

Odontogenic cysts

An odontogenic cyst is a pathological cavity, it has its own wall and lining, or epithelium, and is filled with contents (liquid, mushy, gaseous). Cystic epithelium derived from epithelial structures associated with tooth development. Epithelial structures include lamina dentalis, an enamel organ, Malassez's epithelial nests as remnants of Hertwig's sheath.

Origin and Occurrence

Cysts are most often formed by retention of contents. They are a common phenomenon in the orofacial area. Cysts are found in both soft tissues and bones. Causes can be developmental disorders, trauma or inflammation.

Division

Developmental cyst

- Primordial cyst – tooth does not develop and a cyst forms in its place. Alternatively, it arises from a supernumerary tooth base. 3 % of odontogenic cysts are primordial.
- Follicular cyst - occurs when hard tissues are already formed.

Inflammatory cyst

It arises as a result of inflammatory irritation in an already developed tooth.

Types of odontogenic cysts

Radicular cyst

Inflammatory process, most common type (accounts for about 75% of all odontogenic cysts). It is formed apically or laterally, the condition is the presence of a vital tooth. The cyst contains a clear, serous fluid with small cholesterol particles produced by the epithelium and enlarges by transudation from the surrounding area. Carcinoma occurs rarely.

Clinical picture

Mostly painless, overlying mucosa is unchanged. Slow expansive growth, sometimes we find a swelling of the alveolar process towards the vestibulum, which initially has a rigid consistency. In the advanced state, arching and deformation of the anatomical shape occurs. A palpable circumscribed tumor-like mass covered by skin or mucous membrane, which has a fluctuating character or breaks through at the point of greatest curvature.

'*Dupuytren's sign* - with significant thinning of the bone, crepitations can be elicited by palpation, which are caused by the elastic rolling of the cyst wall, convergent position of the crowns due to compression of the roots of neighboring teeth, pathological fractures possible (rare).

X-ray findings

- *Native X-ray* - regular circular/ovoid elucidation which is sharply demarcated from the surroundings and communicates with the periodontal fissure. We supplement the X-ray with teeth vitality examination, which helps to determine the exact location
- "Contrast X-ray" (oily liquid - Lipiodol) - by puncture we partially drain the contents of the cyst and apply a contrast liquid. Direct/indirect method ;

Etiology

A tooth with a gangrenous pulp from which microorganisms and their toxins penetrate into the periapical region, forming a granuloma. Remnants of epithelial Malassez cells can grow into the granuloma, turning the granuloma into a cystogranuloma and then into a radicular cyst. It can also arise from a chronic dentoalveolar abscess.

Structure of a cyst

- *Sac* – consists of three layers, epithelial (secretory, granulation and fibrous).
- *Contents* - epithelial cells, serous transudate (yellowish liquid with blood elements and cholesterol crystals that enters the cyst as a result of osmotic changes) are located here.

Cyst growth

- *Active phase* – as a result of the production of inflammatory exudate, surrounding tissues are compressed and undergo atrophy.
- *Passive phase* – as a result of osmotic changes, when the cyst wall absorbs liquid transudate from the surroundings. Growth is slow, in the direction of least resistance. Typically it spreads in the upper jaw towards

[antrum Highmori|maxillary sinus], and in the lower jaw towards the mandibular canal.

Therapy

It depends on the size and location of the cyst:

- **Excochleation** - indicated for cystogranulomas with a size up to 1 cm (risk of residual cyst formation). Extraction and excochleation with a spoon to the bone.
- **Resection of the root tip** - for single-rooted teeth, after a previous root filling. Root – resected to the bottom of the cystic cavity.
- **Cystectomy (extirpation, Partsch II.)** - indicated for small cysts up to 3 cm.

Method:

1. Local anesthesia
 2. Incision (horizontally at the level of the free gingiva and continuing vertically to the level of the transitional lash)
 3. Removal of bone
 4. Extirpation of the cyst
 5. Closing the wound
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- **Cystostomy (marsupialization, Partsch I.)** - indicated for large cysts. Reduction of pressure in the cyst, which creates conditions for bone regeneration.

