

## Ectopic Molar with Maxillary Sinus Drainage Obstruction and Oroantral Fistula

\*Shahin Abdollahifakhim<sup>1</sup>, Mehrnoush Mousaviagdas<sup>1</sup>

### Abstract

#### Introduction:

Ectopic tooth eruption may result owing to one of 3 processes: developmental disturbance, iatrogenic activity, or pathologic process, such as a tumor or a cyst. In rare cases, occlusion of the sinus ostia may predispose a patient to develop a maxillary sinus mucocele. When the maxillary sinus is invaded, symptoms usually occur late in the process.

#### Case Report:

A 17 years old boy referred to department of Otolaryngology, Head and Neck Surgery of university of medical sciences, Tabriz\_Iran in 2010 with chronic recurrent mucopurulent discharge from retromolar trigone, posterior to right superior alveolar ridge. CT scan revealed a dense mass resembling tooth, obstructing sinus ostium with homogenous opacity with ring enhancement, occupying whole sinus and expanding all walls. A Caldwell Luke approach in combination with endoscopy was selected.

#### Conclusion:

In the present patient, removal of ectopic tooth resolved the symptoms completely, the fistula obstructed and discharges discontinued. An ectopic tooth is a rare entity obstructing sinus ostium. The etiology of ectopic eruption has not yet been completely clarified, but many theories have been suggested, including trauma, infection, developmental anomalies and pathologic conditions, such as dentigerous cysts. In summary, although the ectopic teeth is rare but it would be assumed in presence of unilateral symptoms of sinonasal cavity. Therefore in peristant unilateral sinonasal symptoms we should complete examining of this site to rule out rare causes of these symptoms.

#### Keywords:

Ectopic tooth, Maxillary sinus ostia, Oroantral fistulae.

Received date: 20 May 2012

Accepted date: 26 Dec 2012

<sup>1</sup>Departments of Otorhinolaryngolog, Tabriz University of Medical Sciences, Tabriz, Iran.

\*Corresponding Author:

Departments of Otorhinolaryngolog, Tabriz University of Medical Sciences, Tabriz, Iran.

E-mail: abdollahifakhim85@hotmail.com.

### Introduction

Ectopic tooth eruption may result from one of the 3 processes: developmental disturbance, iatrogenic activity, or pathologic process, such as a tumor or a cyst (1,2). Dentigerous cysts are caused by expansion of dental follicles resulting from accumulation of fluid between the tooth crown and epithelial components (3). The maxillary canine and mandibular third molar are most frequently involved (4-6). In such cases the tooth can migrate to ectopic areas such as maxillary sinus, nose and infraorbital area (7-9). In the maxilla, these teeth are often displaced into the maxillary sinus. The dentigerous cyst progresses slowly and may exist for several years without being noticed (3,5,6,10,11).

In rare cases, occlusion of the sinus ostia may predispose a patient to develop a maxillary sinus mucocele (12). When the maxillary sinus is invaded, symptoms usually occur late in the process (11). The sequelae of these cysts and ectopic teeth vary, from obstruction of the sinus to blindness (13).

Ectopic teeth obstructing sinus ostium is a rare condition. It causes morbidities sometimes differentiated with the most common causes of sinus ostium obstruction like foreign bodies, sinonasal tumors of any origin, sinonasal polyposis and etc. Trauma, infection, genetic, teeth crowding, dense alveolar bone, iatrogenic causes like dentistry and developmental disorders are some causes of ectopic teeth in sinonasal cavity (14,15).

Here we report a patient who was referred because of chronic mucopurulent discharge from retromolar trigone. This condition was due to dentigerous cyst caused by an ectopic tooth near the sinus ostium, that was compelling with its drainage.

### Case Report

A 17 years old boy referred to department of Otolaryngology, Head and Neck Surgery of Tabriz University of Medical Sciences in Iran in 2010 with chronic recurrent

mucopurulent discharge from retromolar trigone, posterior to right and to superior alveolar ridge. The patient also had fullness sensation on his right cheek, halitosis, posterior nasal discharge, pain and swelling around a fistulous site where drainage occurred. Office examination revealed a 2 mm point with mucopurulent discharge in retromolar trigone. A 4 mm 0 degree rigid rod endoscope introduced to nasal cavity to rule out any obstructing mass in nasal cavity and middle meatus.

Mucopurulent discharge from middle meatus was apparent in nasal endoscopy. Multiple courses of medical treatment with various generations of antibiotics had been used for 1 years. Imaging like waters and panoramic X-ray revealed no definite diagnosis until he referred to our institute. He had no previous history of trauma, dentistry, infection and no evidence of developmental disorders.

