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LARGE DENTIGEROUS CYST IN THE MAXILLARY SINUS LEADING TO DIPLOPIA AND NASAL OBSTRUCTION: CASE REPORT*

Maksiller Sinüste Diplopi ve Burun Tıkanıklığına Yol Açan Geniş Boyutlarda Dentijeröz Kist: Olgu Sunumu

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ABSTRACT

Dentigerous cysts are the most common developmental odontogenic cyst of the jaws. They are more frequent in males and although most often affected teeth are maxillary canines and mandibular third molars, they may also be related with supernumerary or an ectopically erupted tooth. Our aim was to report the management of ectopic third molar tooth related with a dentigerous cyst in maxillary sinus. 16 years old girl referred to our clinic with a complaint of painful swelling over her right cheek since past six months. All permanent teeth were present except the right upper third molar. External examination showed that the face was gently asymmetrical; levels of eye globes were abnormal. Radiographic examination revealed a cystic lesion related with ectopic third molar which located in the roof of the left maxillary sinus. Under local anesthesia, hard drain was inserted into the hole and the cystic pressure was decreased. After the six month of follow-up, the operation was performed under general anesthesia. The patient's symptoms were resolved completely after surgery and remained symptom-free for over a postoperative follow-up period of 3 year. To avoid unwanted effects of a dentigerous cyst, unerupted tooth should be observed with radiographic imaging. Some untreated dentigerous cysts may grow large and have a potential to develop into an odontogenic tumor.

Keywords: Dentigerous cyst; maxillary sinus; diplopia; nasal obstruction

ÖZ

Dentijeröz kistler; çenelerin en yaygın gelişimsel odontojenik kistleridir. Sıklıkla erkeklerde görülür ve en çok maksiller kanin, mandibular üçüncü molar dişleri etkilerler. Süpernumere ve ektopik olarak sürmüş dişlerle ilişkili olabilirler. Bu makalede; maksiller sinüste ektopik üçüncü molar dişle ilişkili dentijeröz kistin tedavisini sunmayı amaçladık. 16 yaşında kadın hasta, yaklaşık altı aydır olan, sağ yanağının üzerinde ağrılı şişlik şikâyeti ile kliniğimize başvurdu. Tüm daimi dişler sağ üst üçüncü molar dışında mevcuttu. Ekstraoral muayenede yüzde asimetri, göz kürelerinin seviyelerinin eşit olmadığı görüldü. Radyografik muayenede, sol maksiller sinüste ektopik üçüncü molar dişle ilişkili kistik lezyon saptandı. Lokal anestezi altında marsüpyalizasyon yapıldı. Altı aylık takipten sonra genel anestezi ile cerrahi operasyonu yapıldı. Hastanın şikâyetlerinin operasyondan sonra tamamen geçtiği görüldü ve 3 yıllık takipte herhangi bir problemle karşılaşılma. Dentijeröz kistin istenmeyen etkilerinden kaçınabilmek için, sürmemiş dişlerin radyolojik incelemeleri dikkatle yapılmalıdır. Tedavi edilmeyen dentijeröz kistler büyük boyutlara ulaşabilir. Ayrıca odontojenik tümör oluşturma potansiyeline sahiptirler.

Anahtar kelimeler: Dentijeröz kist; maksiller sinüs; diplopi; nazal obstrüksiyon

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Introduction

Dentigerous cyst is benign odontogenic lesion results from accumulation of fluid between the enamel crown and enamel epithelium and cystic proliferation of reduced enamel epithelium after the formation of tooth crown (1). They are the most common developmental odontogenic cyst of the jaws. Although most often associated teeth are mandibular third molars and maxillary canines, they may also be related with supernumerary or ectopically erupted tooth (1, 2).

The dentigerous cyst progresses slowly because of its nature and may be asymptomatic for several years. When the maxillary sinus is invaded by cysts and ectopic tooth, symptoms usually occur, such as, facial pain, purulent rhinorrhoea, epistaxis, external nasal deformity, headache, swelling and epiphora related nasolacrimal duct obstruction (2).

Tooth improvement includes complex, multi stage reciprocal influence between underlying mesenchymal tissue and oral epithelium. If an abnormal interaction during the tooth development, ectopic tooth eruption and development may occur. Ectopic teeth are those impacted unusual positions distance from their normal anatomic localization such as jaw bones or regions other than the alveolar arch. At literature, ectopic eruption may be related one of three distinct processes: pathologic process, such as tumor or cyst, developmental disturbances such as cleft palate and iatrogenic activity. Although ectopic eruption of tooth in dentoalveolar region is seen commonly, in nondental area is a rare entity (2).

