



Case Report

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A Dentigerous Cyst Presenting in a Primary Care Clinic

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Abstract

A 45 year old male presented to his primary care office after being treated for a presumptive dental infection and found to have a radiolucent mass on X-ray. Further evaluation with Computed Tomography scan followed by biopsy showed a dentigerous cyst, which was unusual due to the patient's age and presentation symptoms. He underwent enucleation and has since recovered. This case highlights the importance of primary care having familiarity with the initial workup of common dental complaints and an unusual presentation of a dentigerous cyst in the primary care setting.

Keywords: Dentigerous Cyst; Sinus; Tooth Pain

Introduction

A 45 year old male presented to his primary care office for a complaint of swelling and discomfort in his right nose and cheek area for about one year. He noted that if he moved his nose he felt something move within his cheek that seemed to be pushing on his upper teeth, and had pain with eating as well. He had previously seen his dentist about one month prior to presenting at our clinic for tooth pain while eating in the same area. Per the patient, his dentist did not find any abnormality on examining his mouth, but he was treated for a presumed dental infection with a ten day course of antibiotics without any resolution of his symptoms. Additionally, the dentist performed an X-ray which showed a "large radiolucency above tooth 7 and 8" per the patient. He had no other associated symptoms including no weight loss, fevers, chills, nasal congestion, sore throat, shortness of breath, nausea, vomiting, drainage in the mouth, foul odor in the mouth, or swallowing difficulty.

On physical exam, the patient was normocephalic and atraumatic, the oropharynx was clear and dentition intact, nares were patent without obvious deformity, no rhinorrhea was present. He had tenderness to palpation of the right maxillary sinus and just over the right anterior maxilla. He also had right sided superficial and deep cervical lymphadenopathy present. His skin was clear of rashes or lesions.

A Computed Tomography (CT) scan of the head with and without contrast was ordered at his visit. Results of imaging showed a lucent lesion involving the right maxilla anteromedially in the region of incisors, canine and first molar, measuring 2x2x1.5 cm, and causing destruction of the margin of the bones (Figure 1). Superiorly the lesion reaches the inferior part of the right nasal cavity. The nasal septum is deviated to the right, paranasal sinuses are clear.

Upon consultation with oral and maxillofacial surgery, the patient underwent an incisional biopsy of the right maxillary lesion. The pathology report showed hyperplastic nonkeratinized epithelium with acute and chronic inflammatory cells, consistent with a dentigerous cyst (Figures 2,3).

Discussion

Etiology and Presentation

Dentigerous cysts are a type of odontogenic cyst that can be further classified as developmental in origin as opposed to inflammatory. They

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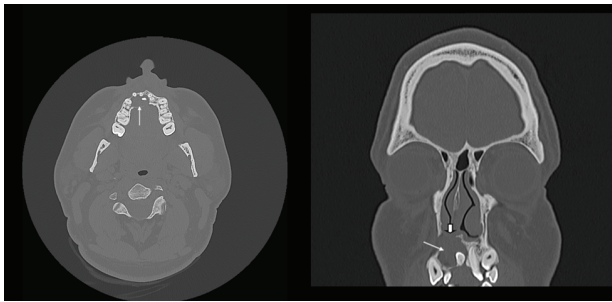


Figure 1: Axial CT image of the head at the level of the maxilla on the left demonstrates a cystic expansile lesion (long thin arrow) near the incisors on the right with mild displacement of adjacent teeth. On the right a coronal CT image of the head at the level of the anterior maxilla again demonstrates the cystic unilocular expansile lesion (thin long arrow) with adjacent bony thinning and remodeling. Note the bony thinning along the floor of the right nasal cavity with encroachment of the lesion into the right nasal cavity inferiorly (short vertical arrow).

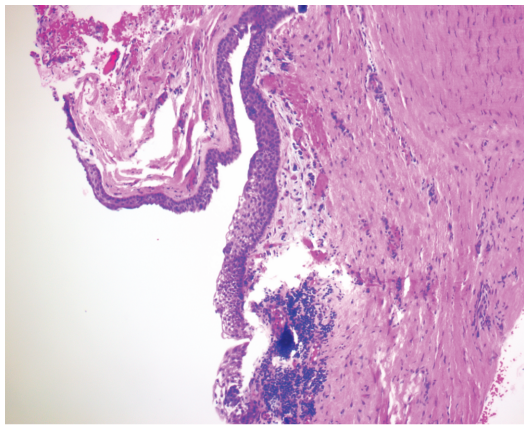


Figure 2: Hyperplastic nonkeratinized epithelium, acute and chronic inflammatory cells. H&E 5x.

