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# Infected Dentigerous Cyst with an Unusual Finding: A Case Report

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## ABSTRACT

Dentigerous cysts are developmental odontogenic lesions and represent the second most common type of jaw cysts, typically associated with the crowns of unerupted or impacted teeth. They are frequently discovered incidentally during routine radiographic evaluations, particularly in younger individuals. The present study describes a rare case of a 62-year-old edentulous female who presented with purulent discharge beneath her maxillary complete denture. Clinical and radiographic examinations, including cone-beam computed tomography (CBCT), revealed an infected dentigerous cyst associated with an impacted maxillary canine and an unusual pattern of coronal tooth resorption. This finding is atypical, as dentigerous cysts are more commonly linked to root resorption. The case underscores the diagnostic value of CBCT in evaluating atypical presentations of odontogenic cysts and highlights the importance of early detection and management to prevent complications such as infection and structural compromise.

## Introduction

A dentigerous cyst, formerly known as a follicular cyst, is an odontogenic cyst that develops around the crown of an unerupted or impacted tooth, resulting from fluid accumulation between the reduced enamel epithelium and the enamel [1]. The dentigerous cyst is the second most common odontogenic cyst affecting the jaws and is commonly located in close proximity to the lower third molars, upper canines, lower premolars, and upper third molars [1,2]. Diagnosis of dentigerous cysts often occurs incidentally during radiographic examinations conducted to evaluate dental or maxillofacial concerns [3].

In cases where conventional two-dimensional imaging is inadequate for diagnosing dentoalveolar complications, three-dimensional (3D) imaging techniques are indispensable [4]. Cone-beam computed tomography (CBCT), a 3D imaging technique, is a valuable diagnostic tool for evaluating impacted teeth [4]. The present study describes an

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accidental finding of a rare condition consistent with a dentigerous cyst using CBCT.

## Case Presentation

A 62-year-old female patient presented to the oral and maxillofacial surgeon with a chief complaint of swelling and pain in the left front region of the upper jaw, along with discharge of pus under her maxillary complete denture. She had no significant medical history. Upon clinical examination, swelling and expansion of the buccal cortical plate were noted in the anterior maxillary region, with fistula formation in the swollen area. A panoramic radiograph showed an impacted canine tooth accompanied by a unilocular radiolucent area (Figure 1). Subsequently, CBCT imaging was requested (Figure 2).

The CBCT imaging confirmed the presence of a localized unilocular lesion in the pericoronal region of the left upper impacted canine, surrounding the crown from the cemento-enamel junction (CEJ) to CEJ. The lesion exhibited well-defined and corticated borders, measuring approximately 12.5 mm vertically, 12.3 mm buccolingually, and 12.3 mm mediolaterally. Thinning and expansion of the buccal and palatal cortical plates were evident, with bony perforation observed in the buccal cortical plate. The cyst epithelium surrounded the crown of the impacted tooth. Based on the clinical and radiographic findings, the differential diagnosis by the radiologist included an infected dentigerous cyst, unicystic ameloblastoma, and odontogenic keratocyst. Moreover, adenomatoid odontogenic tumor and calcifying odontogenic cyst were also considered as differential diagnoses due to the homogeneous radiolucent internal structure and the absence of calcifications. Surgical treatment and biopsy were therefore recommended.

A noteworthy observation from the CBCT image was destruction of parts of the tooth crown, a rare finding in this context. While dentigerous cysts can lead to root resorption of the affected tooth, coronal resorption in association with a dentigerous cyst has not been previously reported.

Written informed consent was obtained from the patient. The cyst removal was performed by the oral and maxillofacial surgeon. The cyst was completely enucleated, and the impacted tooth was extracted. The attachment of the cyst to the CEJ was confirmed during the surgical enucleation. Thorough curettage and irrigation were required to ensure the complete removal of residual cyst epithelium fragments, which was successfully achieved following lesion removal. Gel-foam was subsequently placed in the cavity, and the soft tissue was sutured.

The excised specimens were sent for pathological examination. Histopathological evaluation showed a cystic structure lined with nonkeratinized stratified squamous epithelium. Spongiosis and exocytosis were also observed. The connective tissue of the cyst walls exhibited fibro-collagenization, along with severe infiltration of chronic inflammatory cells, fine vessels, and extravascular hemorrhage. According to the histopathological examination, the diagnosis of an inflammatory odontogenic cyst was made. The histopathological results, in conjunction with the clinical and radiographic findings, confirmed

