* All developmental cysts require clinical, radiographic if central, and histologic information for diagnosis; 99% biopsy
* **CANNOT determine diagnosis on radiograph alone!!**
* Remnants of dental lamina 🡪 “Rests of Serres” 🡪 most odontogenic cysts 🡺 developmental cysts (unknown etiology)
* Remnants of root sheath 🡪 “Rests of Malassaz” 🡪 radicular cyst, paradental cyst (buccal bifurcation) 🡺 inflammatory cysts
* **(**Hyperplastic) **Dental Follicle**: radiolucent space surrounding the crown must be < 5 mm in thickness

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|  | **Dentigerous Cyst** | **Eruption Cyst**  **= “Eruption hematoma”** | **Odontogenic Keratocyst (OKC)** | **Nevoid Basal Cell Carcinoma Syndrome**  **(NBCC) = “Gorlin Syndrome”** |
| **Def** | - **MOST common developmental odontogenic cyst**  - Pathogenesis: ? - Accumulation of fluid btwn the crown & the reduced enamel epithelium (spontaneous)  - Encloses the crown of an unerupted tooth & attached at CEJ | - **Soft tissue counterpart to dentigerous cyst**  - Dental follicle separates from the crown of the erupting tooth that has already erupted into soft tissue | - (old term: “Primordial cyst”)  - Biologic behavior is more aggressive than most other odontogenic cysts  - Not uncommon | - **Inherited AD (chromosome 9)**  - Components:   * Multiple basal cell carcinomas of skin * OKC’s-usually multiple * Rib & vertebrae anomalies * Intracranial calcification |
| **Clinical Feat.** | - Most often mand 3rd molars, but any unerupted tooth  - Often 10-30 y.o, but any age  - Painless jaw expansion  - Painful only if secondarily infected (from partially erupted tooth or adjacent radicular cyst) | - **1st molar or mx incisors**  - **Children <10 y.o**  - Gingival swelling overlying crown of an erupting tooth (deciduous or perm)  - Soft, translucent  - May have hemorrhage 2o to trauma 🡪 purple-brown (“hematoma”) | - Mandible 60-80%, esp. post body and ascending ramus  - Often 10-40 y.o., but all ages  - Small cysts: asx  - Larger: pain & swelling  - Grow anteroposterior direction  - NO jaw expansion  - If multiple, rule out “NBCC” | - Basal Cell Carcinomas  - Appear @puberty, 20-30 y.o  - on **non-sun-exposed skin**  - at base of Palmar and plantar pits  - OKCs:  - 75% pts, begin in youth (<20 y.o)  - multiple usually  - Distinct facies:  - Frontal & temporopariental bossing  - Hypertelorism  - Mandibular prognathism  - Ovarian fibromas  - Medulloblastomas |
| **Radiographic** | - well-defined b/c slow growing  - Unilocular radiolucency assoc. w/ crown of unerupted tooth  - Sclerotic border (corticated)  - Root resorption of adj teeth (50%)  - Cyst-crown relationship:  Central, Lateral, Circumferential  - Decreased definition if infected | - none | - Well defined radiolucency, smooth corticated margins  - Uni- or multilocular (septation)  - Rare resorption of adj teeth  - ~ 1/3 associated w/unerupted tooth 🡪 mimic a dentigerous cyst | - OKC  - Skeletal anomalies  - Bifid ribs  - Kyphoscoliosis  - Calcification of falx cerebri  (AP skull x-ray) |
| **Histology** | - **2-4 layers of non-keratinizing stratified squamous EP**  - Flat interface btwn EP and CT wall (ie. no rete ridges)  - Mucous cell metaplasia  - Fibrous CT wall  **- If inflamed: more collagenized wall w/ inflammatory cells, hyperplasia of EP lining** | - none | - Lining: uniform 6-8 cell layer thick parakeratinized, stratified sq EP., no rete ridges, wavy luminal surface, cuboidal/columnar basal cell layer, hyperchromatic & palisaded  - Cystic lumen: contain clear liquid or **cheesy material (keratin debris)**  - Wall: Fibrous CT, usually no inflammatory cells, +/-**satellite cysts**  - If inflamed, changes histologic feat. | - none |
| **Tx/Prognosis** | - Enucleation  - Often removal of tooth  - Large cysts: marsupialization (takes 6-8mos) to reduce size of bone defect  - Rare recurrence  - Risk of transformation (1%) to:  - Ameloblastoma  - Squamous cell carcinoma  - Mucoepidermoid carcinoma  (- Pathologic fracture) | - None  - often rupture spontaneously  - Excision of roof of cyst to permit eruption of tooth | - Enucleation and curettage  - High recurrence rate (30%) up to 10 yrs after tx  🡪 Some tx w/ **peripheral ostectomy**, chemical cautery (Carnoy’s) or marsupialization  - Prognosis: Good | **- OKCs: enucleated but will get new lesions, infection of cysts and jaw deformity often result**  **- BCC’s: determine prognosis for pt., some can be aggressive and cause death**  **- Genetic counseling** |

