

4-1-2023

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Recommended Citation

Fathimani, Kayvan DDS, FACS, FRCD(C), FIBCSOMS (2023) "An Osteoma Embedding an Ectopic Wisdom Tooth within the Maxillary Sinus: A Rare Occurrence," *The New York State Dental Journal*: Vol. 89: No. 3, Article 7.

Available at: <https://commons.ada.org/nysdj/vol89/iss3/7>

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An Osteoma Embedding an Ectopic Wisdom Tooth within the Maxillary Sinus

A Rare Occurrence

Kayvan Fathimani, D.D.S., FACS, FAACS, FRCD(C), FIBCSOMS

ABSTRACT

Osteomas are frequently reported in the maxillofacial region, with much lower incidences in the maxillary and sphenoid sinuses. An unerupted third molar within the maxillary sinus coexisting with a maxillary sinus osteoma is an extremely rare pathologic finding. Such cases can be managed endoscopically or intraorally through a Caldwell-Luc approach. The following case report deals with a patient who presented with an uncommon pathological finding: an osteoma embedding an ectopic tooth within the maxillary sinus.

Osteomas are benign bony tumors consisting of mature cancellous and cortical bone.^[1,2] They are found exclusively in the craniofacial and maxillofacial regions, most commonly in the paranasal sinuses and less commonly on the surfaces of bones such as the cranium and mandible.^[3]

When found in the paranasal sinuses, the frontal and ethmoid sinuses are most commonly involved, with a 60% to 70% and 20% to 30% incidence, respectively.^[4] On the other hand,

osteomas involving the maxillary sinus occur less than 5% of the time, and diagnosis is usually made incidentally on radiographic findings, as most patients are asymptomatic.^[4] Ectopic eruption of a third molar within the maxillary sinus co-existing with an osteoma is a rare occurrence.^[2]

The following case report deals with a patient who presented with an uncommon pathological finding: an osteoma embedding an ectopic tooth within the maxillary sinus.

Case Report

A 24-year-old female presented to the Oral and Maxillofacial Surgery Clinic complaining of persistent pain, intraoral odor and rhinorrhea. She presented with no facial asymmetry and had no vestibular fullness. Mild tenderness was noted in the upper left maxilla, with mild intraoral purulence. She was otherwise healthy, with no underlying medical concerns.

The panoramic film showed a well-defined radiopacity in the maxillary sinus associated with an unerupted third molar (Figure 1). A cone beam computer tomography (CBCT) image showed an ectopically positioned wisdom tooth within the maxillary sinus surrounded peripherally by a radiopaque rim (Figures 2-5). The entire left maxillary sinus was fluid-filled, attributing to the patient developing sinusitis, rhinorrhea and foul intraoral odor. She



Figure 1. Panoramic image showing large radiopaque lesion within maxillary sinus associated with impacted wisdom tooth within maxillary sinus.

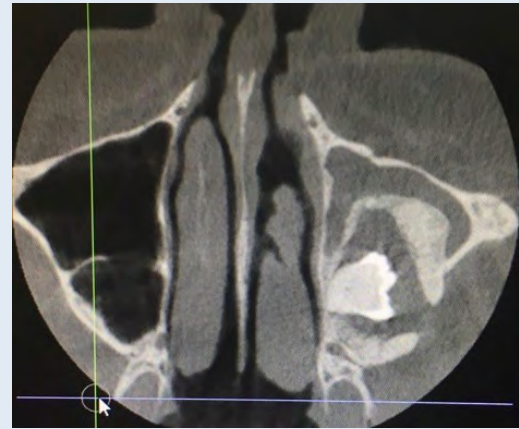


Figure 2. CBCT axial view: bony window showing centrally positioned wisdom tooth surrounded by radiopaque rim within maxillary sinus. Fluid level appreciated in maxillary sinus.



Figure 3. CBCT coronal view: bony window showing anterior extent of lesion.



Figure 4. CBCT coronal view: bony window showing posterior extent of lesion.

was scheduled for an excisional biopsy, extraction of the wisdom tooth and sinus debridement under intravenous sedation (IVS). After consent was obtained, IVS was titrated to effect using 5 mg midazolam and 25 mg ketamine. Local anesthesia was infiltrated using 2% lidocaine 1:100,000 epinephrine. A Caldwell-Luc approach to the maxillary sinus was used to expose the maxillary sinus cortical wall. A buccal corticotomy in the posterior left maxilla was created to enter the maxillary sinus (Figure 6). Upon entry, discharge was evident, and the peripheral extent of the lesion was identified and curetted (Figure 7). The lesion was removed entirely in multiple pieces with the impacted wisdom tooth found embedded within the lesion (Figure 8). The specimen was sent in 10% formalin for histopathological analysis. The maxillary sinus was curetted, removing all debris and pathology. Copious irrigation of the sinus with 3g Unasyn and normal saline solution was performed. A close examination of the sinus noted no further pathology, and closure was completed with 3-0 chromic gut.

The patient tolerated the procedure well and was prescribed a seven-day course of antibiotic (Augmentin) and a decongestant (Sudafed), to be used as needed. At her two-week follow-up, she was asymptomatic and declared no further rhinorrhea or pain. The histopathology diagnosis was an osteoma of the maxillary

sinus coexisting with an ectopically erupted third molar. Her recovery was uneventful, and she reported no further concerns. No recurrence was noted.