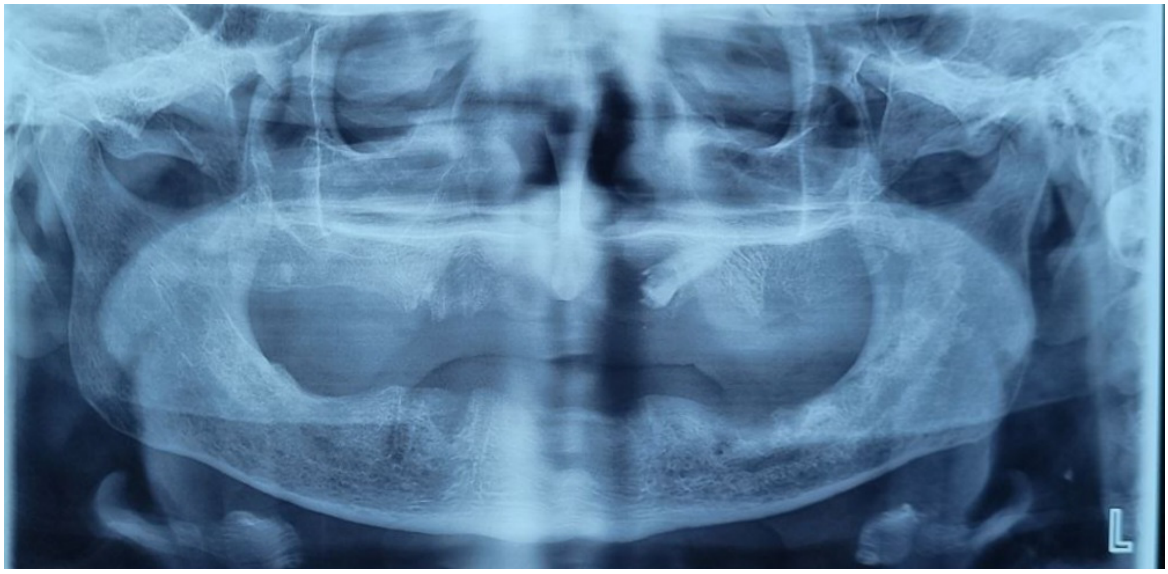


**Fig. 1.** Initial panoramic radiograph demonstrates the impacted tooth with coronal resorption and a radiolucent lesion

