

# **The cyst**

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# The CYST

Definition: It's a pathological cavity filled with fluid which is solid semisolid or gaseous form which may or may not be lined by epithelium “ Cyst can occur within bone or soft tissues “ They may be asymptomatic or associated with swelling and pain

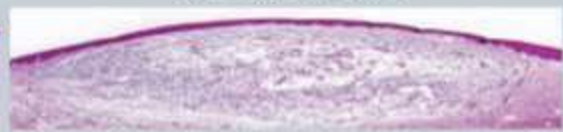
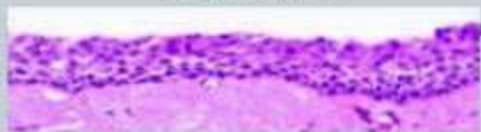
# pseudo cyst X true cyst

Type

True cyst

Pseudo cyst

Lining



## Classification of Pseudo cysts

Traumatic

Developmental

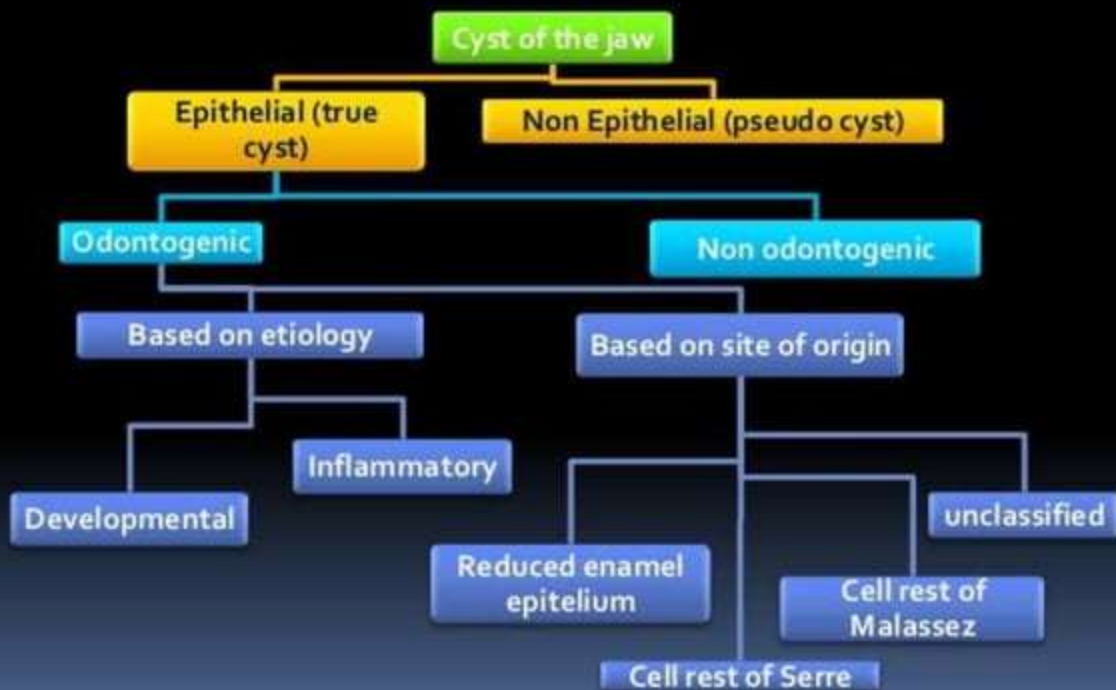
Aneurysmal

Traumatic

Static bone cyst

bone marrow defect

# CLASSIFICATION OF CYST



## ***Non odontogenic cyst***

Nasopalatine cyst

Nasolabial cyst

Median palatine cyst

Thyroglossal duct cyst

Cervical lymphoepithelial  
cyst

# ODONTOGENIC

## BASED ON ETIOLOGY

### DEVELOPMENTAL CYST

- gingival cyst of infants
- gingival cyst of adults
- odontogenic keratocyst
  - dentigerous cyst
  - eruption cyst
- lateral periodontal cyst
- botryoid odontogenic cyst
- glandular odontogenic cyst
- calcifying odontogenic cyst

