li>● Idiopathic factors</li> <li>● Associated with Teratoma</li> </ul> |
|--|

Ectopic teeth are primarily asymptomatic unless they are secondarily infected or if they cause destruction of adjacent anatomical structure. [4] Ectopic teeth in the maxillary sinus have known to induce a plethora of symptoms such as Headache, nasal obstruction, heaviness, facial swelling, sinusitis, hypoesthesia of infraorbital nerve, epiphora, hemoptysis. The complications of ectopic teeth arise in case of secondary infection which causes pain, fever, oroantral fistula and purulent discharge. Further development of cysts have also been documented in literature. [13] [14].

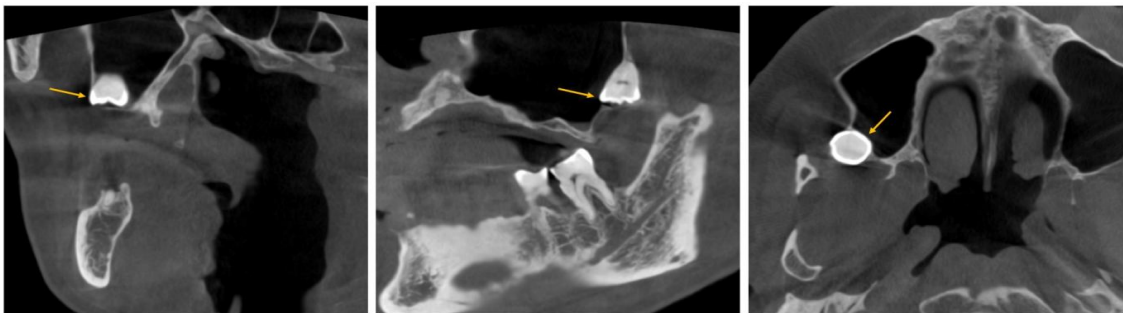


Fig. 1: Coronal, Sagittal and Axial Sections of the CBCT scan revealing the presence of ectopic tooth in the left maxillary sinus

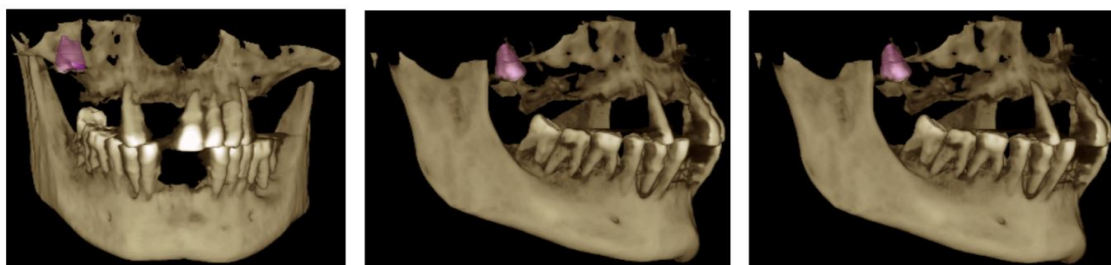


Fig. 2: 3D-Reconstruction with segmented tooth

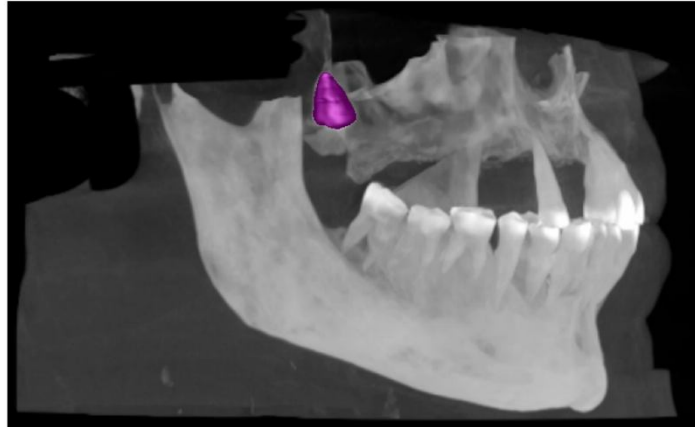


Fig. 3: 3D-Reconstruction with segmented tooth

Radiographic evaluation is the method of choice to arrive at a final diagnosis when it comes to Ectopic tooth eruptions. In case of ectopic teeth in the maxillary sinus Orthopantomography (OPG), Occipitomental View, Cone Beam Computed Tomography (CBCT), Computed Tomography (CT) can be used. CBCT and CT are the most preferred means since these are 3D imaging and can give the clinician a thorough multiplanar view of the area of interest. These imaging can help in evaluate the tooth morphology, tooth's inclination along with its relation to the sinus walls which can further help in planning the treatment and its prognosis. Our case demonstrated the presence of impacted tooth in the postero-lateral wall of the left maxillary sinus with the help of CBCT [4] [8].

