



ORIGINAL RESEARCH PAPER

ENT

A RARE CASE REPORT ON DENTIGEROUS CYST

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ABSTRACT

Dentigerous cyst (DC) is the second most common type of odontogenic cyst. It is thought to have a developmental origin, arising from an anomaly in the reduced dental epithelium. Rarely seen in early childhood, DC is mostly prevalent among people aged between 20 and 40. The most common location of DC is the mandibular third molar, more rarely occurring in the maxillary sinus. Enucleation is the standard treatment. Herein, we report a 14-year-old boy with DC that developed into the right maxillary sinus, measuring 5.7×4.2 cm.

INTRODUCTION

Dentigerous cyst (DC), also known as follicular cyst, is the second most common form of odontogenic cysts after radicular cyst (1). Thought to be developmental in origin, DC is caused by an anomaly in the reduced dental epithelium (2). DC is formed by the force exerted by the exudate that accumulates between the reduced dental epithelium and the tooth crown. It is related to a partially erupted or impacted tooth, and it is most commonly seen in the third molars of the mandible (70%). Other common locations of DC are the third molar teeth of the maxilla, the maxillary canines, and the premolars of both jawbones (3). Though more rarely, DCs are also associated with the supernumerary tooth. DCs caused by an impacted supernumerary tooth localized in the anterior maxilla account for only 5.5% of all the DC cases, and those that spread into the maxillary sinus are even more infrequent (2, 4). DC is commonly seen in the 20 to 40 age group. It rarely affects children (4). DCs are usually asymptomatic except for the cases where there is infection or expansion. In the event of infection, it can cause a painful swelling. In the case of an expansion into cortical plates, DC can cause facial asymmetry, and precipitate a destruction of the adjacent tissues.

CASE REPORT

A 14-year-old girl presented to our department with a swelling on his right side of cheek that grew gradually in the past two months. Initially it was of small in size and gradually increasing and attained the present size, associated with dull pain. There was a history of right nasal obstruction. There was a history of dental extraction one month back. There was no history of trauma, orbital pain, diplopia, blurring, discharge from the swelling and loss of weight.

On physical examination, a solitary well demarcated, firm, non-tender swelling of about 4.0 x 3.0 cm diameter with ill-defined margins on the right side of the cheek, extending from the right infra orbital region to about 2cm below the alar tragal line supero-inferiorly and antero-posteriorly from the naso-labial fold to the line drawn from the outer canthus of the eye. Skin over the swelling was normal (Fig 1). There was obliteration of labial vestibule in relation to right maxillary canine and premolars. Hard palate, tongue, flora of the mouth and retromolar trigone were normal.



Fig 1. Shows swelling over right cheek of the patient

On anterior rhinoscopy right nasal cavity was narrow, floor on right nasal cavity was elevated, soft in consistency, insensitive and doesn't bleed on touch. On posterior rhinoscopy discharge was present on right side. On Diagnostic nasal endoscopy bulge was seen on floor of anterior part of right nasal cavity pushing inferior turbinate upwards and discharge was noted in the right nasal cavity. (Fig 2)



Fig 2: Picture showing bulge on floor of nasal cavity on DNE

On intra-oral palpation, swelling was non-tender, firm in consistency, non-compressible and did not show any fluctuation or discharge of pus. Computerized tomography (CT) examination revealed a well-defined expansile near soft tissue/cystic attenuation mass lesion seen in the alveolar margin of right maxilla with unerupted teeth with in the soft tissue and extending into right maxillary sinus with thinning/erosion of sinus bony walls (Fig 3). Magnetic resonance imaging (MRI) showed T2 hyper dense cystic lesion measuring 5.7* 4.2 cm arising from right maxilla with compression on ipsilateral maxillary sinus.

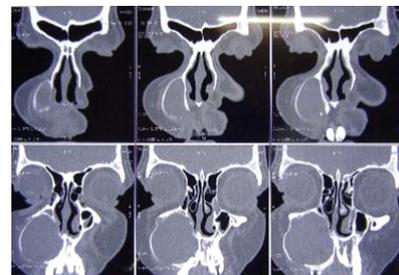


Fig 3: CT scan PNS showing mass in right maxilla

The patient was then operated under general anaesthesia by endoscopic assisted Caldwell-Luc procedure. A Horizontal incision of size 5 cm given at sub labial region, layers were dissected, periosteum elevated & bony window of 2 x 1cm created and cyst was separated from all around borders of

maxillary region and was excised along with second molar teeth which was encapsulated with in the cyst (Fig 5). Uncinectomy and right middle meatal antrostomy was done.