### INFLAMMATORY

- periapical cyst
- residual cyst
- paradental cyst

## BASED ON SITE OF ORIGIN

### 1)REDUCED ENAMEL EPITHELIUM

- dentigerous cyst
- eruption cyst

### 2)CELL REST OF SERRE

- odontogenic keratocyst
- gingival cyst of newborn
- gingival cyst of adults
- lateral periodontal cyst
- glandular odontogenic cyst

### 3)CELL REST OF MALASSEZ

- periapical cyst
- residual cyst

### 4)UNCLASSIFIED

- calcified odontogenic cyst
- paradental cyst

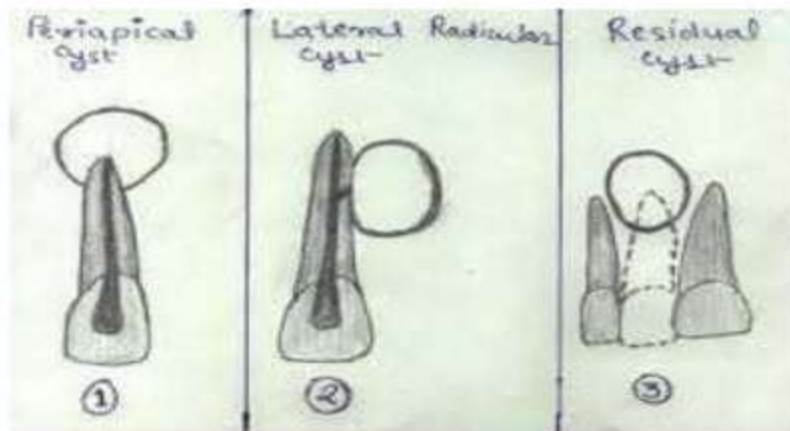
## Radicular cyst

The most common type of cyst in the jaw and most common type inflammatory odontogenic cyst  
Its epithelial lining from odontogenic epithelium residues

.

## Classification It is classified as follows :

- **Periapical Cyst** .xepa toor ta tneserp era hcihw stsync ralucidar eht era esehT :
- **Lateral Radicular Cyst** ta tneserp era hcihw stsync ralucidar eht era esehT -:  
.htoot gnidneffo fo slanac toor yrossecca laretal fo gninepo eht
- **Residual Cyst** refta neve sniamer hcihw stsync ralucidar eht era esehT -:  
.htoot gnidneffo fo noticartxe





# Clinical Features

1.The most common type of cyst in the jaw

2.Age: 3rd-6th decade

3.Arise from NON VITAL TOOTH

4.**Most common location:**

. Maxillary anterior region

. Maxillary posterior region

. Mandibular posterior region

. Mandibular anterior region

- Usually asymptomatic
- Slowly progressively infection enters,
- the swelling becomes painful & rapidly expands (partly due to inflammatory edema)
- Initially swelling is round & hard..... Later, part of wall is resorbed à leaving a soft fluctuant swelling, bluish in color, beneath the mucous membrane.
- When bone has been reduced to egg shell thickness



## Etiology and Pathogenesis

: Pathogenesis of Radicular Cyst is conveniently considered in 3 Phases, which are as follows

- Phase of Initiation,
- Phase of Cyst Formation,
- Phase of Cyst Enlargement

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## Phases of initiation and cyst formation:

Dental cysts are usually caused due to root infection involving the tooth affected greatly by carious decay .

The resulting pulpal necrosis causes release of toxins at the apex of the tooth leading to periapical inflammation .

