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A maxillary dentigerous cyst with antral involvement: A case report

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Abstract

Maxillary canine impactions are frequently encountered both in the orthodontist's and surgeon's office and dentigerous cysts associated with them come second after those in the mandibular third molar region. Though occupying a significant part of the maxilla and situated closely to the teeth, the antrum is rarely disturbed from such lesions.

Keywords: maxillary canine, dentigerous cyst, impacted teeth.

Introduction

A dentigerous cyst (DC) is one that encloses the crown of an unerupted tooth by expansion of its follicle, and is attached to its neck (1). It is the most common type of developmental odontogenic cyst and the second most frequently encountered cystic jaw lesion after the radicular cyst. While it occurs typically more than any other jaw cyst in the first decade, the dentigerous cyst increases by frequency in the second and peaks in the third decade to come to an overall rate ranging from 17.1%(Shear, 2004) to 24% (Daley, 1994) (1). Mandibular third molars are most frequently involved, followed by maxillary canines, mandibular second premolars and maxillary third molars.

Eruption of an ectopic upper tooth associated with a dentigerous cyst into the maxillary sinus is a rare phenomenon and according to M. C. Buyukkurt et al. (2010) (2) only 17 cases have been reported in literature until 2009. Furthermore, the results of their review reveal a ratio between canine (2 cases) and molar (8 cases) involvement of 1:4. This finding related to the anatomical distribution of dentigerous cysts in the maxilla reported by Shear (14 molar cases or 16% and 42 canines cases or 49% of all 86 lesions)

discloses a marked tendency for molar dentigerous cysts to intervene with antral integrity at one side and makes canines a rare finding as an etiology for that pathology on the other.

In this article we present a case of a maxillary dentigerous cyst associated with an ectopic canine tooth localized in the antrum and our experience with its management.

Case Description

A 36-year old man with a chief complaint of facial swelling and pain in the infraorbital and canine fossa regions was referred to the Oral surgery Division at the Military Medical Academy Hospital, Sofia. History revealed progression of the symptoms during the last three days, no recent trauma, allergic reactions or related previous treatment. Physical examination was unremarkable and routine laboratory tests were normal. Upon extra oral examination, typical symptoms of localized inflammation were observed in the right maxillary sinus region. Intraorally bilateral upper canines were absent in an otherwise healthy dentition and a vestibular swelling was present from the midline to the zygomatic-alveolar crest. Coronal CT imaging (Fig 1, Fig 2) revealed a well-defined soft tissue mass occupying the right antrum from the floor up to the level of the middle turbinate with a radiopaque structure at its bottom resembling a tooth. The other impacted tooth appeared to be in close proximity to the inferior turbinate but with no adjacent anatomical abnormalities. Axial projection (Fig 3) showed the mass filling up roughly half of the sinus antero-posteriorly. 3D CT (Fig4) of the facial skeleton revealed significant bone resorption and fenestration in the anterior antral wall just under the infraorbital foramen. Differential diagnosis was made with a dentigerous cyst, originating from an ectopic right maxillary canine tooth and a unicystic ameloblastoma formed from the latter and a decision was made to surgically remove the lesion and its dental companion.

