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Unusual Radiographic Presentation of a Dentigerous Cyst with Inverted Impacted Molar: A Case Report Study type: A Case report

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ABSTRACT

Background: Dentigerous cyst, a type of developmental odontogenic cyst, one of the most common one of its kind, forms around the crown of an unerupted or an impacted tooth. It develops due to fluid accumulation between the reduced enamel epithelium and the tooth's crown, typically attaching at the cementoenamel junction. These cysts are usually asymptomatic unless infected, and are often discovered during routine radiographic examinations.

Case Presentation: This report presents a case of a 58 years old male patient with an impacted third molar in his right lower back region of the jaw. The patient presented with a complaint of a pain in the right lower back region of the jaw. The pain has been present for approximately 6 months, with no gross deformity to the lower jaw bone. On radiographical examination, an inverted 48 was seen in association with a dentigerous cyst, enclosing the coronal portion of the tooth extending up to 2/3rd portion of the root. The patient reported no associated symptoms, such as discharge. Enucleation was carried.

Conclusion: Although Dentigerous cysts doesn't have the tendency of reappearance, this does not excludes the need for a thorough regular check-up at every follow-up. In conclusion, the histopathologically proven and an non-complicated healing of the wound is the only reassurance for the patient's recovery

1. INTRODUCTION

Dentigerous cyst, also known as a follicular cyst, is the second most common type of odontogenic cyst that is derived from the tissues associated with the development of teeth. It typically envelops the crown of an unerupted or impacted tooth, most often a mandibular third molar, maxillary canine, or mandibular premolar, and is usually discovered incidentally during routine radiographic examination. The cyst arises from the collection of overabundant fluid between the reduced enamel epithelium and the enamel surface of an unerupted tooth. This fluid accumulation is often the result of pressure exerted by the erupting tooth on the follicle, which obstructs venous outflow and leads to serum transudation. Over time, this collection of fluid leads to cystic expansion. The cyst is developmental in origin, meaning it results from tooth development rather than from inflammation or infection. The cyst usually occurs in the 2nd or 3rd decade of life with a slight male predilection. Most

of the lesions are asymptomatic and are detected incidentally during any routine dental radiographs, but, if secondarily infected then the cyst may present with pain, swelling and purulent discharge. Radiographically, the cyst emerges as a well-defined, unilocular radiolucency enclosing the crown of an unerupted tooth. The cyst typically attaches at the cemento enamel junction (CEJ). The margins are usually sclerotic unless the cyst is infected. CT or CBCT scans may be employed for larger cysts to assess the extent of bone involvement and proximity to vital structures. When seen microscopically, it is observed that the cyst is lined by non-keratinized stratified squamous epithelium, typically 2–4 cell layers thick. The fibrous cystic wall may contain odontogenic epithelial rests, inflammatory cells (if secondarily infected), and occasionally, cholesterol clefts. Although it is a benign lesion, if left unobserved and not treated, dentigerous cyst may cause pathological fractures, displacement of teeth, root resorption and development of ameloblastoma(rare) or very rarely, squamous cell carcinoma or mucoepidermoid carcinoma. With a timely appropriate treatment, the prognosis of this cyst is excellent. Recurrence is very rare unless incomplete removal or misdiagnosis occurs. Long term follow-up with periodic radiographic monitoring is generally advised to ensure the progress of healing and for early detection of any potential complications.

2. CASE PRESENTATION

A 60 years old patient presented with slight pain in his lower right back region of jaw which was persistent in nature, since past 6 months. On physical examination nothing was noted intraorally, other than a missing 3rd molar bilaterally. There was no expansion of the ridge and extraorally there was no gross facial asymmetry. Hence, an O.P.G. was done in which it was found that there was bilaterally impacted inverted 3rd molars were present and a cystic lesion was seen in association with invertedly impacted 3rd molar with respected to mandibular right region. The patient had a medical history of diabetes and was under medication since 10 years. The overlying mucosa was normal with no erythema, warmth or sinus tract formation. Rest of the physical examination, including lymph nodes, was unremarkable.

Fig 1: O.P.G. revealed cystic lesion associated with impacted 48

Fig 2: Clinical picture of the 48 region

Based on the clinical examination and characteristic radiographical presentation, the most likely diagnosis was done as dentigerous cyst. For the surgical assistance, a C.B.C.T. was done to find the extension of the cystic lesion.

After an in-depth discussion about the potential for recurrence and patient's preference for complete removal of the tooth along with the lesion, a surgical dis-impaction was performed under local anaesthesia.