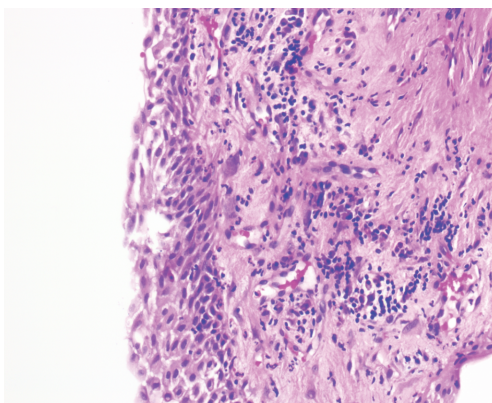


Figure 3: Hyperplastic nonkeratinized epithelium, acute and chronic inflammatory cells. H&E 10x.

are the second most common odontogenic cyst with radicular, also known as periapical, cysts being the most common. Dentigerous cysts have a prevalence of 20.6% among odontogenic cysts [1]. Dentigerous cysts are believed to form at the cemento-enamel junction forming a cyst as fluid accumulates in this potential space. This fluid is produced by the surrounding epithelium enlarging the cyst and creating pressure that opposes the forces causing typical eruption of a tooth [2].

Dentigerous cysts are more common in males and show a higher incidence in the second and third decades of life, or from age 11 to 30, although they occur across a broad range of ages. They are more frequently found in the mandible, but also occur in the maxilla. These cysts are most commonly found as part of the maxillary canines (teeth 6 and 11, respectively) or the third molars (teeth 1, 16, 17 and 32) [3]. On initial presentation dentigerous cysts are typically an incidental finding of routine dental imaging and patients are typically asymptomatic. Another common presentation of a dentigerous cyst is delayed eruption of a tooth prompting further investigation [3].

Of note in our case is that the patient is older than the typical patient at age 45 and initially presented to the primary care clinic for swelling/pain involving their nose and cheek after being evaluated by a dentist. This is in contrast to the typical asymptomatic presentation of a patient in their 10s to 20s. In this case the cyst was found to be involved with the roots of teeth 6 and 7 in addition to an extramucosal tooth. The cyst had caused deviation of the nasal septum to the right, destruction of the margin of the maxilla and extended into the inferior part of the right nasal cavity. Another aspect of this case which is a relatively rare presentation is that it was initially treated as a head and neck infection. In a retrospective chart review looking at patients with an initial diagnosis of a head and neck infection there was an incidence of 2.1% of the presumed head and neck infection actually being a dentigerous cyst [5].

Differential Diagnosis

On initial presentation of a patient that presents with imaging consistent with a dentigerous cyst, one should also consider odontogenic keratocysts, periapical or radicular cysts, and ameloblastomas [6]. Imaging findings for all of these conditions would generally be a unilocular radiolucent finding on X-ray or CT [7-9]. Panoramic X-rays are typically the first imaging modality used which demonstrate the cystic lesions which can be performed in a dentist office. Cone Beam Computed Tomography and CT offer higher resolution imaging with increased details regarding the cystic lesion and adjacent structures with images in multiple planes which is helpful for surgical planning however these modalities also have higher levels of radiation.

Until pathology is confirmed a dentigerous cyst is only a preliminary diagnosis, it cannot be diagnosed by clinical presentation or imaging alone, histology is essential to differentiate between these cysts. Histologically, dentigerous cysts have a non-keratinizing squamous epithelium. Odontogenic keratocysts are benign tumors that can come back if not completely excised, and have several distinguishing histologic features including a squamous lined cyst with palisaded basal layer, parakeratosis, keratin production and a corrugated surface [10]. Periapical or radicular cysts can appear very similar to dentigerous cysts in their histologic presentation however most often have inflammatory cell infiltrates in the wall and lining [10]. Ameloblastomas exhibit a cystic lining that has reverse nuclear polarity, along with peripheral basaloid cells in a palisading formation [10].

Treatment

Dentigerous cysts are typically treated with either enucleation or marsupialization [1]. Considerations to be made regarding treatment are the size of the cyst and degree of bone involvement. Enucleation typically involves opening the cyst, removing its contents, extracting the associated tooth and closing the defect. Enucleation is favored when the size of the dentigerous cyst is small since a larger cyst would take longer to heal and have a higher chance of infection [2].

Marsupialization involves opening the cyst, removing its contents and suturing the cyst lining to the oral mucosa so that the opening of the cyst remains patent. The idea behind this procedure is that as the cyst heals and becomes smaller, bony regeneration can occur which will push the unerupted tooth to the surface. This procedure requires frequent follow up and at home maintenance to prevent infection. It is

avored when nearby structures could be compromised by enucleation or if it is likely that the associated tooth will erupt [2].

In the case of our patient, after evaluation by the oral maxillofacial surgery, it was decided that treatment would be enucleation with curettage.

Conclusions

The patient underwent enucleation surgery where the cyst contents were removed, along with the supernumerary tooth and the incisor that had an affected root closely associated with the cyst. He has since recovered well and has no further pain or complaints. This case highlights the importance of primary care having familiarity with the initial workup of common dental complaints and an unusual presentation of a dentigerous cyst in the primary care setting.

Department/Institution Where Work was Done

University of Florida College of Medicine Jacksonville,
Department of Community Health & Family Medicine

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None Declared

Conflict of Interest

None Declared

Patient Permission

Consent was obtained from the patient for publishing this case report.

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