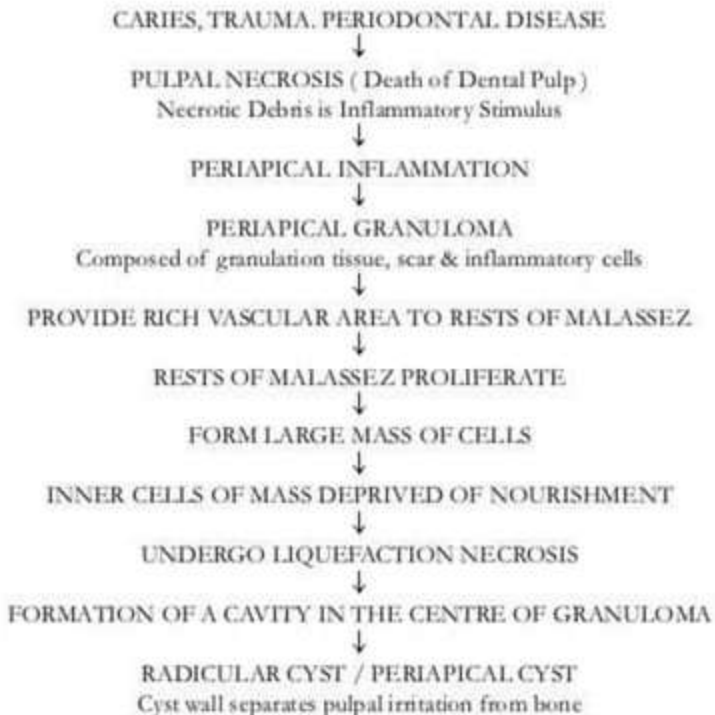
This inflammation leads to the formation of reactive inflammatory (scar) tissue called periapical granuloma .

The stromal cells of this tissue secrete growth factors that stimulate proliferation epithelial cells. Rests of Malassez thus lead to form large mass of cyst with continuous growth , the inner cells of mass are deprived of nourishment they undergo liquefaction necrosis lead to formation of cavity which is located in the center of granuloma giving rise to radicular cyst

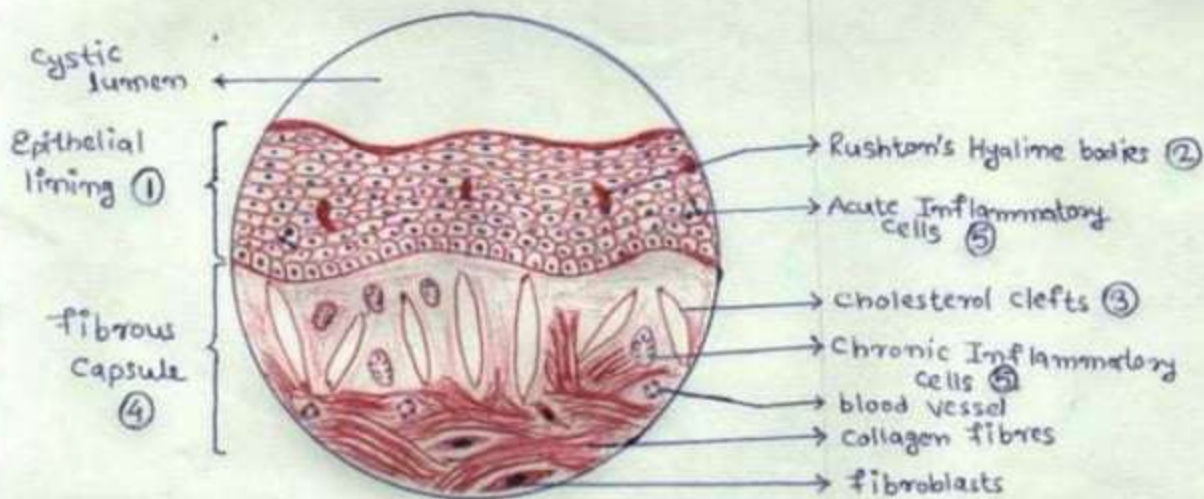
## Phase of Cyst Enlargement

osmolarity makes contribution to increase in size of cyst. Plasma protein exudate & Hyaluronic acid as well as products of cell breakdown contribute to high osmotic pressure of cystic fluid on cyst walls which causes resorption of bone and enlargement of cyst. and stimulation of osteoclasts & other bone resorbing such as prostaglandin , interleukins, proteionases lead to cyst enlargment

## Periapical Cyst – Pathogenesis (SUMMARY)



## Periapical Cyst – Histopathology



# ***Histopathology***

## ***Lumen:***

Contains cyst fluid, which is usually watery and opalescent  
Cholesterol crystals are not specific to radicular cyst

