CASE REPORT

Maxillary antrum obliterated by a dentigerous cyst associated with an ectopic third molar: A case report

K. V. Arun Kumar1, Subia Ekram1, Mukesh Soni1, D. Deepa2

1Department of Oral and Maxillofacial Surgery, Subharti Dental College, Meerut, Uttar Pradesh, India, 2Department of Periodontics, Subharti Dental College, Meerut, Uttar Pradesh, India

Keywords: Dentigerous cyst, ectopic molar, maxillary sinus, odontogenic cyst

Correspondence:
Dr. K. V. Arun Kumar, Department of Oral and Maxillofacial Surgery, Subharti Dental College, Subhartipuram, NH-58, Delhi Haridwar Bypass Road, Meerut – 250 005, Uttar Pradesh, India. Phone: +91-9997543378. E-mail: arunkumarkv@yahoo.com

Received: 28 February 2018; Accepted: 26 March 2018

Doi: 15713/ins.jmrps.127

Introduction

“Dentigerous cyst" terminology was first coined by Paget in 1853.[1] Term “dentigerous” means tooth-bearing.[2] It is the most common type of developmental odontogenic cysts which arise from the crowns of impacted, embedded, or unerupted teeth.[3] After the radicular cyst, it is second most commonly found cyst in the jaws.[4] However, most of the cases have been reported to be associated with the permanent teeth, very few cases have been reported to be involving primary or deciduous teeth.[5] complex odontoma,[6] and supernumerary teeth.[7] The most reasonable theory to explain the pathogenesis of this cystic lesion is the one which states that cyst formation takes place due to the collection of fluid between an unerupted tooth and the reduced enamel epithelium surrounding it.[6] Dentigerous cyst has a male predilection and is 2 times more commonly seen in males than females. Around 30% of dentigerous cyst is found in the maxilla whereas around 70% occurs in the mandible. Mandibular third molars are most commonly involved with the cyst followed by the maxillary canines, mandibular bicuspids, and maxillary third molars.[10] However, dentigerous cyst associated with an ectopic tooth obliterating the maxillary antrum is quite rare, and only a few cases have been reported in the literature. (11) Aim of this report is to present a case of dentigerous cysts associated with an ectopic third molar in the right maxillary sinus and its management.

Case Report

A 23-year-old married female [Figure 1] reported to the department with a chief complaint of intermittent blocking of nose since 5 years and pain under the right eye since 3 years. On history taking, it was found that patient was asymptomatic 5 years back when she started having frequent right nasal blockade over a gap of 1–2 months, which is used to subside on its own within few days. Since past 3 years, the patient also started experiencing mild pain under the right eye which is continuous in nature and dull in intensity. Pain used to relieve on taking unknown painkiller medications. Since past 5 years, the patient was taking medications prescribed by a general physician and even operated under general anesthesia for a right nasal polyp, 2½ years back, but to avail no relief.

Extraoral examination revealed mild tenderness in the right infraorbital region without any kind of swelling. Nasal passage was also clear with no signs of obstruction. Intraoral examination was done and was normal with good general oral health.
Radiographic evaluation was done with the help of orthopantomogram (OPG) [Figure 2] which revealed a tooth-like radio-opacity in the right maxillary sinus region. Cone-beam computed tomography (CBCT) [Figure 3] was done, and an ectopic molar associated with a unilocular radiolucency surrounding it and was found in the right maxillary sinus. The lesion was obliterating the sinus almost completely without causing any resorption of sinus walls. Excisional biopsy under general anesthesia was planned.

Figure 1: No obvious asymmetry except mild obliteration of infraorbital groove

Figure 2: Orthopantomogram showing radiopaque mass resembling tooth in the right maxillary antrum

Figure 3: Cone-beam computed tomography confirming the ectopic tooth associated with tooth

Intraoral vestibular incision was given to reflect complete thickness mucoperiosteal flap followed by Caldwell-Luc approach through the anterior wall of maxillary sinus [Figure 4] for the enucleation of the cystic lesion along with the removal of tooth [Figure 5] and curettage of the complete sinus lining followed by inferior meatal antrostomy and packing of sinus with antibiotic-impregnated nasal pack. The closure was done with resorbable sutures. The specimen was sent for histopathological examination [Figure 6]. Gauze pack from the sinus was removed after 5 days and patient was kept on regular follow-up.

