* 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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **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 |

|  |  |  |
| --- | --- | --- |
|  | **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 |