Previous imaging was studied again and in panorex X-Ray an opaque mass was seen near the right maxillary sinus antrum, which was missed during previous visits. CT scan revealed a dense mass resembling tooth, near the accessory sinus ostium with near total opacification of maxillary sinus. Anterior and lateral walls had been eroded in lower cuts (Fig. 1).



**Fig 1:** Ectopic tooth near ostium



Fig2: Maxillary Anterior wall Erosion



Fig3: Lateral Maxillary wall Erosion

A Caldwell Luke approach in combination with endoscopy was selected. A sub labial incision made, preserving 2 mm of mucosa on gingival side. Dissection was made in sub periosteal plane, up to infra orbital bundle. Erosion was seen on anterior wall of maxillary sinus. The anterior wall was fenestrated with a 4 mm direct osteotome. A cystic mass in grayish color filled with mucoid secretions dissected from sinus walls, erosion in lateral and posterior wall was seen. The ectopic tooth has been placed near the sinus ostium, adjacent to floor of the orbit, compelling with sinus drainage. Using

a 4 mm rod lens endoscope, the ectopic tooth extracted and uncinectomy and antrostomy was completed.

A fistulous tract was found in floor of sinus draining to retromolar trigone. It was sealed off with muscle & adipose tissue. The ectopic tooth had four roots and it was consistency lesser than normal teeth.

Because of negative history of tooth extraction and location of fistula in retromolar trigone, it could not be due to tooth eruption. Pathologic examination revealed dentigerous cyst and no evidence of dental origin mass lesions was found.

### Discussion

An ectopic tooth is a rare entity obstructing sinus ostium. The etiology of ectopic eruption has not yet been completely explained, but many theories have been suggested, including trauma, infection, developmental anomalies and pathologic conditions, such as dentigerous cysts (16). The etiology of ectopic teeth in the maxillary sinus in our patient is unknown. Ectopic molars and supernumerary teeth are usually discovered on routine radiographic examinations, because most of the cases are asymptomatic (17). The dentigerous cyst progresses slowly and may exist for several years without being noticed. When the maxillary sinus is invaded, symptoms usually occur late in the process (11). But when the cyst enlarge and teeth migrate, patient may experience significant morbidity and require intervention. An ectopic tooth in the maxillary sinus causes several common problems. The most frequent of which are facial pain (1,6,18), facial edema (1,4,5,10,13,18-21), rhinorrhea, headache and nasolacrimal obstruction (6,19,22,23). A large maxillary cyst involves the whole sinus and can transmit pressure to the walls of sinus; consequently, ophthalmologic and nasal symptoms may develop (19). Moreover, various findings are described: epiphora, superior orbital fissure syndrome,

eruption into the orbit causing blindness (12) sinusitis or nasal obstruction, odontogenic cyst, an oroantral fistula, other missing teeth, and sepsis (12,14,17). Our patient was presented with oroantral fistula (to retromolar trigon) that is rare in literature review.

Timur saieem reported a 45 years old man with 2-month history of haemoptysis. Morton Litwin in 2008 reported a 57 years old black woman with dentigerous cyst and an impacted tooth in orbital rim that presented with facial swelling (24,13). In 2011 Irfan Kaygusuz reported a mucocele associated with an ectopic tooth in the maxillary sinus (25), without fistula. The most common presentation of maxillary tooth in Buyukkurt's report was facial and cheek swelling. Avitia et al reported a case of orbital proptosis resulting from a dentigerous cyst in the maxillary sinus associated with a displaced tooth (6,26).

Water view, panoramic radiography and plain skull radiography are simple and inexpensive methods that can be used in daily practice (27). CT scans provide superior bony detail, allowing for the visualization of the size and extent of the lesion with determination of orbital or nasal invasion or involvement (5). Therefore, CT may be more valuable than plain film radiographs, not only for definitive diagnosis, but also for evaluation of the associated pathology, exact localization of the ectopic tooth, and proper treatment planning (2,27). Patients with unilateral sign and symptoms of any sinonasal disorder should be investigated for sinonasal mass lesions like tumors primarily and then inflammatory or anatomical causes and sometimes, foreign bodies and exostoses.

