

Dentigerous Cyst of Mandible

Priyanka Aggarwal, Barjinder Singh Sohal, Kuljit Singh Uppal

ABSTRACT

Dentigerous cyst of mandible is a rare entity in routine clinical practice. A dentigerous or follicular cyst is formed from the accumulation of fluid between the reduced enamel epithelium and the completely formed tooth crown or in the layers of the reduced enamel epithelium. Pulp necrosis is a commonly observed sequel in traumatized primary teeth and is one of the possible etiologic factors for the development of dentigerous teeth. The dentigerous cyst is found in children and adolescents; the highest incidence is in the second and third decades. This article reports the case of a dentigerous cyst associated with the germ of a permanent mandibular right lower canine. The therapeutic approach included endodontic treatment of the primary tooth and marsupialization of the lesion. In conclusion, with proper case selection, marsupialization might be a good treatment option for conservative management of dentigerous cysts.

Keywords: Dentigerous cyst, Mandible, Unerupted tooth.

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INTRODUCTION

Dentigerous cyst is an epithelial lined developmental cavity. It encloses the crown of an unerupted tooth at the cemento-enamel junction and it accounts for 24% of all true cysts of the jaw.^{1,2}

The tooth remains unerupted because of the overlying cyst. A dentigerous cyst almost exclusively occurs in the permanent dentition, especially in association with impacted mandibular third molars and with impacted maxillary canines. Sometimes the cyst may be situated on only one surface of the crown.³

The dentigerous cyst is found in children and adolescents; the highest incidence is in the second and third decades.³

The etiology of dentigerous cyst remains unclear and several theories have been proposed to explain its origin. One of the hypotheses suggests that the inflammation of periapical tissues originating from a primary tooth with necrotic pulp might stimulate the accumulation of fluid between the reduced enamel epithelium and the crown of the permanent tooth germ.⁴⁻⁹

Radiographs show a unilocular radiolucent lesion characterized by well-defined sclerotic margins associated with crown of the unerupted tooth/impacted tooth. In case of infection, the dentigerous cyst might become symptomatic

and present ill-defined margins on radiographic examination.¹⁰

On histopathological examination, the cyst consists of a fibrous wall lined by nonkeratinized stratified squamous epithelium consisting of myxoid tissue, odontogenic remnants and rarely sebaceous cells.¹¹

The differential diagnosis of a pericoronal radiolucency includes dentigerous cyst, mural ameloblastoma, odontogenic adenomatoid tumor, odontogenic keratocyst, ameloblastic fibroma, ameloblastoma, and calcifying odontogenic cyst.³

The treatment that involves enucleation of the cyst together with removal of the involved tooth rarely results in lesion recurrence. However, it is a very radical approach.^{12,13} A more conservative management consisting of cyst marsupialization and watchful waiting for the spontaneous eruption of the unerupted/impacted tooth has been widely performed with successful outcomes.

CASE REPORT

A 20-year-old male presented with painless swelling of the right side of lower jaw for the past 1 year. It was gradually increasing in size and did not resolve with medicines.

On examination, there was a large cystic nontender firm fixed swelling of the right lower jaw pushing the chin outward and downward. Right lower canine was unerupted.

Computed tomographic (CT) scan showed well defined cystic mass with fluid attenuation in the body of the mandible causing expansion of the mandible, with thinning of overlying cortex a small hyperdense mass was seen within this cystic mass in its inferior wall (unerupted canine).

Cyst enucleation was done under GA (Fig. 1). Lot of straw colored fluid drained out from the cyst. Right lower canine lying laterally in the cyst was also removed. Cavity was packed with ointment soaked gauze and it was removed after 48 hours. The tissue removed (Fig. 2) was sent for histopathological examination.

Dressings were done regularly for 3 weeks postoperative to reduce the dead space otherwise postoperative period was uneventful. Swelling of the jaw got reduced in size considerably after 3 weeks. The patient was recalled periodically for clinical and radiographic examinations.

Histopathological examination showed it to be an infected dentigerous cyst.

DISCUSSION

The dentigerous cyst is the second most common odontogenic cyst. It is most frequently associated with mandibular third

molars and maxillary canines and is usually detected by routine radiographic examination. This type of cyst might affect unerupted, impacted, or supernumerary teeth or odontomas.^{12,14}

Three theories have been proposed to explain the etiology of the dentigerous cyst. The first theory suggests that fluid accumulation between the reduced enamel epithelium and the crown of the permanent tooth germ results from the pressure exerted by the erupting tooth on its own dental follicle, which would cause the exit of serum exudates from capillaries because of obstruction of venous return.^{14,15}

The second theory advocates that, along its eruption path, the immature permanent tooth encounters a radicular cyst originating from its primary predecessor. This is the least accepted hypothesis because radicular cysts rarely develop associated with primary teeth.⁵⁻⁸

According to the third theory, the dentigerous cyst would be caused by inflammation of the periapical tissues due to a periapical infection originating from the primary predecessor

tooth, which would reach and stimulate the developing permanent tooth germ thus, providing accumulation of fluid.⁵⁻⁸

Bloch in his hypothesis suggested that the resultant periapical inflammation from an overlying necrotic deciduous predecessor will spread to involve the follicle of unerupted permanent successor resulting in accumulation of inflammatory exudates, thus leading to dentigerous cyst formation.^{8,15,18}

Toller stated breakdown of proliferating cells of follicle after impeded eruption. The eruption of a tooth associated with a dentigerous cyst seems to be more influenced by its angulations and position inside the alveolar bone than by the cyst dimensions and amount of available space within the dental arch.¹⁶ Although, the cystic lesion had displaced the germ of the permanent incisor, the tooth returned to a satisfactory position and erupted uneventfully after treatment.

Whenever a radiographic diagnosis of a dentigerous cyst is made, the possibility of it being a mural ameloblastoma (that is, a neoplastic transformation of the epithelial lining of a dentigerous cyst) should also be considered. Other pericoronal radiolucencies that radiographically resemble dentigerous cysts are stated below in the differential diagnosis for consideration. It is, therefore, imperative that the clinician send the enucleated specimen for microscopic examination.

Like other cysts, uncomplicated dentigerous cyst causes no symptoms until the swelling becomes noticeable. Infection of dentigerous cyst causes the usual symptoms of pain and accelerated swelling.

According to Motamedi and Talesh, treatment of dentigerous cyst is based on: Size of lesion, location of the cyst, age of the patient, dentition affected and relationship with vital structures. In an attempt to preserve the tooth associated with the cystic lesion, the marsupialization technique has been successfully performed and is indicated for growing children and adolescents. This conservative procedure leads to reduction in the size of the cystic cavity and allows the spontaneous eruption of the unerupted/impacted tooth.¹⁷ If no treatment is performed, the cyst not only precludes the normal eruption of the affected tooth but also might cause ectopic tooth positioning, bone expansion, and facial asymmetry.



Fig. 1: Intraoperative picture of dentigerous cyst through peroral route



Fig. 2: The specimen removed

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