

The Carnassial Wen-Dentigerous Cyst

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Received: July 22, 2022; **Published:** August 30, 2022

Dentigerous cyst is a jaw cyst layered with epithelium which preponderantly emerges as a developmental odontogenic cyst originating due to segregation of dental follicle from circumscribing crown of an un-erupted tooth. Bilateral dentigerous cysts are exceptional.

Secondary neoplasms such as ameloblastoma, squamous cell carcinoma or intra-osseous mucoepidermoid carcinoma may exceptionally arise from dentigerous cyst [1,2].

Dentigerous cyst can be appropriately discerned with clinical correlation of cogent radiographic features. Nevertheless, aggressive odontogenic lesions as odontogenic keratocyst, ameloblastoma or diverse odontogenic tumours demonstrate identical radiographic features.

Additionally designated as follicular cyst, dentigerous cyst infrequently emerges as multiple, simultaneous, developmental odontogenic lesions. Commonly, adolescents or young adults are incriminated although no age of cyst emergence is exempt [1,2].

Classically, dentigerous cyst arises in association with an un-erupted tooth. Commonly, permanent, mandibular third molar or wisdom tooth is encompassed by the cyst. Infrequently, cyst may surround permanent maxillary third molars, maxillary cuspids or mandibular second premolars. Implication of supernumerary teeth, odontomas or un-erupted primary teeth is exceptional. However, no tooth is exempt from occurrence of dentigerous cyst [1,2].

Dentigerous cyst is usually configured from glycosaminoglycans-rich fluid accumulated between decimated enamel epithelium of dental follicle and crown of un-erupted tooth [1,2].

Majority of dentigerous cysts emerge as developmental odontogenic cysts with an inflammatory pathophysiology. Inflammation progresses from root apex of carious or necrotic deciduous teeth with articulation of dentigerous cyst circumscribing subjacent, un-erupted permanent teeth. Histological segregation of inflamed, developmental odontogenic dentigerous cyst from cysts engendered due to inflammation may be challenging [1,2].

Dentigerous cyst may emerge as a miniature, asymptomatic lesion incidentally discerned upon radiographic imaging for delayed tooth eruption [1,2].

Dentigerous cyst may evolve into a painless, bony expansion which displaces incriminated tooth or engenders resorption of adjacent tooth. Pain may ensue with secondary cyst infection [1,2].

Grossly, surgical specimens exhibit loss of concurrence of tooth and cyst. Cyst nodularity requires extensive examination in order to exclude focal neoplastic transformation [1,2].

Microscopic features appear contingent to emergence of inflammation. Inflamed dentigerous cyst is layered with hyperplastic, non-keratinized stratified squamous or cuboidal epithelium and encompassed with fibrous connective tissue infiltrated with chronic inflammatory cells [1,2].

Occasionally, interconnected, elongated rete ridges are observed. Cholesterol clefts may be exemplified with configuration of cholesterol granuloma. Hyaline, eosinophilic, 'Rushton' bodies may appear confined to epithelial layer [1,2].

Mucous, ciliated cuboidal, columnar or mature sebaceous cells are infrequently observed along with foci of dystrophic calcification. Miniature foci of inactive odontogenic epithelial cell rests may be discerned [1,2].

Non inflamed dentigerous cyst is layered with squamous or cuboidal epithelium with a flattened epithelial- connective tissue interface, absent rete ridges and encompassing fibrous or fibromyxoid connective tissue. Multiple layers of cuboidal epithelium devoid of superficial keratinization may coat the cyst. Dentigerous cyst may depict focal peripheral nuclear palisading of basal epithelial layer [1,2].

Mucous cells and foci of dystrophic calcification are occasionally delineated. Ciliated epithelial cells are exceptionally discerned. Miniature, inactive foci of odontogenic epithelial cell rests may appear.

Certain dentigerous cysts are partially coated with an attenuated, fragmented layer of eosinophilic, columnar to low cuboidal epithelial cells, possibly representing post-functional ameloblastic layer of decimated enamel epithelium. Majority of aforesaid lesions probably represent hyperplastic connective tissue emerging from dental follicles [1,2].