Asymptomatic cases do not require any treatment but clinical follow up every 6 to 8 months is necessary to keep an eye on any pathological cystic changes or neoplastic changes that might lead to destructive effects on the adjacent vital structures such as perforation of the walls of the maxillary sinus, nasal obstruction or orbital perforation [4]. Whenever Surgical approach to treat the condition is decided Caldwell-Luc procedure has been described as the most common technique sought to remove the ectopic tooth from the maxillary sinus. Although, other techniques such as nasal endoscopy, transoral endoscopy, Lefort I Osteotomy have also been mentioned in the literature [13][15].

## CONCLUSION

With the advent of 3D imaging such as CBCT and its easy availability such cases are being frequently diagnosed. The onus of ruling out such conditions when patient presents with signs and symptoms of head and neck regions falls on us as diagnosticians and cannot be overemphasized.

## REFERENCES

1. Ramanojam S, Halli R, Hebbale M, Bhardwaj S. (2013). Ectopic tooth in maxillary sinus: Case series. *Ann Maxillofac Surg* 3:89-92.
2. Topal Ö, Dayısoylu EH. (2017). Ectopic tooth in the maxillary sinus. *Turkish Archives of Otorhinolaryngology*. ;55(3):151.
3. P. Lambade, D. Lambade, S. R. Dolas, and N. Virani, (2013). "Ectopic mandibular third molar leading to osteomyelitis of condyle: a case report with literature review," *Oral Maxillofacial Surgery*, vol. 17, no. 2, pp. 127–130.
4. Lombroni LG, Farronato G, Santamaria G, et al. (2018). Ectopic teeth in the maxillary sinus: a case report and literature review. *Indian J Dent Res*; 29: 667–671.
5. karbasikheir, Mitra &Sheikhi, Mahnaz. (2019). Ectopic third molar in maxillary sinus: an asymptomatic accidental finding. 10.4103/ejo.ejo\_80\_18.
6. Ingale Y, Shankar AA, Routray S, Agrawal M, Kadam A, Patil T. (2013). Ectopic teeth in ovarian teratoma: a rare appearance. *Case reports in dentistry*. 25;2013.
7. Thesleff I. (2013). Current understanding of the process of tooth formation: transfer from the laboratory to the clinic. *Aust Dent J*. ;59 Suppl 1:48-54. doi: 10.1111/adj.12102. Epub 2013 Nov 17. PMID: 24236691.
8. Bodner L, Tovi F, Bar-Ziv J. Teeth in the maxillary sinus- imaging and management. *J LaryngolOtol* 1997; 111: 820-4.
9. Yang P, Liang H, Zou B, Liu J, Yuan D, Meng Z, Xu K. (2021). Ectopic tooth in maxillary sinus compressing the nasolacrimal canal: A case report. *Medicine*. ;100(18).190-193
10. Almomen A, Alkhatib B, Alkhatib A, et al. Ectopic maxillary tooth as a cause of recurrent maxillary sinusitis: a case report and review of the literature. *J Surg Case Rep* 2020;2020:rjaa334.
11. Elmorsy K, Elsayed LK, El Khateeb SM. Case Report: Ectopic third molar in the maxillary sinus with infected dentigerous cyst assessed by cone beam CT. *F1000Research* 2020;9:209.

12. Song NY, Liu Y, He S, et al. A rare intranasal ectopic tooth in a child. *Br J Hosp Med* 2020;81:1.
13. Sharma S, Chauhan JS. (2019). Bilateral ectopic third molars in maxillary sinus associated with dentigerous cyst—A rare case report. *International Journal of Surgery Case Reports*. ;61:298-301.
14. TR TH, Suharno RE. (2020). Caldwell Luc Approach in Extirpation of Dentigerous Maxillary Cyst on 13 Year Old Boy with Odontogenic Sinusitis: A Case Report. *International Journal of Clinical Pediatrics and Child Health*. ;2(3):17-23.
15. Akbas M, Karabiyik Z, Varol A. (2022). Ectopic Tooth in Mandibular Canal, Maxillary Sinus, and Mandibular Condyle. *Case Reports in Dentistry*.22;2022.

#### **CITATION OF THIS ARTICLE**

Komal Sharma, Astha Chaudhry, Gayatri Mehrotra and Puneeta Vohra: Unsuspected Ectopic Tooth In The Maxillary Sinus. *Bull. Env. Pharmacol. Life Sci., Spl Issue [5]: 2022: 324-327.*