

## REVIEW ARTICLE

# Dentigerous Cyst and its Management: A Review

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## ABSTRACT

The dentigerous cyst (DC) is defined as a cyst that originates by the separation of the follicle from around the crown of an unerupted tooth. DCs considered an epithelial lined developmental odontogenic cyst which usually occurs in the second and third decade of life. DCs are the second most prevalent cystic lesions of the jaw following the radicular cyst. They are associated with partially erupted, developing, supernumerary, or impacted teeth. Locations wise in the jaw, the mandibular third molars followed by maxillary canines are preferred sites. Occurrence of DCs is commonly unilateral. To prevent the development of DC and to avoid unwanted effects on adjacent teeth, early detection consisting of a thorough clinical and radiographical examination is necessary for accurate diagnosis and proper treatment planning.

**Keywords:** Decompression, Dentigerous cyst, Follicular epithelium, Marsupialization, Unerupted tooth.

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## INTRODUCTION

The dentigerous cyst (DC) is defined as a cyst that originates by the separation of the follicle from around the crown of an unerupted tooth. It is the most common type of developmental odontogenic cyst enclosing

the crown of an unerupted tooth and is attached to the tooth at the cemento-enamel junction (CEJ) making up about 20% of all epithelium-lined cysts of the jaws.<sup>[1]</sup> The World Health Organization classification of jaw cysts refers to the DCs as epithelial developmental odontogenic cysts.<sup>[2]</sup> They are attached to or enclose the crown of the unerupted tooth at the CEJ. Although DCs may be seen in patients across a wide age range, they are most frequently discovered in patients between 10 and 30 years of age. Their frequency in the first decade of life is reported to be lower than in the second and third decades.<sup>[3]</sup> The majority of them are associated with impacted or unerupted mandibular third molars followed by maxillary canines and maxillary third molars.<sup>[4]</sup>

## CLINICAL PRESENTATION

Typically, DCs are painless and discovered during a routine radiographic examination; however, they may be large and result in a palpable mass. In addition, as they grow, they displace adjacent teeth.<sup>[2]</sup> Several cases of DCs presenting as recurrent head and neck infection or as a deep neck space abscess have been described.<sup>[5]</sup>

## ETIOPATHOGENESIS

A DC is formed by the hydrostatic force exerted by the accumulation of fluid between reduced enamel epithelium and the tooth crown of unerupted teeth. As such the cyst encloses the crown and is attached to the neck at the CEJ.<sup>[6]</sup> They almost exclusively occur in permanent dentition. Stratified squamous non-keratinizing epithelium lines the cyst.

Over 75% of all cases are located in the mandible, with the most commonly involved teeth being:<sup>[1,3]</sup>

- Mandibular third molar (most common).
- Maxillary third molar (2<sup>nd</sup> most common).
- Maxillary canine.
- Mandibular second premolar.

## Radiological Features

Radiographs of DCs usually show unilocular radiolucent areas associated with the crowns of unerupted teeth having well-defined sclerotic margins unless they become infected. Three types of radiological variations of the DC may be observed. In the central variety, the crown is enveloped symmetrically where the pressure is

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applied to the crown of the tooth and may push it away from its direction of eruption. The lateral type of DC is a radiographic appearance that results from dilatation of the follicle on one aspect of the crown.<sup>[7]</sup> This type is commonly seen when an impacted mandibular third molar is partially erupted so that its superior aspect is exposed. In the circumferential DC, the entire tooth appears to be enveloped by cyst.<sup>[8]</sup>

### Histological Features

Histologically, a normal dental follicle is lined by enamel epithelium, whereas a DC is lined by non-keratinized stratified squamous epithelium. Since the DC develops from follicular epithelium, it has more potential for growth, differentiation, and degeneration than a radicular cyst. Occasionally, the wall of a DC may give rise to a more ominous mucoepidermoid carcinoma. Due to the tendency for DCs to expand rapidly, they may cause pathological fractures of jaw bones. On fine-needle aspiration, thin straw-colored fluid is seen.<sup>[9]</sup>

### DIFFERENTIAL DIAGNOSIS

When small, it is difficult to differentiate a DC from a large but normal dental follicle.<sup>[8,10]</sup> When larger, the differential is essential that of lytic lesions of the jaw and includes:

- Periapical cyst (radicular cyst).
- Aneurysmal bone cyst.
- Ameloblastoma.
- Keratocystic odontogenic tumor (odontogenic keratocyst).
- Cherubism (fibrous dysplasia).
- Stafne cyst.

### Treatment

Marsupialization and decompression may represent the treatment of choice, but they are also useful before extensive enucleation or curettage. The following guidelines are recommended for the diagnosis of a DC: (1) A pericoronal radiolucency larger than 4 mm in greatest width as assessed on a panoramic radiograph, (2) histologically, fibrous tissue lined by non-keratinized stratified squamous epithelium, and (3) a surgically

demonstrable cystic space between enamel and overlying tissue. Of these criteria, the third is the most critical, but all three must be satisfied.<sup>[11]</sup>

### Complications

- Pathological jaw fracture: If large enough.
- Very rarely DCs may develop into a mural ameloblastoma.<sup>[9]</sup>

### CONCLUSIONS

To prevent the development of DC and to avoid unwanted effects on adjacent teeth, early detection consisting of a thorough clinical and radiographical examination is necessary for accurate diagnosis and proper treatment planning.

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