Management of the dentigerous cyst is extraction of the impacted tooth and enucleation of cyst. In large cysts, firstly applying marsupialization to reduce size of the cyst, when cyst becomes sufficient size for operation enucleation and tooth extraction could be advocated (1, 2). The aim of this paper is to present a rare case of an ectopic maxillary third molar which displaced into maxillary sinus caused development of a dentigerous cyst.

Case report

A 16 years old girl was admitted to our clinic with a complaint of painful swelling over her right cheek since past six months. She had been treated with antibiotics and analgesics, but her complaints were not resolved. The patient had no systemic illness and gave no trauma history from the maxillo-facial region.

On intraoral examination, all permanent teeth were present except the right upper third molar and left and right maxillary canine but there was no history of extraction. Canine teeth were absent congenitally. Furthermore, an expansile swelling overlying the right maxillary sinus was detected. Physical examination showed that the face was gently asymmetrical because of maxillary extension. Visual acuities and eye movements were normal but levels of eye globes were abnormal due to cystic pressure (Figure 1). Nasal air flow was declined on the right side. A cystic lesion related with an ectopic third molar was seen radiographic examination (Figure 2). The lesion was located in the roof of the left maxillary sinus.

Aspiration with a 18 gauge needle was first done. Next, an incisional biopsy was carried out to differentiate the type of cyst. Because of the large cystic cavity and displacement of the impacted tooth towards roof of sinus we decided to treat the lesion using marsupialization with enucleation technique. Firstly under local anesthesia, a hole measuring 1 cm in diameter was created on the wall of the right maxillary sinus. A biopsy of the cystic lesion was taken, subsequently a hard drain was inserted into the hole to keep it open and decrease the cystic pressure (Figure 3). It was reported that dentigerous cyst by histopatologic examination. The drain was changed two times a week and after the six month of follow-up, the tooth was moved down from sinus roof and the size of the cyst decreased.

Under general anesthesia a gingival incision was placed extending from lateral incisor to a vertical releasing incision between the first molar. A mucoperiosteal flap was elevated and a bony window was created in the anterior wall of the maxillary sinus with round bur. The flap was enlarged with rongeur forceps. The tooth was removed with enucleation of cystic lining and sinus content was cleared (Figure 4). Haemostasis was achieved and the wound was closed with 3.0 vicryl suture. The cavity was irrigated and packed with gauze. The gauze pack was removed after 72 hours. The patient was discharged home the next day. She had an uneventful post-operative course. Follow-up at 10 days showed no abnormality at the surgical sites without any paresthesias. The patient's symptoms were resolved completely after surgery and remained symptom-free for over a postoperative follow-up period of 3 year (Figure 5). Informed consent was obtained from the patient's mother. She gave permission to use information about her daughter's illness and treatment records.



Figure 1. Facial asymmetry and expansile swelling overlying the right maxillary sinus

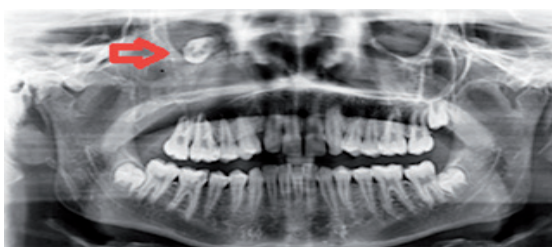


Figure 2. An ectopic third molar in maxillary sinus.



Figure 3. A hard drain was inserted into the hole.

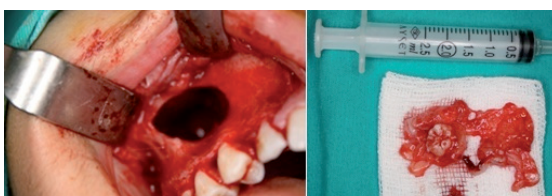


Figure 4. Enucleation of cystic lesion and ectopic tooth.



Figure 5. Radiographic image and extraoral photograph of post-operative 3 years follow-up period.

Discussion

Ectopic teeth are embedded in other than alveolar arch and located far away from their normal anatomic position. Ectopic eruption is usually seen in oral cavity, although they are seen rarely different regions of jaws such as coronoid process, mandibular condyle,

nasal septum, palate and maxillary sinus (2). It occurs most often in the second or third decade of life. With regard to the frequency of gender female has higher incidence than male and mandible (3). The etiology of ectopic eruption of tooth is unknown. Many theories have been proposed which are, infection, trauma, genetic factors, developmental anomalies, iatrogenic activity, idiopathic etiology and pathologic conditions, such as dentigerous cysts (3). Our patient was a 16 year old woman and maxillary third molar tooth was located in the maxillary sinus. The etiology of ectopic tooth in our patient is unknown.