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|  | **Lateral Periodontal Cyst** | **Gingival Cyst**  **of the Adult** | **Gingival (Alveolar) Cyst of the Newborn** | **Calcifying Odontogenic Cyst (COC) = “Gorlin Cyst”** |
| **Definition** | - **Uncommon**  **- Intrabony counterpart of gingival cyst of the adult** | **- Uncommon**  **- Soft tissue counterpart of lateral periodontal cyst** | **- Common –½ of newborns**  **- Developmental cyst seen in alveolar mucosa of infants**  **- Similar to inclusion cysts:**  **- Epstein pearls**  **(midline palate) &**  **-Bohn’s nodules**  **(lateral soft & hard palate)** | **- Uncommon**  **- Cyst vs. tumor?**  **- Some (< 15%) more solid than cystic, WHO classifies COC as a benign odontogenic tumor** |
| **Clinical Feat.** | **- Mand. LI-K9- PM**  **- >30 y.o. (rare under 30 y.o.)**  **- Occurs along lateral root**  **- VITAL tooth**  **- ASx** | **- Mand. K9 & PM**  **- Facial gingiva or alveolar mucosa**  **- Painless**  **- Dome-like swelling, <0.5cm**  **- Blue** | - More in maxilla  - Small (1-2mm) white-yellow papules on alveolar mucosa | - mx = md, **Anterior** (65%)  - ave 33 y.o. (10-30 y.o)  - Mostly intraosseous lesion  - Asx  - If extraosseous (13-21%): single, gingival nodule, sessile or pedunculated |
| **Radiographic** | - Well circumscribed radiolucency  - Lateral to root of a VITAL tooth  - <10mm in diameter  - **“Botryoid odontogenic cyst”**  - Variant of LPC  - Multilocular  - Histo: clustering of multi cysts | - NONE  - Pressure erosion of underlying bone is possible (seen at surgery—no radiographic abnormalities) |  | - Unilocular well-defined radiolucency (rarely multilocular)  - 2-4 cm in diameter  - Radiopaque flecks w/in lesion (50%)  - Assoc. w/ unerupted tooth (33%), usually **canine**  - root resorption or divergence of adj roots |
| **Histology** | - Lining of squamous EP  - Focal areas of thickening w/ clear cells  - Fibrous CT wall | - same as lateral periodontal | - EP lining  - Parakeratosis  - Lumen filled w/ keratin debris | - EP lining has basal cells similar to ameloblasts  - Overlying layers of cells are similar to stellate reticulum  - **Ghost cells** in lining: altered EP cells; loss of nuclei but cell outline is retained  - Fusion of ghost cell material into sheets (calcified) |
| **Tx/Prognosis** | - Enucleation  - Rare recurrence (more w/ Botryoid variant) | - **Excision**  - no recurrence | - None  - will spontaneously rupture and involute by 4 months | -Enucleation  - Low recurrence rate |

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|  | **Inflammatory Cyst** | **Carcinoma Arising in Odontogenic Cysts** |
| **Buccal Bifurcation (Paradental) Cyst** |
|  | - Pathogenesis: Inflammatory  - Etiology: unknown |  |
| **Clinical** | - Erupting perm. Mand 1st Molar  - 5-11 y.o.  - Pain, Buccal swelling  - Suppuration & pocket formation  - 33% bilateral | - RARE  - Older patients (59 y.o. average)  - Male predilection 2:1  - Pain & swelling, or asymptomatic |
| **Radio** | **- Well circumscribed radiolucency involving entire buccal & radicular areas of the molar**  **- Occlusally: apices tipped lingually, proliferative periostitis often present** | - Mimic any odontogenic cyst  - most often residual radicular cyst  - Also dentigerous cysts |
| **His** | - Same as a radicular cyst  (non-keratinizing stratified sq lining, inflam cell in the wall) | - most well differentiated squamous cell carcinomas  - Margins can be ragged and irregular |
| **Tx/Prog** | - Enucleation  - NO tooth extraction  🡪 bony defect resolves in 1 year  - Recent reports of no surgery, just irrigation | - Block excision to radical resection, some cases RT and chemotherapy  - 50% 5 year survival rate  - Metastasis to local lymph nodes  - Important r/o metastatic carcinoma from intra/extraoral sites |