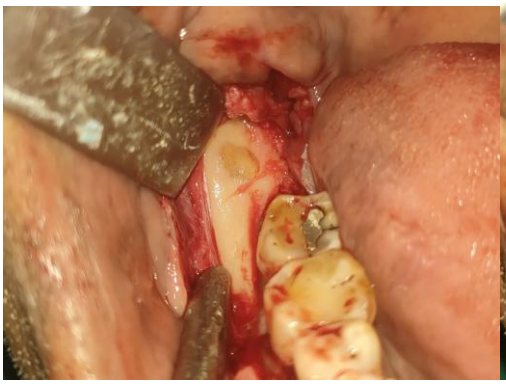

Fig 3: Surgical exposure of the impacted 48

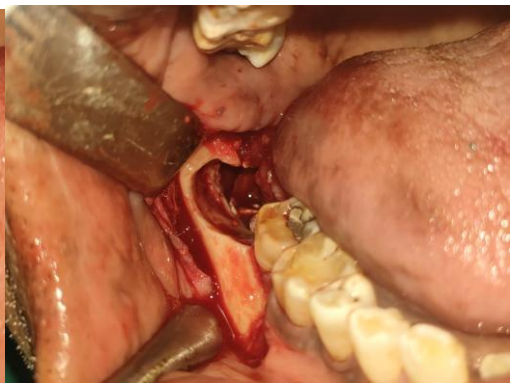

Fig 4: Surgical extraction of impacted 48

The Procedure involved placing a modified Ward's incision with respected to the 48 region, followed by elevation of a full thickness mucoperiosteal flap. Exposure of the impacted 48 was done followed by buccal and lingual cortical bone guttering for further expose the invertedly impacted 48. Extraction was performed along with enucleation of the attached cystic lesion.

The wound was close with a simple interrupted sutures and the patient was instructed to follow up in 10 days for suture removal.

The patient experienced an uneventful recovery following the procedure. He reported no recurrence of symptoms, and follow-up examination at 10th day revealed no signs of infection or complications. The wound had healed well with minimal scarring, and the patient was satisfied.

3. DISCUSSION

Dentigerous cyst is reported to be one of the most common lesions of the jaws. A recent study indicated that it accounted for more than 24% of jaw cysts and that it was by far the most common noninflammatory cyst of the oral region **[1]**. An odontogenic cyst of developmental origin. Seldom it is an accidental finding when radiographs are taken to investigate the adjacent tooth that is either infected, carious, or displaced. The cyst seems to enclose impacted tooth by the expansion of its follicle. The normal follicular space is approximately 3–4 mm, whereas a dentigerous cyst can be suspected when the space is more than 5 mm **[2]**. When radiographically examined, the cystic lesion shows unilocular, radiolucent lesion characterized by well-defined sclerotic margins often associated with the crown of an impacted tooth. The dentigerous cyst can be classified into two types based on its origin, i.e., originated from reduced enamel epithelium (REE), and most commonly occur during the 2nd and 3rd decade of life, and predominantly associated with lower 3rd molars. Based on the presence or absence of inflammation into inflammatory and non-inflammatory, diagnosed in 1st and early 2nd decade (i.e., mixed dentition period), with mandible is more commonly involved than maxilla in the ratio of 10:1**[3]**. The associated pathophysiology for development of the inflammatory dentigerous cysts is obstruction of venous outflow, due to the pressure exerted by a potentially erupting tooth on the impacted follicle, which induces rapid transudation of serum through capillary walls. The increased hydrostatic pressure of this pooling fluid separates the follicle from the crown with or without reduced enamel epithelium **[4]**. The differential diagnosis of the dentigerous cyst commonly includes ameloblastoma, odontogenic keratocyst, odontogenic fibroma, odontogenic myxoma, cementomas, and Pindborg tumor. Early identification and removal is necessary as they may rarely have the potential to develop into odontogenic tumors like ameloblastoma and malignancy like squamous cell carcinoma and mucoepidermoid carcinoma**[4,5]**. According to the location of radiolucency around the crown of an unerupted tooth, there are three main varieties of dentigerous cyst and they are central, lateral, and circumferential types **[6]**. One of the most preferred treatment modality is enucleation, when there is no likelihood of damaging adjacent anatomical structures. On the other side, marsupialization will maintain disorder in its cavity, promote eruption of a tooth and conjointly minimize the danger of harm to special anatomical structures. Treatment modality should be as conservative as possible in order to decrease possible problems to the adjacent developing structures, and special care should be taken when the patient is young and when the lesion is considerably larger and invading other adjacent vital structures **[7]**.. The marsupialization or Partsch's technique involves removing a window from the lesion and suturing the encircling mucoperiosteum to the margins of the cyst wall. The ensuing cavity is filled with gauze, which is removed after seven to ten days **[7]**.

4. CONCLUSION

Dentigerous cyst are common benign lesions that can be managed effectively through surgical enucleation or marsupialisation depending on the size of the lesion. Early diagnosis and treatment are essential to prevent complications such as infection, cortical bone expansion or pathological fracture of the affected jaw bone. Although excisional biopsy is the golden standard by which we distinguish such lesions, it should not be taken solely and indiscriminately into account. This case highlights the importance of clinical examination and patient preference in managing intraosseous cystic lesions, with surgical excision being the most effective approach for complete removal and prevention of recurrence

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