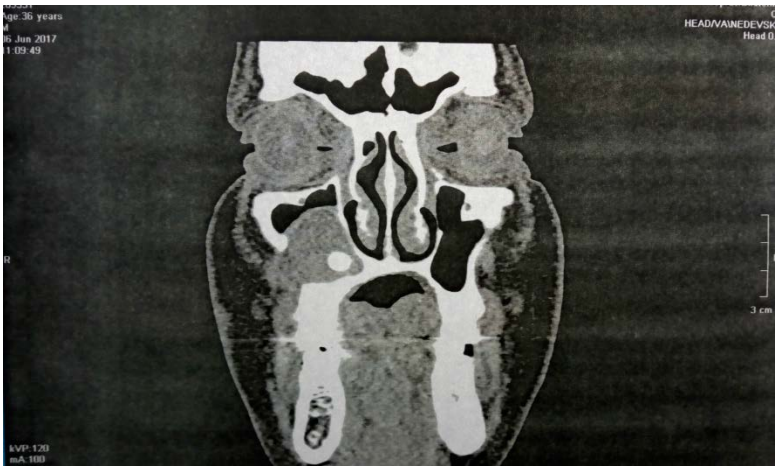

Fig 1

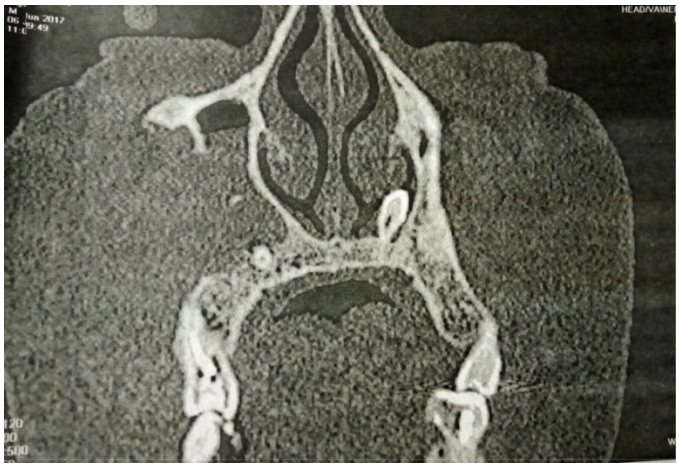

Fig 2

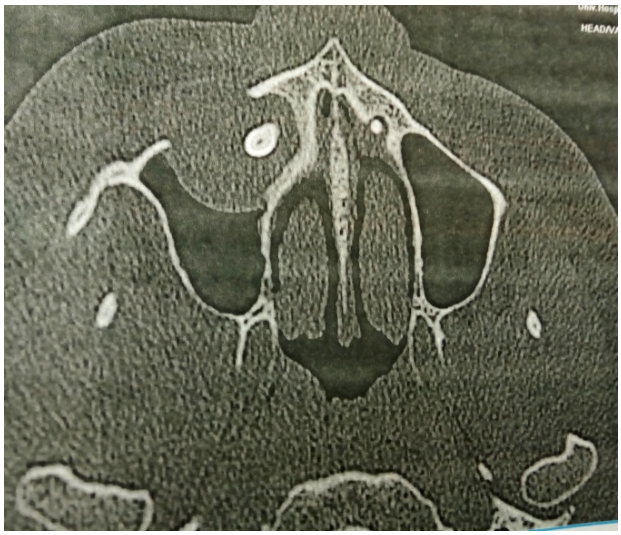

Fig 3

Fig 4

Under general endotracheal anesthesia, a vestibular incision was made from the right first incisor to the right first molar after which a trapezoidal mucoperiostial flap was elevated. The extruding convex surface of the cystic capsule and surrounding bony margins were exposed and gentle separation of the cyst from the antral walls was performed. Care was taken not to disturb the relationship between the ectopic canine tooth and the cyst in order to facilitate macroscopic diagnosis. Upon enucleation the remaining sinus mucosa appeared healthy and was left undisturbed. Irrigation was done with saline and a gauze iodoform packing was placed in the antral cavity, which we removed through the nostril after 3 days. No other membranes or materials were used and the flap was sutured back over the bony defect with a 3-0 resorbable Vycril suture. Healing was uneventful.

Intraoperatively, once removed, a distinguishable attachment of the cystic wall to the neck of the canine tooth (Fig.5) was noted and recorded. Microscopic examination of the lesion revealed a fibrous tissue wall with a stratified squamous epithelial lining, which included some cholesterol crystals. No ameloblastic transformation was found and a final diagnosis of a dentigerous cyst was made.

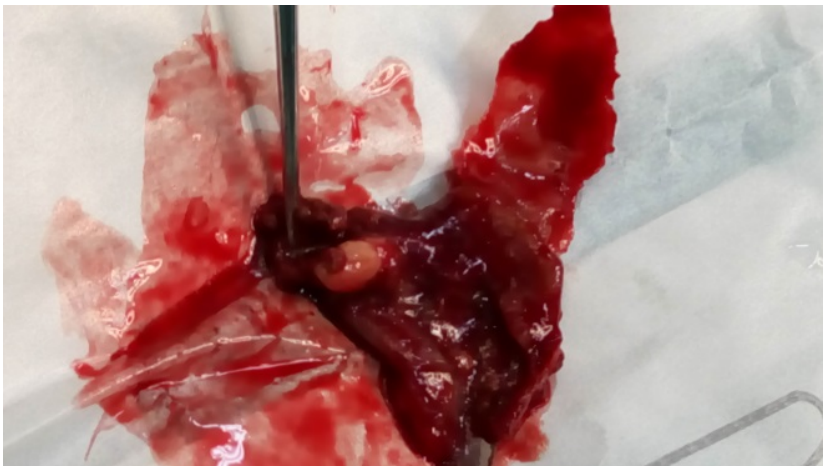

Fig 5

Discussion

Maxillary canine impaction is a relatively common condition, which can be managed orthodontically, surgically or combined. Also, dentigerous cysts are the most common pericoronal pathologic radiolucency discovered on imaging(3) and are too encountered often in oral surgery settings. Yet very few of those seem to progress enough to displace the tooth into the antrum or have the tooth initially erupt in it with a dentigerous sequel. Furthermore, a growing tendency to orthodontically retrieve impacted canines in comparison to third molars could be one additional explanation for the unproportional rates mentioned previously. We propose that this fact may superimpose on the different anatomical proximity of canines and third molars to the maxillary sinus and thus give an account for the rarity of these cases. In our case, the patient came with localized but non-specific symptoms and no sinonasal complaints, which are usually typical for most of the antral pathologic masses. Presentation was in the fourth decade which is third in age distribution(1).

One significant lesion to distinguish from a dentigerous cyst is the cystic ameloblastoma (4) which it can simulate both radiologically and macroscopically, presenting as an encapsulated fluid-filled cyst, which may be in apparently dentigerous relationship with a tooth(7). Apart from that, enough evidence has been gathered to suggest that ameloblastomas can develop in the wall of a dentigerous cyst(8,9,10,11,12,13). Though a rarity, squamous cell carcinoma can also arise in DC with an estimated incidence of 1-2 per 1000(14,15,16,17). These observations make scrutinous histologic examination of every dentigerous cyst a must.

Conclusion

Dentists encounter various kinds of tooth impaction in their practice. Mandibular third molars are most frequently involved, followed by maxillary canines, mandibular second premolars and maxillary third molars. Eruption of an ectopic upper third tooth associated with a dentigerous cyst into the maxillary sinus is a rare phenomenon, especially bilateral.

Maxillary canine impaction is a condition, which can be managed orthodontically, surgically or combined.

In the current article our treatment option coresponds entirely to literature factology and states a surgical removal of all impacted teeth.

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