## ***Epithelial lining:***

Non-keratinized stratified squamous epithelium  
Lacks well defined basal cell layer  
Rushton bodies maybe found  
Non Thick, irregular net like forming rings



**Capsule:-** composed of mainly condensed parallel bundles of collagen fibers and fibrous connective tissue

Russel bodies are always found

### **Hyaline bodies(Rushton bodies)**

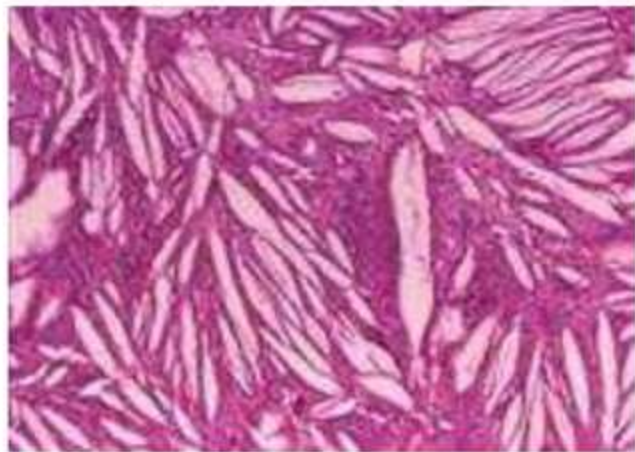
Characterized by a slightly curved shape,concentric lamination and basophic mineralization

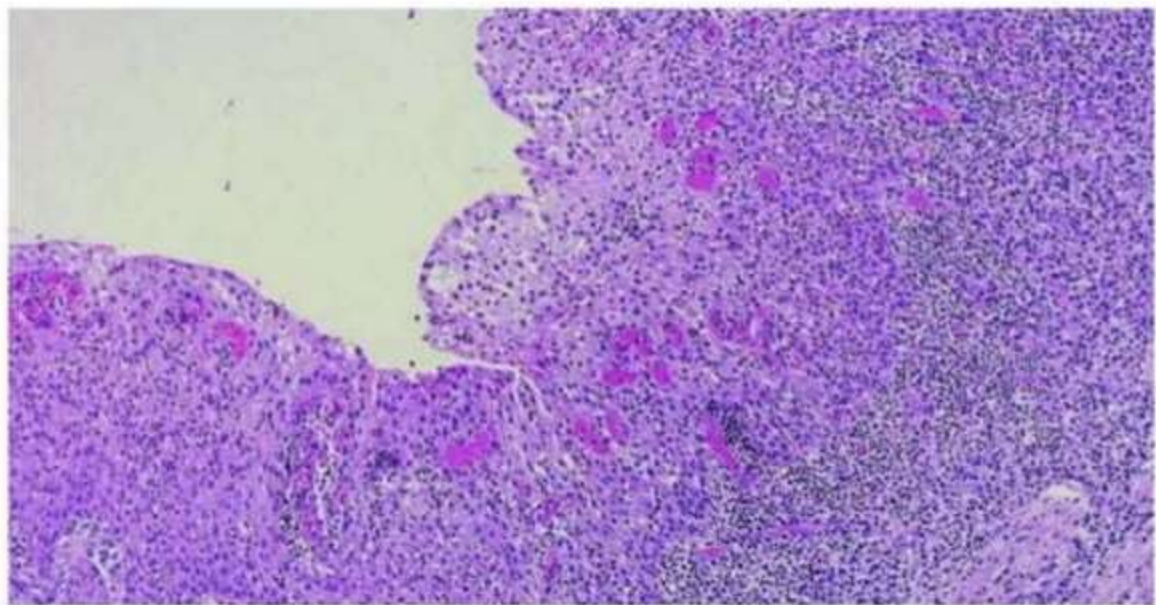
**Russel bodies:** spherical intracellular bodies representing accumulated gamma globlin

**Inflammatory Cells:-** Acute inflammatory cells are present when epithelium is proliferating. Chronic inflammatory cells are present in connective tissue immediately adjacent to epithelium

## **Cholesterol Clefts:-**

Deposition of Cholesterol crystals are found in many radicular cysts, slow but considerable amount of cholesterol accumulation could occur through disintegration of lymphocytes, plasma cells and macrophages taking part in inflammatory process, with consequent release of Cholesterol from their walls.





