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Case Report

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Behind the Smile: Unravelling A Dental Mystery

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Abstract

A startling discovery in the fourth decade of life, a dentigerous cyst entangled with a mandibular third molar, presents an intriguing dental riddle. We explore this surprising finding in our case report, highlighting the significance of being vigilant about dental care for all ages. We solve the puzzle through surgery, highlighting the vital need of prompt diagnosis and treatment in maintaining oral health.

Keywords: Surgical Intervention, Dental Mystery, Impacted Mandibular Third Molar, Dentigerous Cyst

1. Introduction

The term "dentigerous cyst," also referred to as a follicular cyst, describes an epithelial-lined developmental cyst that forms due to the accumulation of fluid between the reduced enamel epithelium and the crown of an unerupted tooth. This cyst develops when there is a change in the reduced enamel epithelium, leading to the encapsulation of the crown of an unerupted tooth at the cemento-enamel junction. The fluid accumulates between the reduced enamel epithelium and the crown of the unerupted tooth.

Dentigerous cysts rank as the second most common type of odontogenic cysts following radicular cysts, with seventy percent of cases occurring in the mandible. Typically, dentigerous cysts are painless, and patients often present with concerns related to delayed tooth eruption or facial swelling. It's worth noting that dentigerous cysts can remain unnoticed and may only be discovered incidentally during routine radiographic examinations.

1.1. Case Report

A 43-year-old female presented with a chief complaint of persistent pain in the lower right back region of the jaw for the past month. She had a medical history of diabetes for two years and was under medication. Dental history and habits were non-revealing.

1.1.1. On Extraoral Examination Inspection: Upon inspection, the patient exhibited bilateral facial asymmetry. A diffused oval-shaped swelling was noted in the mandibular right back region. The swelling appeared non-erythematous and measured approximately 2x2cm. Its extent ranged from the right angle to the right para symphysis region and from the right corner of the mouth to the base of the mandible.

Palpation: Palpation revealed tenderness over the swelling. The swelling was found to be non-fluctuant and the patient was afebrile. (Figure 1).

Figure 1: Extraoral Examination

1.1.2. On Intraoral Examination Inspection: Upon intraoral inspection, obliteration of the buccal region in the vicinity of teeth 47 and 48 was observed. There were no signs of inflammation present.

Palpation: Palpation of the affected area revealed tenderness. The swelling was found to be compressible, with an eggshell-like crackling sensation noted along the buccal cortex. (Figure 2a, 2b).

Figure 2a: Intraoral Examination

Figure 2b: Area of chief complaint

1.2. Investigations

1.2.1. Chairside Investigation and Radiological Imaging

The chairside investigation, which involved aspiration, revealed the presence of air. This finding indicates that the lesion is unlikely to be filled with fluid or pus, but rather contains an air-filled space. Such characteristics are consistent with a cystic lesion rather than a solid mass. This supports the diagnosis of a cystic lesion, such as a dentigerous cyst, which typically presents as a cavity filled with fluid or air. Radiological imaging, including periapical and panoramic radiographs, and cone beam computed tomography (CBCT).

Conventional imaging-periapical radiograph showed the presence of radiolucent area associated with an unerupted tooth crown (Figure 3), However, the complete extent of the lesion could not be appreciated with this imaging modality. Therefore, advanced imaging in the form of a panoramic radiograph (OPG) was recommended to obtain a more comprehensive assessment. (Figure 4).

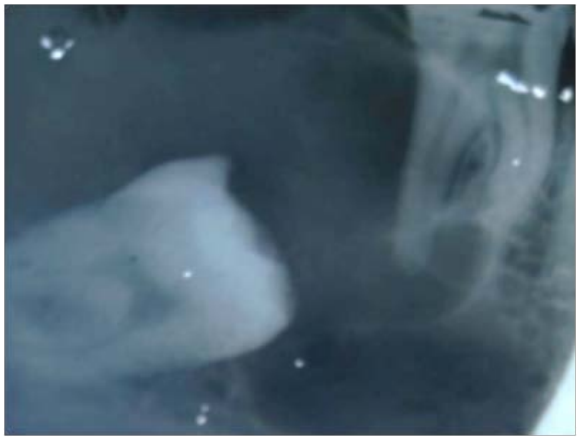

Figure 3: Intraoral Periapical Radiograph

Figure 4: 2 DIMENSIONAL PANORAMIC IMAGING (Diagnostic/Scout Image)

The panoramic imaging revealed a multilocular homogenous radiolucency associated with the impacted tooth 48. This appearance indicates that the lesion has multiple compartments or cavities within it and appears uniformly translucent on the radiograph. Additionally, a wispy pattern of septae was observed within the radiolucency. The "wispy pattern of the septate" describes the appearance of thin, delicate, and irregular bony structures (septae) within the radiolucency. These septae may appear as fine lines or strands extending through the lesion, creating a lace-like or web-like pattern. This pattern is indicative of specific cystic lesions, including odontogenic keratocysts or ameloblastomas, which can provide valuable diagnostic insights and guide treatment planning.

A Cone Beam Computed tomography (CBCT) scan was advised due to the impacted tooth's intricate position and its proximity to vital structures, notably the nerve. CBCT offers precise three-dimensional imaging, allowing accurate assessment of the tooth's location in relation to adjacent structures like the inferior alveolar nerve. This advanced imaging enhances diagnostic accuracy, facilitates treatment planning, and mitigates surgical risks more effectively than traditional radiography. Various sections in CBCT- Axial, Coronal and Sagittal axial section showed thinning of the lingual cortical plate. (Figure 5a).