Dentigerous cyst requires segregation from neoplasms such as cystic ameloblastoma, odontogenic keratocyst or keratocystic odontogenic tumour [3,4].

Segregation of dentigerous cyst from diverse inflammatory or neoplastic conditions is contingent to pertinent radiographic features as incrimination of specific tooth, concurrence with or absent concordance with impacted tooth, lytic or opaque lesions or magnitude and quantification of radiographic lesions [3,4].

Additionally, factors such as quantity and epithelial features within tissue specimens, proportionate inflammation and assessment of contemporary or repetitive lesions may contribute to cogent differentiation of dentigerous cyst [3,4].

The lesion may be challenging to ascertain upon minimally sampled epithelial tissue or non-confirmatory radiographic features [3,4].

Pertinent clinical and imaging features may concur with morphological representation, required for appropriate discernment of dentigerous cyst. Upon radiography, a well demarcated, unilocular, radiolucent lesion with a sclerotic perimeter is frequently discerned. Generally, dentigerous cyst manifests as a peri-coronal radiolucent lesion > 4 millimetre magnitude. Dentigerous cyst may engender resorption of adjacent teeth [3,4].

Radiographic concurrence of dentigerous cyst with incriminated tooth is denominated as:

- Centric variant is commonly discerned wherein cyst develops and circumscribes tooth crown within entirety of tooth. Thus, abutting tooth appears to be erupting within the cyst.
- Lateral variant wherein cyst emerges within lateral tooth root and exhibits partial circumscription of the crown.

- Circumferential variant wherein cyst encompasses the crown and expands towards tooth root. Thus, tooth root appears to be enclosed within the cyst [3,4].

Radiographic demarcation between an enlarged dental follicle and miniature dentigerous cyst can be inconsistent and challenging.

Cogent therapy of dentigerous cyst is contingent to factors such as age and maturity of incriminated individual, anatomic localization, incriminated tooth, cyst magnitude and concurrence of associated neoplasms. Besides, individual preferences with pertinent cosmetic and functional relevance may be considered [3,4].

Frequently employed therapeutic strategy is comprehensive enucleation of cyst along with extraction of associated tooth [3,4].

Cyst marsupialization can be adopted which is comprised of eradication of cyst with sparing of implicated permanent tooth. Marsupialization necessitates extensive monitoring of lesion in order to exclude reoccurrence [3,4].

Dentigerous cyst is associated with superior therapeutic outcomes. Comprehensive enucleation is devoid of cyst reoccurrence. However, radiographic monitoring is recommended [3,4].

Lesion reoccurrence is indicative of inadequate surgical extermination of cyst or possible, erroneous disease discernment [3,4].

Alternatively, tooth- sparing, marsupialization surgical procedures are associated with enhanced proportionate cyst reoccurrence or persistence of lesion [3,4].

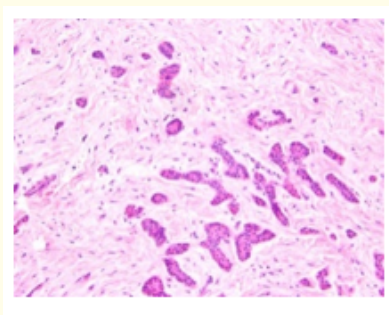


Figure 1: Dentigerous cyst lined with multi-layered cuboidal epithelium surrounded by fibromyxoid stroma [5].

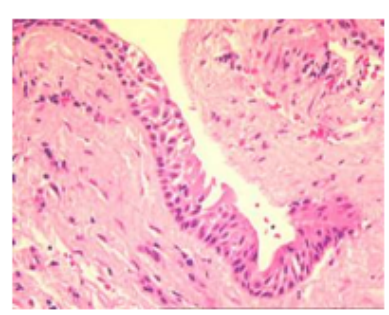


Figure 2: Dentigerous cyst coated with stratified squamous epithelial cells imbued with abundant eosinophilic cytoplasm and circumscribing fibrous tissue stroma [6].

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5. Image 1 Courtesy: Wiley online library.
6. Image 2 Courtesy: Priory.com.

Volume 21 Issue 9 September 2022

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