Method:

1. Section of mucosa and mucoperiosteum
2. Removal of bone
3. Wide opening of the cyst to the DÚ
4. Evacuation
5. Suction of the mucoperiosteum into the cavity and its fixation to the cyst sac/holding with a tampon (the tampon is changed every other day)
6. Later, when the entire cavity is covered with a granulation blanket, we make an obturator (fixed to the prosthesis/free) according to the impression, which we gradually reduce. After about 1.5-2 years, new bone is formed.

Differential diagnosis

- Cysts of remnants of the *ductus nasopalatinus* - not related to the periodontium.
- Lateral periodontal cysts – the tooth is vital, there are deep periodontal trunks.

Follicular cyst

They account for about 20% of odontogenic cysts, and are developmental cysts. It arises from the epithelium of the tooth germ layer in three possible stages:

- if the crown has not yet developed (primordial cyst),
- if the crown has developed but the root has not,
- if the developed tooth is retained (the crown is in the cyst sac, directed centrally and the root is outside the sac and is stored in the spongy part).

It surrounds or is lateral to the crown. It only affects permanent teeth. Most often the third molar or second premolar in the mandible and the canine or third molar in the maxilla. It most often affects children and adolescents. They are often associated with retained or unerupted teeth.

Clinical picture

A tooth is missing (or a deciduous tooth persists). On X-ray, a sharply demarcated round or ovoid clearing is visible, which is interrupted by the shadow of a retained tooth.

Therapy

Extirpation of the sac and removal of the developed tooth, or preservation of the tooth (if the embryo was not damaged during the operation and its development has not yet been completed).

Periodontal cyst

They make up 5% of odontogenic cysts. Inflammatory process, arising from Malassez nests. Originating from irritation of the marginal periodontium, they often arise from abscesses. A bounded process that has no parallel in the oral cavity. X-ray in the beginning without signs of destruction of bone tissue. There is no connection with the vitality of the tooth.

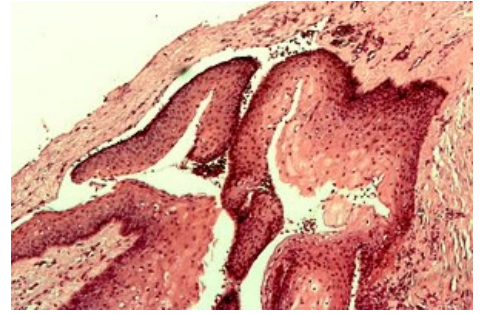
Odontogenic keratocyst

Since 2005, the name has been changed to keratocystic odontogenic tumor, due to possible locally aggressive behavior.

It arises on the basis of primary disorders of the development of the dentures. Rare, about 1% of cases. Affecting people at the age of 20 - 30 years, more often in the lower jaw. It remains asymptomatic for a long time, there is no bulge of the jaw, thanks to growth in the antero-posterior direction. They tend to be multiple in Gorlin-Goltz syndrome. On X-ray it looks like a multichamber formation, the edges are clear. The basal cells of the wall invade the surrounding tissues, where daughter microcytes are formed, which is often referred to as a possible cause of frequent recurrences. Histology is required for definitive determination.

Microscopic imaging

A wall formed by fine fibrous tissue on which a squamous cell epithelium is attached (the border is straight), parakeratosis (or orthokeratosis) on the surface of the epithelium, inflammatory infiltrate in the wall is indistinct or completely absent.



Odontogenic keratocyst

Residual cyst

It includes radicular, follicular and possibly periodontal cysts that remained in the jaw after tooth removal.

Links

Related Articles

- Fissural cysts
- Pain in the orofacial region

References

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- <http://www.lks-casopis.cz/clanek/keratocysticky-odontogenni-tumor/>