Post-operative complications were minimal with uneventful healing, and complete resolution of symptoms was observed. No recurrence of symptoms was noticed during the 12-months follow-up period.

Discussion

Ectopic eruption of a tooth is a developmental disturbance in which the tooth, in spite of following its usual course and

Figure 4: Bony window in the anterior maxillary wall

Figure 5: Visible ectopic third molar
Dentigerous cyst in ectopic maxillary third molar

Kumar, et al.

Dentigerous cyst is most commonly seen in the second or third decade of life and is rare in children. Males are more commonly affected in comparison to females (M: F = 1.84:1). Dentigerous cyst may progress very slowly and may even exist for many years without being noticed. However, a dentigerous cyst in the maxillary sinus associated with an ectopic third molar is a rare phenomenon. If the maxillary sinus is obliterated by a dentigerous cyst, symptoms usually appear late in its progression. It may result into obstruction of the sinus, recurrent sinusitis, purulent rhinorrhea, headache, elevation of the orbital floor, and fracture. Impingement on the orbital floor by the lesion may result into diplopia, and it may possibly cause blindness. In the present study, it was present in maxillary sinus with clinical features of chronic right infraorbital pain and intermittent nasal blockade.

On radiographic examination, dentigerous cysts usually present as unilocular radiolucencies with well-defined sclerotic borders and surrounding the crown of an unerupted tooth at the cementoenamel junction. It can be differentiated from the dental follicle if the follicular size surrounding the tooth is more wider than 5 mm. Waters’ view, lateral cephalogram, and OPG are common and simple projections for evaluation of an ectopic tooth in the maxillary sinus, radiographically. CT scan provides superior bony detail, helps in determination of the bony extent and size of the lesion, and is useful in distinguishing the origin of the lesion which could be extra-antral or from within the antrum itself. CBCT scans are also helpful and provide three-dimensional reproduction of sinus and ectopic tooth. However, in the present case, OPG and CBCT were used for the radiographic evaluation and treatment planning.

A unilocular radiolucency associated with the crown of a tooth is a classic differential diagnosis in which a dentigerous cyst is the most likely entity. Differential diagnosis includes some more troubling biologies such as odontogenic keratocyst, an ameloblastoma in situ or a microinvasive ameloblastoma within a dentigerous cyst, an invasive ameloblastoma, and an ameloblastic fibroma in teenagers, and children. If the dentigerous cyst occurs in the anterior maxilla, an adenomatoid odontogenic cyst also would be a prime consideration, especially in a young person.

Histologically, in the uninfamed cyst, the lining resembles the reduced enamel epithelium from which it is derived and consists of two to three rows of cuboidal or flattened epithelium. Mucous cells may be present and sometimes are quite prominent. Some are ciliated. The wall is fibrous, and the stroma contains abundant mucopolysaccharides so that it may appear basophilic and myxoid. Often rests of odontogenic epithelium are present, and dystrophic calcifications may be seen. Rushton bodies may also be found within the lining, similarly as in the radicular cysts. Many dentigerous cysts are inflamed, and consequently proliferative changes may occur within the epithelium with the formation of rete ridges. Cholesterol clefts also may be seen. These inflammatory changes can result in a picture indistinguishable from a radicular cyst.

Treatment for a dentigerous cyst obliterating the maxillary sinus and associated with an ectopic third molar can be done with enucleation of the cyst and extraction of the associated tooth through Caldwell-Luc surgical procedure. In large cystic lesions, marsupialization can be done initially to diminish or reduce the size of the bony defect, followed by the enucleation of the cystic lesion and simultaneous extraction of the tooth. However, major disadvantage associated with the marsupialization alone is the persistence of the lesion or its recurrence. Endoscopic approach for its management has been also described in the literature, which is found to be associated with lesser peri-operative as well as post-operative complications and morbidity.

In conclusion, occurrence of an ectopic tooth in the maxillary sinus and its association with a dentigerous cyst is an uncommon occurrence. It may be asymptomatic initially but may produce symptoms over a period of time. Conventional radiographs are sufficient for the diagnosis, but advanced imaging such as CT, CBCT, and magnetic resonance imaging helps in better visualization, diagnosis, and treatment planning.
Histopathological examination confirms the diagnosis and early treatment is advocated in such cases, to prevent cyst expansion and its clinical manifestations.

References
