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Case Report

Large dentigerous cyst in the maxillary sinus causing bone erosion of the sinus walls

Mohanned A. Disher[1]*, Amjed H. Ali[1], Imad G. Beden[2]

[1]Department of Otolaryngology, Head and Neck surgery, [2]Department of Radiology, Zubair Hospital, Basra, Iraq

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***Correspondence:**
Dr. Mohanned A. Disher,
E-mail: mohanned69@gmail.com

ABSTRACT

Dentigerous cyst is a type of odontogenic cysts occurs in the ages of twenties or thirties and rarely occurs in the first decade of life with male predominance. In this report, a case of a large dentigerous cyst in 34 years old female patient complaining from progressive painful swelling of the right cheek for a month duration. CT scan of the paranasal sinuses showed a well-defined solitary expansile right maxillary cystic mass eroding the antero-lateral maxilla, with a crown of a tooth projecting inside the cystic cavity. The dentigerous cyst totally enucleated through sublabial incision in combination with nasal endoscopic approach. The unerupted tooth removed from inside the right maxillary antrum. Follow-up at 2 weeks showed no abnormality at the surgical site and no any paresthesia.

Keywords: Dentigerous cyst, Maxillary sinus cyst, Bone erosion, Jaw cyst

INTRODUCTION

Dentigerous cyst is a type of odontogenic cysts. It generally occurs in the ages of twenties or thirties and rarely occurs in the first decade of life.[1]

It is reported to affect males more than females.[2] It constitutes between 20% and 24% of all jaw cysts with incidence of about 1.44 in every 100 unerupted teeth.[3,4]

It always contains an unerupted tooth and develops in an immature permanent tooth due to chronic inflammation of overlying nonviable primary tooth.[5]

The most common location of dentigerous cysts are the mandibular third molars and the maxillary canines and rarely involve deciduous teeth.[6] Dentigerous cyst may cause pathological fractures of jawbones due to its tendency for rapid expansion and it may give rise to mucoepidermoid carcinoma.[4] The patient may have no symptoms or may give history of slowly enlarging swelling and pain if the cyst secondarily infected.[7]

The cyst is detected by a radiographic examination that reveals a cystic lesion, which has a well-defined sclerotic border and a well- demarcated unilocular radiolucency that surround the unerupted tooth crown but if the cyst is infected, it shows ill-defined margins.[4] The main treatment is the removal of the cystic lesion and the extraction of the unerupted tooth.[3]

CASE REPORT

A 34 years old female patient presented to our department complaining from progressive painful swelling of the right cheek for a month duration. There was no nasal obstruction, postnasal discharge nor anosmia. She had no systemic illness or trauma to the maxillofacial region.

The face was gently asymmetrical because of right cheek swelling (Figure 1). An expansile swelling seen and palpated in the right oral vestibule. Eye movement was normal. Nasal endoscopic examination showed no remarkable abnormality.

Figure 1: The face was gently asymmetrical because of right cheek swelling.

Figure 2: Orthopantomogram (OPG) showed a tooth inside the right maxillary sinus.

Orthopantomogram (OPG) showed a tooth inside the right maxillary sinus (Figure 2). CT scan of the paranasal sinuses showed a well-defined solitary expansile right maxillary cystic mass measured 5.5 x 5 x 3 cm with scalloped thin bony margins that completely eroding the antero-lateral maxilla, with a crown of a tooth projecting inside the cystic cavity. The cyst displaced the right maxillary sinus wall laterally (Figure 3-5).

Aspiration with a 16-gauge needle done which resulted in a 6 cc of thick deep amber color fluid (Figure 6) which was sent for cytological examination. The result was inflammatory fluid of jaw cyst with no evidence of malignant cells in that material.

Clinical and radiological findings gave the diagnosis of dentigerous cyst. The management plan was to excise the cyst completely under general anesthesia. An incision placed in the right upper oral vestibule over the cystic mass. Blunt and sharp dissection done to free the cyst's attachments from all the surrounding walls. It was evident that the walls of the maxilla were eroded so there was no need to use a burr to make a window in the maxilla (Figure 7).

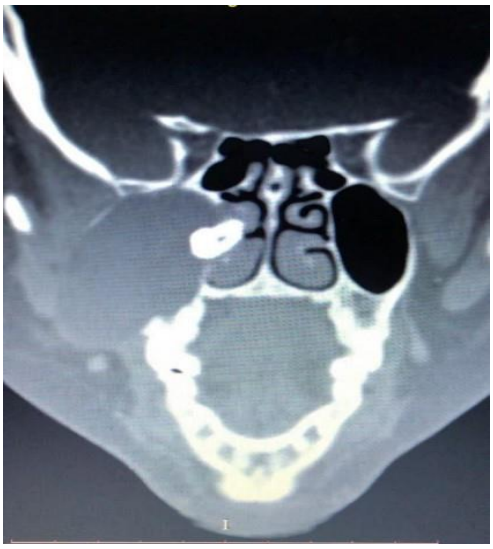

Figure 3: CT scan of the paranasal sinuses showed a well-defined solitary expansile right maxillary cystic mass measured 5.5x5x3 cm with scalloped thin bony margins that completely eroding the antero-lateral maxilla, with a crown of a tooth projecting inside the cystic cavity. The cyst displaced the right maxillary sinus wall laterally.

Figure 4: CT scan of the paranasal sinuses showed a well-defined solitary expansile right maxillary cystic mass measured 5.5x5x3 cm with scalloped thin bony margins that completely eroding the antero-lateral maxilla, with a crown of a tooth projecting inside the cystic cavity. The cyst displaced the right maxillary sinus wall laterally.