**Figure 10-6** Periapical cyst with a chronic inflammatory cell infiltrate and nonkeratinized epithelial lining.

# ***Diagnosis***

Periapical granuloma (non vital tooth)

In the anterior part of the mandible periapical  
cemental dysplasia

In the posterior mandibular area traumatic bone  
cyst, odontogenic tumour, giant cell lesions, primary  
osseous tumours, metastatic tumours (vital tooth)

The vitality of the involved tooth should be tested

A non-vital tooth may have a larger pulp chamber than the neighboring teeth because of the lack of secondary dentin which is formed with time in the pulp chamber and canal of a vital tooth.

## Radiographic features

- **Location:** at the apex of a nonvital tooth.
- **Periphery and shape:** The periphery usually has a welldefined cortical border. It will become ill-defined if infected.
- **Internal structure:** In most radicular cysts is radiolucent.
- **Effects on surrounding structures:**  
If a radicular cyst is large, displacement and resorption of the roots of adjacent teeth



**Fig. 7.2** A radicular cyst on a grossly carious and non-vital first permanent molar. A rounded and sharply defined area of radiolucency is associated with the apices of the roots.

## Periapical Cyst – Treatment

- Root canal filling ( removal of necrotic pulp; the inflammatory stimuli)
- Extraction of the involved non-vital tooth & curettage of apical zone
  
- Surgery ( epicoectomy & curretage ) is performed for lesions that are persistent, Indicating presence of a cyst or inadequate root canal treatment.
  
- If incompletely removed → residual cyst

**Enucleation**

**Marsupialization**

# Residual cyst

## Causes:

- When the necrotic tooth is extracted but the cyst lining is incon removed, is the common cause of swelling of the edentulous jaw in older persons ,continued growth can cause significant bone resorption and weakening of the mandible or maxilla



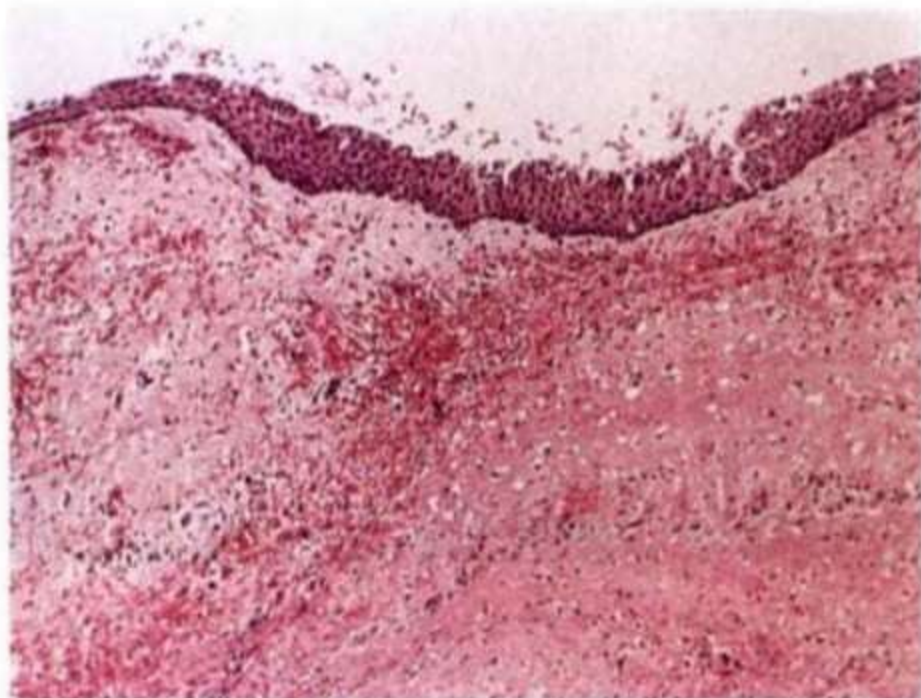
**Fig. 7.12** Residual cyst. The causative tooth has been extracted leaving the cyst in situ. See also Figure 7.13.