Fig 4: shows Caldwell luc approach

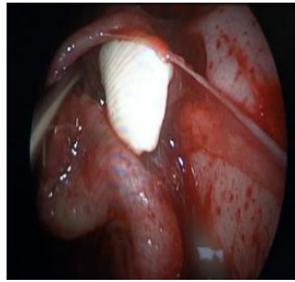


Fig 5: showing impacted second molar



Fig 6: Maxillary Sinus after removal of the cyst



Fig 7: Shows excised dentigerous cyst

Histopathological examination of the specimen revealed a fibro-cystic wall lined by a tooth free cell layers, thick, non-keratinized stratified squamous epithelium lining the lumen. Flat epithelial connective tissue interface was seen. Connective tissue stroma showed inflammatory cell infiltrate. (Fig 8)

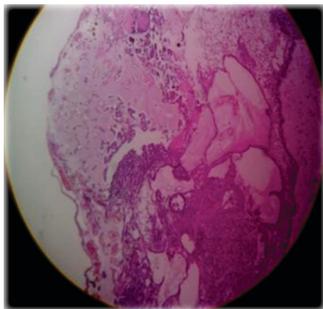


Fig 8: histopathology- Dentigerous cyst

DISCUSSION

Dentigerous cysts affect the roots of the teeth (radicular cysts). The incidence of DCs is 14%–20%. They are slightly more prevalent among males (1.6:1) (5). DCs are most frequently seen in the mandible (70%) and the maxilla (30%) (5). DC's peak incidence is seen among people who are in their 20s and 30s (23% and 20%, respectively). As was the case in our patient, only a small percentage of DCs occur in the first decade of life (5, 6).

The exact histogenesis of DC is unclear, but some histopathological pathways have been described. DC attaches itself to the neck of the tooth (cementoenamel junction) and encloses the impacted tooth. The pressure applied by the emerging tooth on the dental sac blocks the venous outflow, causing the serum to rapidly pass through capillary walls. This accumulated fluid exerts an increasing hydrostatic pressure and detaches the dental arc from the crown of the tooth (6). The enlargement of the DC is associated with the proliferation of the epithelial cells, release of bone-resorbing factors, and

the osmolality of the fluid within the cyst (7). Therefore, although being asymptomatic, DC can manifest itself with swelling on the face, inflammatory rhinorrhea, nasal malformation, and excessive tearing in the eyes when localized to the maxillary region (7). Dentigerous cysts in the maxillary sinus are easy to detect radiographically due to their opacity. In these cases, panoramic radiography is a suitable method to be used in daily practice because of its low cost and simplicity. Panoramic radiographs are very effective in distinguishing the existence of a tooth, if any, in DC. CT scan can also help to detect bony structures and understand the definite size or content of the lesions in the maxillary sinus (7). A differential diagnosis is also possible where DCs can be distinguished from odontogenic keratocyst, ameloblastic fibroodontoma, ameloblastic fibroma, calcifying epithelial odontogenic tumor, adenomatoid odontogenic tumor, and unicystic ameloblastoma (7).

The standard treatment for a DC in the maxillary region is enucleation and tooth extraction by using Caldwell-Luc antrostomy. However, in cases where the cyst is larger, marsupialization technique can be adopted after routine enucleation procedure to prevent further damage on osseous structures. A major drawback of using this technique is that the lesion can recur or persist around the cystic borders. Endoscopy, which decreases the rate of morbidity during and after such operations, can also be used for the treatment of the DCs in the maxilla (7). When there is chronic infection, DC can develop into ameloblastoma or squamous cell carcinoma and mucoepidermoid carcinoma (8). Therefore, initial clinical and radiographical examination is of paramount importance to make an early and accurate diagnosis, as well as to follow the appropriate treatment procedure.

CONCLUSION

Odontogenic Myxoma of maxillary sinus is very rare and uncommon benign mesenchymal tumour of dental origin. During differential diagnostic processes, odontogenic cysts including DCs must be taken into account, particularly in cases of rapidly growing cysts with expansion and erosion of bony walls in the maxillary sinus.

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