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ODONTOGENIC CYSTS

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Abstract: Odontogenic cysts are common pathological lesions of the jaws that originate from odontogenic epithelial tissues. They may develop as a result of inflammatory or developmental processes and can affect both the maxilla and mandible. This article discusses the main types, clinical features, diagnostic methods, and treatment approaches of odontogenic cysts. Special attention is given to early diagnosis, appropriate surgical management, and prevention of possible complications and recurrence.

Keywords: odontogenic cysts, jaw cysts, radicular cyst, dentigerous cyst, diagnosis, treatment, maxillofacial surgery.

Odontogenic cysts are pathological cavities that develop within the jaws and are usually associated with tissues involved in tooth formation. They are among the most common cystic lesions of the maxillofacial region and may occur in both the maxilla and mandible. These lesions can develop at different ages and may remain asymptomatic for a long period, especially when they are small.

The origin of odontogenic cysts is closely related to epithelial remnants of odontogenic tissues. Depending on their pathogenesis, they may be classified into inflammatory and developmental cysts. Radicular cysts are among the most common inflammatory odontogenic cysts, while dentigerous cysts and other developmental lesions are also frequently encountered in dental and maxillofacial practice.Clinically, odontogenic cysts may present with swelling, pain, facial asymmetry, displacement of teeth, delayed eruption, or signs of infection. In many cases, the lesion is discovered accidentally during routine radiographic examination. As the cyst enlarges, it may cause expansion and thinning of the cortical bone, root resorption, or displacement of adjacent anatomical structures.

Diagnosis is based on clinical examination, radiographic findings, and histopathological evaluation. Panoramic radiography, cone-beam computed tomography, and other imaging methods are useful for determining the exact size, location, and relationship of the cyst with neighboring teeth and anatomical structures.Early diagnosis and appropriate treatment are important to prevent complications and preserve the function and structure of the jaw. Treatment may include enucleation, marsupialization, or other surgical approaches depending on the type, size, and location of the cyst.

Odontogenic cysts are among the most frequently encountered pathological lesions of the jaws. They originate from epithelial components associated with odontogenesis and may develop at different stages of tooth formation or as a consequence of inflammatory processes. These cysts can occur in both the maxilla and mandible, although their frequency and anatomical distribution vary depending on the specific cyst type.

From a clinical and pathological point of view, odontogenic cysts are generally classified into inflammatory and developmental categories. Inflammatory odontogenic cysts develop secondary to infection or chronic inflammation, while developmental cysts arise from odontogenic epithelial remnants without a primary inflammatory cause. Understanding this classification is important because different cysts may show different growth patterns, recurrence rates, radiographic appearances,

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and treatment requirements.Radicular cysts are considered the most common inflammatory odontogenic cysts. They usually develop at the apex of a non-vital tooth following pulpal necrosis and chronic periapical inflammation. The inflammatory process stimulates epithelial remnants in the periodontal ligament, particularly the epithelial rests of Malassez, leading to epithelial proliferation and subsequent formation of a cystic cavity. Radicular cysts are commonly associated with carious teeth, previous dental trauma, or unsuccessful endodontic treatment.

Clinically, small radicular cysts may remain asymptomatic for a long period and are often detected incidentally on radiographic examination. As the lesion increases in size, patients may develop swelling, cortical bone expansion, mild discomfort, or displacement of adjacent teeth. If secondary infection occurs, pain, tenderness, redness, and soft tissue swelling may develop. In some cases, a sinus tract may form and drain into the oral cavity.

Residual cysts represent another inflammatory form and may remain within the jaw after extraction of a tooth affected by a radicular cyst. These lesions may persist for many years without symptoms. Radiographically, they usually appear as well-defined radiolucent lesions in an edentulous region. Residual cysts should be carefully evaluated because they may continue to enlarge and produce progressive bone destruction.

Dentigerous cysts are among the most common developmental odontogenic cysts. They are typically associated with the crown of an unerupted, impacted, or developing tooth. The cystic cavity usually attaches to the tooth around the cementoenamel junction. Dentigerous cysts are frequently observed in association with mandibular third molars, maxillary canines, mandibular premolars, and supernumerary teeth.

The development of a dentigerous cyst is generally related to the accumulation of fluid between the reduced enamel epithelium and the crown of an unerupted tooth. This process may gradually enlarge the cystic space. Many dentigerous cysts are asymptomatic and discovered during evaluation of delayed tooth eruption. Larger cysts may cause painless swelling, facial asymmetry, displacement of teeth, root resorption, or expansion of the cortical bone.

Another important odontogenic cystic lesion is the odontogenic keratocyst, which has unique biological characteristics. It may demonstrate locally aggressive behavior and a relatively high tendency for recurrence. Odontogenic keratocysts may occur as single or multiple lesions and are commonly found in the posterior body and ramus of the mandible. They may grow extensively in an anteroposterior direction with relatively limited buccolingual expansion in some cases.Patients with odontogenic keratocysts may remain asymptomatic until the lesion reaches a considerable size. Symptoms, when present, may include swelling, pain, drainage, or infection. Multiple odontogenic keratocysts may also be associated with certain genetic syndromes, which makes careful clinical assessment and follow-up especially important.

Conclusion.Odontogenic cysts are common pathological lesions of the jaws that may remain asymptomatic for a long period and gradually cause significant structural changes. Their clinical behavior depends on the type, size, location, and presence of secondary infection. Accurate diagnosis requires a combination of clinical examination, radiographic assessment, and histopathological evaluation.

Early detection and appropriate treatment are essential to prevent complications such as bone destruction, displacement of teeth, infection, and recurrence. Surgical methods such as enucleation, marsupialization, and decompression should be selected according to the individual characteristics of

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each case. Regular postoperative follow-up is also important for monitoring healing and detecting possible recurrence. Therefore, timely diagnosis, correct treatment planning, and long-term observation are the main principles for successful management of odontogenic cysts and preservation of normal maxillofacial function.

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