**Fig. 7.13** Radiographic appearance of the residual cyst shown in Figure 7.12. Note the thin bulging peridental new bone layer which can give rise to the clinical sign of eggshell crackling. (Figures 7.12 and 7.13 kindly lent by Mr P Robinson.)



## Residual Periapical Cyst



**Fig. 7.14** Lining of a residual cyst. There is only a minor degree of inflammation and the epithelium forms a thin regular layer.

## **Histopathology:**

Same like Radicular or periapical cyst

## **Radiographic features:**

- Location: In both jaw but more in the mandible. Found at periapical location, in place of an extracted tooth.
- Periphery and shape: The periphery usually has a well defined border.
- Internal structure: In most cases the internal structure of radicular cysts is radiolucent.
- Effects on surrounding structures: large cyst , displacement and resorption of the roots of adjacent teeth may occur

## Differential Diagnosis

- residual cyst has greater potential for expansion compared with a keratocyst.

## Treatment:

Enucleation if the lesion is small

Marsupialization if the lesion is large

# Lateral Periapical Cyst

- Are rare (20%)
- Form at the side of a non vital tooth as a result of opening of a lateral branch of the root canal.

## NOTE:

- Must be differentiated from LATERAL PERIODONTAL CYSTS

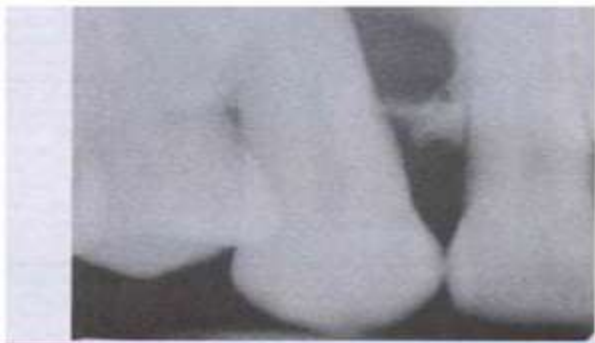
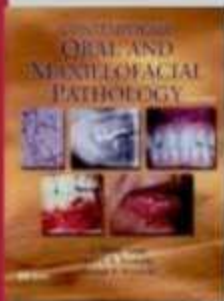
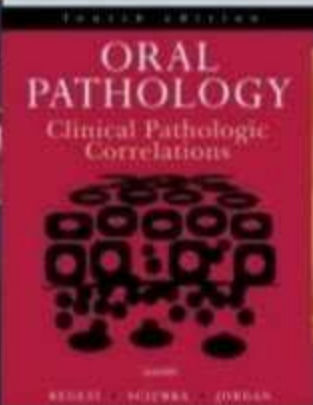
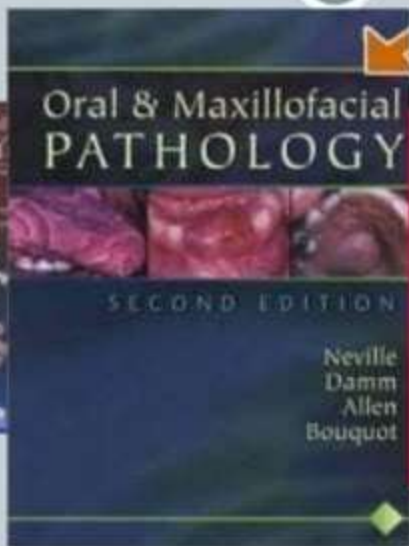
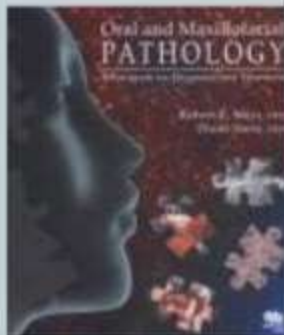


Figure 3-28 • lateral radicular cyst. An interradicular radiolucency has developed as a result of periodontal inflammation along the mesial surface of the right maxillary cuspid. (Courtesy of Dr. Richard Young.)

# References



**THANK YOU**

Names

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