The standard treatment for a dentigerous cyst is enucleation and extraction of the cyst-associated impacted or unerupted tooth (5,21,28,29). The surgical treatment in the maxillary sinus involves removal via a Caldwell–Luc procedure (14,30). Caldwell–Luc procedure was followed in this case, since the ectopic tooth was the cause of a

maxillary sinus cyst. Jude et al reported a case of occlusion of sinus ostium by an ectopic molar that required an anterior antrostomy or Caldwell-Luc surgery (31). When the molar teeth is high in the medial wall of sinus (near to ostium) we can remove it endoscopically. Abdul Salam Hasbini in 2001 and Alexandrakis et al in 2000 reported endoscopically removal of tooth (32,33).

Marsupialization is another advisable treatment to preserve the cyst-associated tooth and promote its eruption (34-36). Takagi and Koyama reported that marsupialization was useful for promoting eruption of an ectopic second premolar associated with dentigerous cysts in the maxillary sinus of a 6-year-old child (10). The major disadvantage of marsupialization is recurrence or persistence of the lesion (10,37,38). In the current case, removal of ectopic tooth resolved the symptoms completely. The fistula obstructed and the discharges discontinued.

### **Conclusion**

In summary, although the ectopic tooth is rare, it would be assumed in presence of unilateral symptoms of sinonasal cavity. Therefore in persistent unilateral sinonasal symptoms we should completely examine this site to rule out rare causes of these symptoms.

### **References**

1. Srinivasa Prasad T, Sujatha G, Niazi TM, Rajesh P. Dentigerous cyst associated with an ectopic third molar in the maxillary sinus: a rare entity. *Indian J Dent Res* 2007; 18(3):141-3.
2. Bodner L, Tovi F, Bar-Ziv J. Teeth in the maxillary sinus-imaging and management. *J Laryngol Otol* 1997; 111(9): 820-4.
3. Edamatsu M, Kumamoto H, Ooya K, Echigo S. Apoptosis related factors in the epithelial components of dental follicles and dentigerous cysts associated with impacted third molars of the mandible. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2005; 99 (1):17-23.
4. Ustuner E, Fitoz S, Atasoy C, Erden I, Akyar S. Bilateral maxillary dentigerous cysts: a case report.

- Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003; 95(5): 632-5.
5. Tournas AS, Tewfik MA, Chauvin PJ, Manoukian JJ. Multiple unilateral maxillary dentigerous cysts in a nonsyndromic patient: a case report and review of the literature. *Int J Pediatr Otorhinolaryngol Extra* 2006; 1(2):100-6.
  6. Avitia S, Hamilton JS, Osborne RF. Dentigerous cyst presenting as orbital proptosis. *Ear Nose Throat J* 2007; 86(1):23-4.
  7. Bonder L, Tovi F, Bar-Ziv J. Teeth in the maxillary sinus imaging and management. *J Laryngol Otol* 1997; 111(9):820-4.
  8. Elango S, Palaniappan SP. Ectopic tooth in the roof of the maxillary sinus. *Ear Nose Throat J* 1991; 70(6): 365-6.
  9. Pracy JP, Williams HO, Montgomery PQ. Nasal teeth. *J Laryngol Otol* 1992; 106(4):366-7.
  10. Takagi S, Koyama S. Guided eruption of an impacted second premolar associated with a dentigerous cyst in the maxillary sinus of a 6-year-old child. *J Oral Maxillofac Surg* 1998; 56(2):237-9.
  11. Freedland ES, Henneman PL. An unusual cause of headache: a dentigerous cyst in the maxillary sinus. *Ann Emerg Med* 1987; 16(10):1174-6.
  12. Lamb JF, Husein OF, Spiess AC. Ectopic molar in the maxillary sinus precipitating a mucocele: a case report and literature review. *Ear Nose Throat J* 2009; 88(8): e6-e11.
  13. Litvin M, Caprice D, Infranco L. Dentigerous cyst of the maxilla with impacted tooth displaced into orbital rim and floor. *Ear Nose Throat J* 2008; 87(3): 160-2.
  14. Dagistan S, Cakur B, Go regen M. A dentigerous cyst containing an ectopic canine tooth below the floor of the maxillary sinus: a case report. *J Oral Sci* 2007; 49 (3): 249-52.
  15. Baykul T, Dogru H, H Yasan, Aksoy MC. Clinical impact of ectopic teeth in the maxillary sinus. *Auris Nasus Larynx* 2006; 33(3): 277-81.
  16. Buyukkurt MC, Tozoglu S, Aras MH, Yolcu U. Ectopic eruption of a maxillary third molar tooth in the maxillary sinus: a case report. *J Contemp Dent Pract* 2005; 6(3):104-10.
  17. Erkmén N, Olmez S, Onerci M. Supernumerary tooth in the maxillary sinus: case report. *Aust Dent J* 1998; 43(5): 385-6.
  18. Micozkadioglu SD, Erkan AN. Endoscopic removal of a maxillary dentigerous cyst. *B- ENT* 2007; 3(4): 213-6.
  19. Altas E, Karasen RM, Yilmaz AB, Aktan B, Kocer I, Erman Z. A case of a large dentigerous cyst containing a canine tooth in the maxillary antrum leading to epiphora. *J Laryngol Otol* 1997; 111(7): 641-3.
  20. Haber R. Not everything in the maxillary sinus is sinusitis: a case of a dentigerous cyst. *Pediatrics* 2008; 121(1): e203-7.
  21. Vele DD, Sengupta SK, Dubey SP, Dokup MK. Cystic lesions of the nasal cavity and the paranasal sinuses: report of two unusual cases. *J Laryngol Otol* 1996; 110(12): 1157-60.
  22. Buyukkurt MC, Omezli MM, Miloglu O. Dentigerous cyst associated with an ectopic tooth in the maxillary sinus: a report of 3 cases and review of the literature. *Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod* 2010; 109(1): 67-71.
  23. Bajaj MS, Mahindrakar A, Pushker N. Dentigerous cyst in the maxillary sinus: a rare cause of nasolacrimal obstruction. *Orbit* 2003; 22(4): 289-92.
  24. Saleem T, Khalid V, Hameed A, Ghaffar SH. Supernumerary, ectopic tooth in the maxillary antrum presenting with recurrent haemoptysis. *Head&Face Medicine* 2010; 6(26):1-4.
  25. Kaygusuz I, Karlidag T, Akyigit A, Yalcin S. Mucocele associated with an ectopic tooth in the maxillary sinus: a case report. *Int J of Pediatr Otorhinolaryngol Extra* 2011; 6(4):401-2.
  26. Buyukkurt MC, Omezli MM, Miloglu O. Dentigerous cyst associated with an ectopic tooth in the maxillary sinus: a report of 3 cases and review of the literature. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010; 109(1):67-71.
  27. Dagistan S, Cakur B, Goregen M. A dentigerous cyst containing an ectopic canine tooth below the floor of the maxillary sinus: a case report. *J Oral Sci* 2007; 49(3):249-52.
  28. Joseph L, Smith II, Robert M, Kellman RM. Dentigerous cysts presenting as head and neck infections. *Otolaryngol Head Neck Surg* 2005; 133 (5):715-7.
  29. Martínez-Pérez D, Varela-Morales M. Conservative treatment of dentigerous cysts in children: a report of 4 cases. *J Oral Maxillofac Surg* 2001; 59(3):331-3.
  30. Prasad TS, Sujatha G, Niazi TM, Rajesh P. Dentigerous cyst association with an ectopic third molar in the maxillary sinus: a rare entity. *Indian J Dent Res* 2007; 18 (3): 141-3.
  31. Jude R, Horowitz J, Loree T. A case report. Ectopic molars that cause osteomeatal complex obstruction. *J Am Dent Assoc* 1995; 126(12): 1655-70.
  32. Hasbini AS, Hadi U, Ghfari J. Endoscopic removal of an ectopic third molar obstructing osteomeatal complex. *Ear, Nose Throat Journal* 2001; 80 (9): 667-70.
  33. Alexandrakis G, Hubbell RN, Aitken PA. Nasolacrimal duct obstruction secondary to toectopic teeth. *Ophthalmology* 2000; 107(1):189-92.

- 34.** Hyomoto M, Kawakami M, Inoue M, Kirita T. Clinical conditions for eruption of maxillary canines and mandibular premolars associated with dentigerous cysts. *Am J Orthod Dentofacia Orthop* 2003; 124(5):515-20.
- 35.** Thoma KH. *Oral surgery II*. 5<sup>th</sup> ed. St. Louis: Mosby; 1969.
- 36.** Miyawaki S, Hyomoto M, Tsubouchi J, Kirita T, Sugimura M. Eruption speed and rate of angulation change of a cyst-associated mandibular second premolar after marsupialization of a dentigerous cyst. *Am J Orthod Dentofacial Orthop* 1999; 116(5):578-84.
- 37.** Ertas U, Yavuz MS. Interesting eruption of 4 teeth associated with a large dentigerous cyst in mandible by only marsupialization. *J Oral Maxillofac Surg* 2003; 61(6):728-30.
- 38.** Kruger GO. *Textbook of oral and maxillofacial surgery*. 5<sup>th</sup> ed. St. Louis: Mosby; 1979. 263-7.