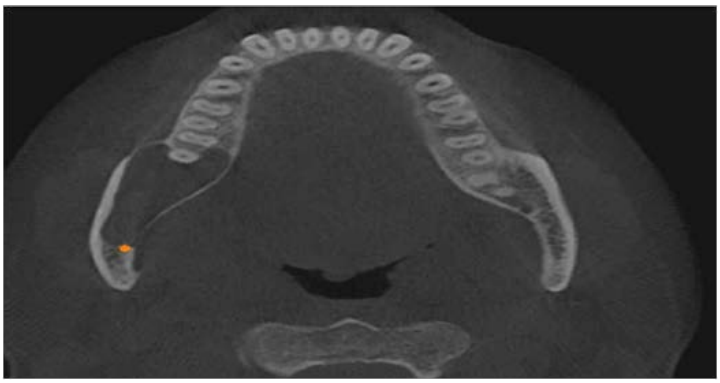

Figure 5a: Axial Section

Coronal section showed presence of multilocularity. (Figure 5b).

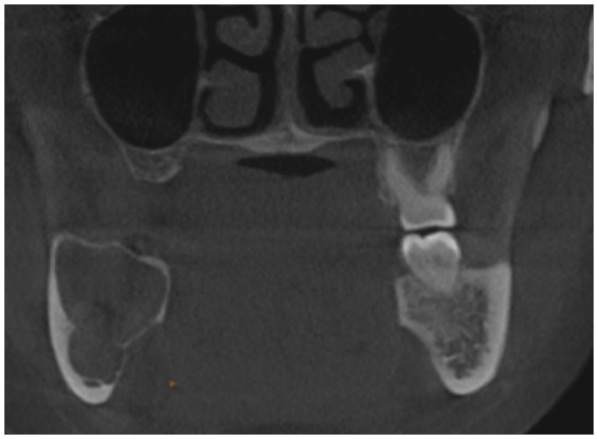

Figure 5b: Coronal Section

Sagittal section showed the presence of IANC involvement hence there was no paraesthesia was associated (Figure 5c).

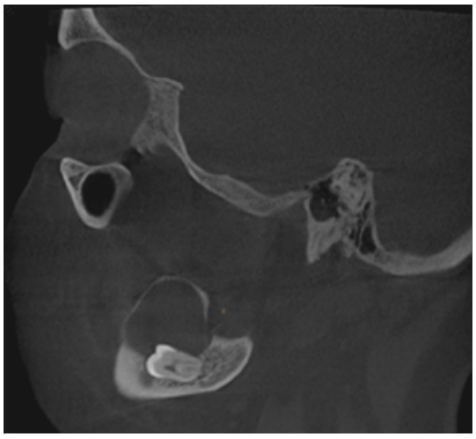

Figure 5c: Sagittal Section

Thus, these modalities revealed a radiolucent lesion associated with the impacted mandibular molar, suggestive of a dentigerous cyst. Differential diagnoses included unicystic ameloblastoma and odontogenic keratocyst.

1.3. Treatment Plan

Surgical enucleation of the cyst and extraction of the impacted mandibular molar were performed. Two soft tissue specimens and a cortical bone fragment were collected for histopathological examination. The larger soft tissue specimen measured 3x2.5x0.8cm, while the smaller one measured 0.6x0.7x0.4cm. (Figure 6a). Both exhibited pinkish coloration, firm consistency, and irregular borders. Histopathological examination confirmed the diagnosis of a dentigerous cyst. (Figure 6b).

Figure 6a: Excised Specimen

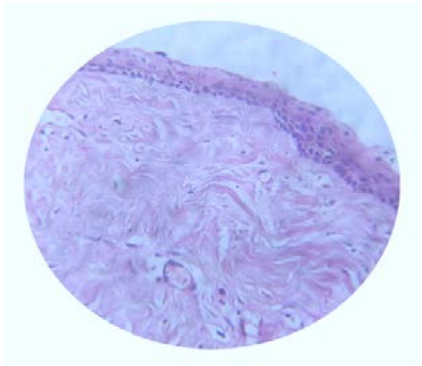

Figure 6b: Histopathological Examination

Thus, considering clinicopathological correlation, a conclusive diagnosis of dentigerous cyst was confirmed.

Follow-up: The patient has reported no recurrence during follow-up, indicating the effectiveness of the intervention. (Figure 7).

Figure 7: Post –Operative Opg

2. Discussion

Dentigerous cysts are frequently asymptomatic and are often discovered incidentally during routine radiographic examinations. However, symptomatic cases necessitate prompt diagnosis and treatment to mitigate potential complications such as cyst expansion, infection, and pathological fracture. Surgical enucleation remains the primary treatment modality, typically yielding a favorable prognosis.

Potential complications include the development of an ameloblastoma arising from either the lining epithelium or remnants of odontogenic epithelium within the cyst wall. Additionally, there is a risk of epidermoid carcinoma or mucoepidermoid carcinoma originating from the same sources of epithelium. These malignant transformations underscore the importance of vigilant monitoring and timely intervention [1-4].

3. Conclusions

In conclusion, this case report highlights the importance of early detection and appropriate management of dentigerous cysts to prevent complications. Surgical enucleation remains the cornerstone of treatment, with favorable outcomes observed in this case. The absence of recurrence during follow-up underscores the effectiveness of the intervention. However, vigilance remains crucial due to the potential for malignant transformation. Further research is warranted to optimize management strategies and enhance long-term patient outcome.

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