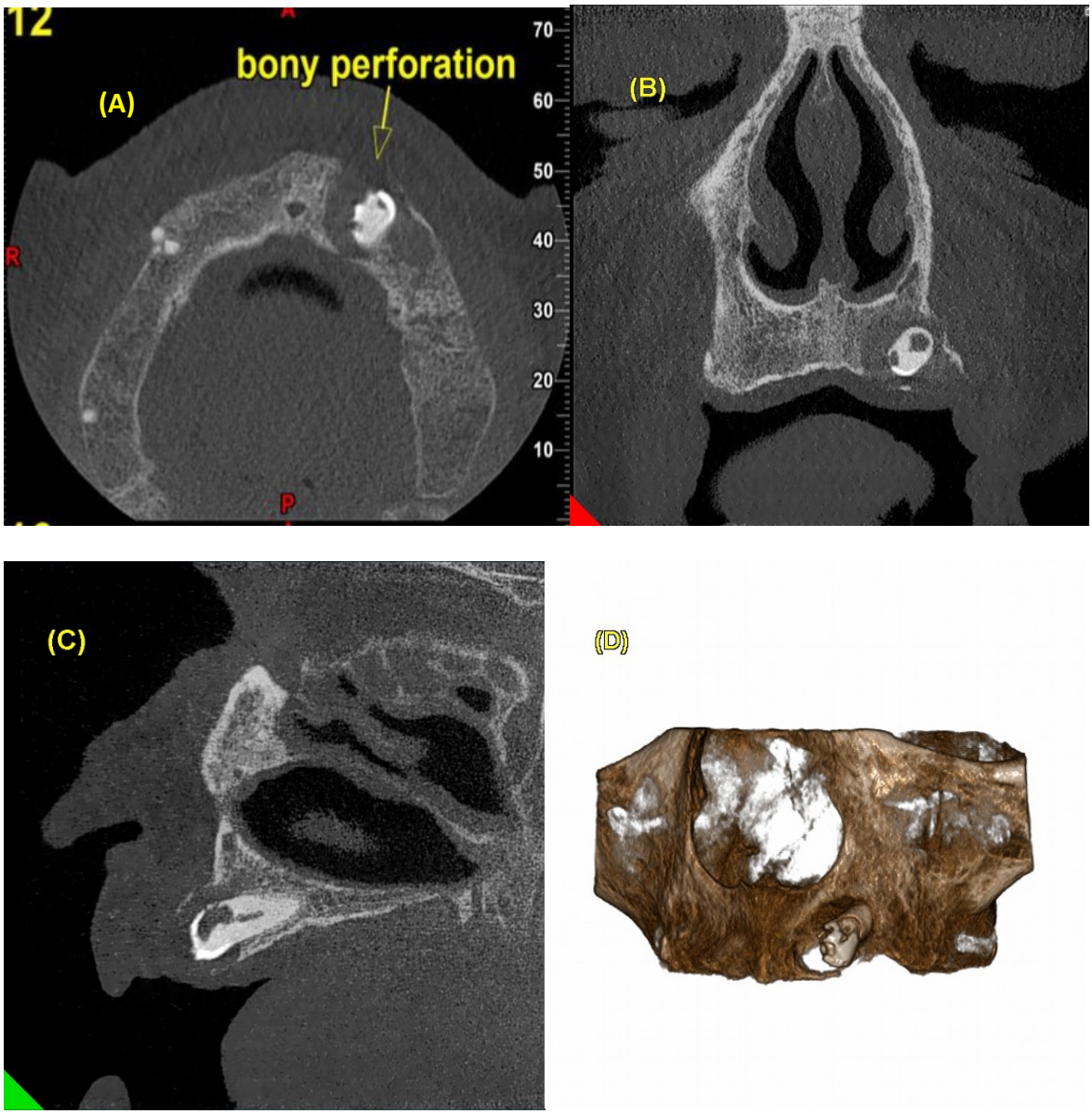


**Fig. 2.** CBCT images. A) axial section showed a unilocular lesion. Note the buccal cortical perforation (yellow arrow) and coronal re-sorption of the affected tooth. B) coronal section. C) sagittal section demonstrating the lesion surrounding the impacted teeth from CEJ to CEJ. D) 3D reconstructed radiography.

the diagnosis of a dentigerous cyst. A panoramic radiograph was prescribed at the 6-month follow-up session (Figure 3). The lesion cavity had healed. No evidence of fistula or pus drainage was detected during the clinical evaluation.

## Discussion

Dentigerous cyst is the most common developmental cyst [5]. Radicular cyst and dentigerous cyst are the two most common odontogenic cysts [3]. DC can occur in individuals aged 15 to 65 [2]. The presented case seems to support the age predilection given by other authors [2]. While the incidence of DC is reported to be higher in males, cases have also been diagnosed in females [2], as evident in the presented case.

DC typically involves the crown of an unerupted tooth [6] and is frequently associated with canines due to their higher rate of impaction compared to other anterior teeth [7], as reported in this case presentation.

DC should be diagnosed based on its radiographic characteristics, and its adherence to the CEJ should be confirmed during the surgical procedure [8]. However,


**Fig. 3.** Panoramic radiograph demonstrates a completely healed cavity lesion.

histopathological evaluation is recommended to rule out other lesions, including odontogenic keratocyst and ameloblastoma, as well as squamous cell carcinoma and mucoepidermoid carcinoma arising in the cyst [6]. These cysts are categorized as non-inflammatory and developmental [6], though secondary infection may occur, leading to changes from a painless to a painful condition [6].

While buccal or palatal cortical plate expansion has been documented in association with DC [9], the presented case showed perforation of the buccal cortical plate. This lack of an osseous barrier allowed contact between the cyst and the oral cavity, resulting in contamination and pus drainage.

Additional symptoms related to dentigerous cysts may include swelling and root resorption in the affected or adjacent teeth [9]. In the presented case, as an unusual finding, coronal resorption was observed in the affected tooth rather than root resorption. Coronal resorption is commonly associated with chronically impacted teeth; in such cases, destroyed pericoronal epithelium and replacement of dental enamel with bone are visible [10]. In this specific case, however, the formation of the dentigerous cyst ruled out the possibility of pericoronal epithelium destruction, and the replacement of resorbed enamel with bone did not occur.

The absence of previous CBCT scans limited the evaluation of changes over time in this case report. Further studies are warranted to explore alternative explanations for the observed findings.

## Conclusion

Prompt surgical excision of dentigerous cysts is essential to prevent potential complications, including secondary infection and inflammatory transformation. Regular radiographic monitoring of impacted teeth is strongly recommended to facilitate early detection. This case report presents an infected dentigerous cyst associated with fistula formation, compromising the retention of a complete denture. Notably, coronal resorption an uncommon finding was observed in the affected tooth. Considering that dentigerous cysts are often diagnosed in younger individuals, we advocate early surgical enucleation. Performing the procedure at a younger age not only simplifies the surgery and enhances healing but also reduces the risk of cyst infection and associated complications.

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## Ethical Considerations

### Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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## Conflict of Interests

The authors have no conflict of interest to declare.

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