Ectopic teeth in paranasal sinuses can represent local clinical findings that are headache, recurrent or chronic sinusitis, facial fullness, hyposmia and nasal obstruction (4). Also large cysts which filled maxillary sinus can make uneasiness, fullness and pressure on the sinus walls (4). In the present case the patient complained of painful swelling over her right cheek, and expansile swelling overlying the right maxillary sinus. Also levels of eye globes were abnormal due to cystic pressure and nasal air flow was declined on the right side.

The radiopaque image of ectopic teeth are clearly diagnosed radiographically (4). Panoramic radiograph, radiographs of the maxillary sinus such as Water's graphy, and especially CT are useful for the localization of the ectopic teeth. CT imaging is gold standard for to designate the definite localization (4). In this case, panoramic radiograph and CT were performed for the diagnosis of the intra-sinusal third molar.

The differential diagnosis of ectopic teeth in the maxillary sinus contains infections such as syphilis, tuberculosis or fungal infections with calcification, benign lesions (hemangioma, osteoma, calcified polyp, enchondroma), foreign bodies (rhinoliths) and malign lesions (osteosarcoma, chondrosarcoma) must be regarded (4). A maxillary third molar which located in the maxillary sinus can be related with the development of mucocoele or dentigerous cyst (5). In this case, probably ectopic maxillary third molar related with the development of dentigerous cyst.

In developmental cysts, dentigerous cysts are the most prevalent type and after radicular cysts, it is the second most common cystic lesion of odontogenic origin. Dentigerous cysts constitute 24% of all cysts in the jaws (6). Most are found in the mandible with prevalence of dentigerous cyst is nearly twice more common in mandible than the maxilla (1). Dentigerous cysts have widely age range from 4 years to 57 years

of age, although peak incidence is in the second and third decades of life. They occur more frequently in males for white patients (male: female, 1,6:1) (7). The most frequently related teeth are lower third molars and followed by upper canines (1). Dentigerous cysts associated with ectopic teeth within the maxillary sinus are uncommon condition according to 30-year literature review between 1980 and 2010. Buyukkurt et al reported that only 17 cases were seen (2). In the present case, dentigerous cyst was associated with ectopic upper third molar in the maxillary sinus.

Dentigerous cysts are often discovered incidentally during routine radiographic examination. Radiologically, dentigerous cysts show as unilocular radiolucent lesions with well defined sclerotic borders (6). The lesion is associated with the crown of an unerupted tooth and follicular space must be at least 5 mm since to be able to distinguish between a cyst from normal follicular space (8). Dentigerous cyst has a typical appearance but is not pathognomonic. Odontogenic keratocyst, radicular cyst, Pindborg's tumor, adenomatoid odontogenic tumor, ameloblastoma, calcifying odontogenic cyst and ameloblastic fibroma may present same radiographic property (9). Therefore histopatologic investigation is necessary for final diagnosis. Also dentigerous cyst differentiates from mucocoeles, retention cysts, and pseudocysts when a maxillary sinus cyst includes maxillary expansion (6).

Treatment of dentigerous cysts is usually surgical. Enucleation and marsupialization are main treatment protocol used to treat cyst (1, 2). Before the surgery to make a careful clinical and radiological evaluation is necessary and every patient should evaluate individual treatment on a case by case. Several factors can affect decision of surgical approach such as extent of cyst invasion of surrounding structures, functional and cosmetic significance of the impacted tooth, cyst size, and patient age (10). If the cyst is small and in adult patient, eruption of ectopic tooth is impossible or a little chance, enucleation is preferred (1). Marsupialization is another treatment alternative which is recommended in larger lesions that involve serious bone loss and to preserve the cyst-associated tooth and assist its eruption. Marsupialization decreases intracystic pressure, minimize the amount of bone destruction, promotes diminish of cyst and bone fill (2).

The major disadvantage of marsupialization is recurrence or resistance of the lesion (11). In larger lesion Waldron's procedure can be used which is

firstly marsupialization perform to reduce volume and pressure of the lesion and followed by enucleation when the size of lesion has decreased (12). Due to recurrence of a dentigerous cyst from residual components of cyst lining, complete removal of the cyst is very important for the good prognosis and lack of recurrence (4). In the case presented here marsupialization and enucleation was preferred for treatment, because of size of cyst and anatomical relationship of tooth.

Conclusion

In summary, we have described a patient with an ectopic tooth associated with dentigerous cyst in the maxillary sinus who presented with maxillary pain and swelling. Unerupted and absent teeth should be investigated to prevent dentigerous cyst and likewise lesions and their unwanted effects by radiographically. Also it must never be forgotten untreated dentigerous cysts may differentiate to ameloblastoma or become malignant as in oral squamous cell carcinoma and mucoepidermoid carcinoma and it may becomes more larger.

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Conflict of interest

None declared

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