Discussion

Osteomas are benign fibro-osseous tumors. The most common benign fibro-osseous lesion is seen in the paranasal sinuses.^[3,5] Although not uncommon in the paranasal sinuses, osteomas within the maxillary and sphenoid sinuses have a much lower incidence rate.^[4] Males have a 2:1 predilection, with tumors occurring most commonly in the second and third decade of life.^[4]

Multiple theories have been proposed to explain the pathogenesis. Infectious, traumatic and developmental are the most common theories.^[2,4,6]

Upon a traumatic incident, a reactive process of osteogenesis occurs, activating bony growth.^[2] Small osteomas routinely do not need to be removed; however, there are multiple instances where removal is required. Symptomatic patients refractory to conservative measures will benefit from surgery. Cases where the osteomas encompass more than 50% of the paranasal sinus volume require removal, since these osteomas may encroach on vital anatomical structures, such as the orbital bones, or block the ostiomeatal complex (OMC).^[2,7]



Figure 5. CBCT sagittal view: bony window showing extent of lesion, centrally positioned third molar, embedded by radiopaque rim, fluid-filled.



Figure 6. Initial entry into maxillary sinus through Caldwell-Luc approach. Peripheral extent of osteoma identified.



Figure 7. View of maxillary sinus following excision of peripheral portion of osteoma.

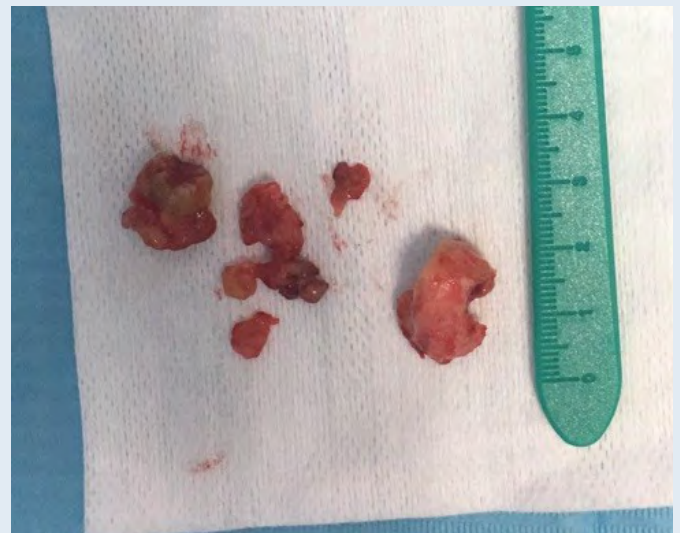


Figure 8. Excised contents of maxillary sinus with impacted wisdom tooth found embedded within.

The coexistence of an osteoma with an ectopically erupted tooth is uncommon.^[2] Ectopic teeth occur more frequently in the dental arches than in nondental regions. Although uncommon, typical sites for ectopic tooth eruption in non-dentate regions include the maxillary sinus, nasal cavity and mandibular condyle.^[2] Pathologic findings of cysts and benign tumors, or patients with syndromic anomalies and clefts, or traumatic patients, may have ectopically erupted teeth seen in these nondental areas.^[2] CBCT is beneficial in localizing the impaction and assessing the extent of pathology.

In maxillary sinus cases, when an impacted tooth is close to the OMC, an endoscopic approach may be utilized to remove the tooth. Removal of osteomas through an endoscopic approach is primarily for frontal and ethmoidal osteomas. For osteomas involving the maxillary sinus, a Caldwell-Luc approach is commonly used to explore the sinus and remove any pathology.

Recurrence rates are rare, and no reports of malignancy have been reported.^[5] Due to its benign and slow-growing features, local excision is all that is necessary.^[3] Maxillary sinus osteomas are generally asymptomatic; however, patients may have pain, facial swelling, rhinorrhea, congestion, headaches, foul odor and discharge. Osteomas may block the OMC and although rare, even expand into the orbit, causing globe displacement and visual acuity changes.^[1]

Radiographically, osteomas are mainly solitary, as in this case. In the presence of multiple osteomas, Gardner syndrome must be ruled out, as this is an autosomal dominant condition characterized by multiple osteomas, epidermal cysts, fibromas, impacted teeth and colorectal polyposis.^[1] These patients are at a higher risk of colorectal cancer and will require further screening if multiple osteomas are present.

Conclusion

Osteomas of the maxillary sinus have a very low incidence rate and when coexisting with an ectopic tooth in the maxillary sinus, the pathologic entity is quite unique. Upon review of the literature, only one other study reported similar findings.^[2] Patients with maxillary osteomas may exhibit no symptoms; however, surgery will be required in symptomatic patients and those with large osteomas. A Caldwell-Luc approach is commonly used to access the maxillary sinus, preventing worsening of symptoms or further expansion and disruption of the OMC or orbital floor. //

The author has no conflict of interest to report. He has read and understands the Helsinki Declaration, agrees with its principles, and has no conflict with the declaration in investigations for compiling this article. He received no funding for this report. Queries about this article can be sent to Dr. Fathimani at kfathima@montefiore.org.

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