Figure 5: CT scan of the paranasal sinuses showed a well-defined solitary expansile right maxillary cystic mass measured 5.5x5x3 cm with scalloped thin bony margins that completely eroding the antero-lateral maxilla, with a crown of a tooth projecting inside the cystic cavity. The cyst displaced the right maxillary sinus wall laterally.

Figure 6: Aspiration with a 16-gauge needle done which resulted in a 6 cc of thick deep amber color fluid.

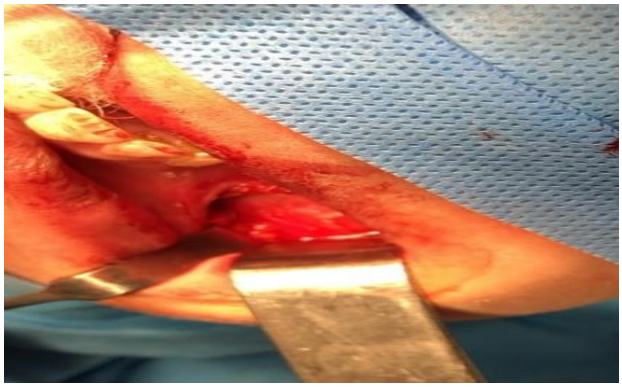

Figure 7: It was evident that the walls of the maxilla were eroded so there was no need to use a burr to make a window in the maxilla.

Because of its large size, it was very difficult to remove the cyst en bloc so the cyst opened to decrease its size and facilitate its removal completely with the tooth inside it (Figure 8). An inferior meatal antrostomy was done. A 4 mm 0-degree rigid nasendoscope was used to examine the cavity directly and through the antrostomy in order to remove any remnant of the cyst wall.

Figure 8: Because of its large size, it was very difficult to remove the cyst en bloc so the cyst opened to decrease its size and facilitate its removal completely with the tooth inside it.

Homeostasis was achieved and the cavity was packed with iodine pack. The wound closed with 3.0 vycril suture. The specimen was sent for histopathological examination. The pack was removed after 48 hours through the inferior meatal antrostomy and then the patient was discharged home. She had an uneventful post-operative course.

Follow-up at 2 weeks showed no abnormality at the surgical site and no any paresthesia. On follow up after 3 months there was no evidence of recurrence clinically and radiologically (Figure 9 and 10).

Figure 9: Follow up after 3 months there was no evidence of recurrence clinically.

Figure 10: Follow up after 3 months there was no evidence of recurrence radiologically.

DISCUSSION

Dentigerous (DC) means; tooth bearing.[6] It is defined as a cyst that encloses the crown of an unerupted tooth by expansion of its follicle and attached to the neck of the tooth.[8] Mandibular third molars are the most frequently involved teeth.[7] DCs usually occur solitarily in most instances, and bilateral occurrence is an extremely rare finding, which is reported to occur in association with the number of syndromes or systemic diseases.[9]

Usually there are no symptoms associated with dentigerous cysts unless there is an infection, when a painful swelling follows it. A dentigerous cyst can expand causing facial asymmetry.[10]

Dentigerous cyst is the most common of all follicular cysts, more common in males, occurring in the second or third decade of life. About 70% of dentigerous cysts occur in the mandible and 30% in the maxilla .[10] Pathogenesis of dentigerous cyst has not been clear yet. Mainly there are two theories suggested for the formation of dentigerous cyst. It can be inflammatory or non-inflammatory. Inflammatory type occurs in immature teeth because of inflammation from a non-vital deciduous tooth. The other type, non-inflammatory dentigerous cyst, is developed by pressure exerted by an erupting tooth on an impacted follicle.[7]

Routine CT imaging is debatable, however it is better reserved for large lesions, in particular those involving the maxilla, in which case nasal cavity, orbital, or pterygomaxillary space extension may have occurred (Kerr et al).[11]

Although rare but secondary development of neoplastic lesions from DC such as adenomatoid odontogenic tumor (AOT), complex odontome (CO), ameloblastoma (AB) mucoepidermoid carcinoma (MEC), and squamous cell carcinoma (SCC) documented in various case reports and series of cases.[12]

Dentigerous cysts are frequently treated surgically, either by enucleation or marsupialization.[11] However Enten et al described medial maxillectomy for removal of an ectopic third molar dentigerous cyst using a transnasal endoscopic approach.[13] The treatment of dentigerous cyst depends on the cyst size, angulation and location of involved tooth, patient's age, disfigurement and several other factors. However, in young patients marsupialization and decompression are preferred over enucleation.[7] Following enucleation of the cyst and extraction of the unerupted tooth, the prognosis is excellent and recurrence is rarely observed after a complete removal (Hasbini et al).[11]

In our case, the cyst was very large causing expansion of the right maxillary sinus with bone erosion of the antero-lateral sinus wall. For that reason, there was no necessity to drill the bone for access.

To the best of our knowledge, it is the first reported case of maxillary dentigerous cyst, which caused bone erosion of its harbored maxillary sinus.

CONCLUSION

Dentigerous cyst is an asymptomatic developmental abnormality usually discovered on routine radiological investigation for various dental conditions. It is suspected when there is late non-eruption of tooth. DC should be treated surgically either by marsupialization or enucleation as soon as possible. Late presentation or delayed management could lead to huge expansion of the cyst that may lead to bone destruction of the jaw containing it. In addition, although rare, there is a possibility of malignant transformation of the cyst.

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