Origin of Odontogenic Cysts & Tumors

Odontogenic Apparatus

• Remnants of dental lamina
• Reduced enamel epithelium
• Odontogenic rests
• Basal cell layer of oral mucosa
• Dental papilla (ectomesenchyme)
• Lining of odontogenic cysts

What is a cyst?

An abnormal space within tissue lined by epithelium

Odontogenic Cysts

• Inflammatory
• Developmental
Odontogenic Cysts

- Inflammatory
  - Periapical (radicular) cyst
  - Residual periapical (radicular) cyst
  - Buccal bifurcation cyst (usually first molars)
- Parapical cysts (partially erupted third molars)

Periapical Cyst vs. Periapical Granuloma

- CANNOT TELL THE DIFFERENCE BY X-RAY
- CAN ONLY TELL BY HISTOLOGY

Periapical Cyst vs. Periapical Granuloma

- Differential diagnosis must include both
- DO NOT INCLUDE PERiapical ABSCESS
  (Rohrer disagrees with the text)
Why does a periapical cyst form instead of just a granuloma?

Simply the chance of Rests of Malassez being in the area of inflammation

1. Cells in the rest proliferate due to the inflammation

2. The ball of cells gets so big the center gets too far from the blood supply, the cells in the center die

3. The center of the ball of cells then has a higher protein concentration than the surrounding tissue
4. Fluid flows into the center by osmotic pressure, cyst expands, more cells grow around the periphery, more cells in the center die, concentration increases again

5. Osmotic pressure can keep expanding the cyst independent of the inflammation

Result = Periapical Cyst

A radiolucency in the jaws must be investigated
If the teeth in the area are vital, you must biopsy the radiolucent area.
If non-vital, obviously RCT
Odontogenic Cysts

- Developmental
  - Dentigerous cyst
  - Odontogenic keratocyst
  - Orthokeratinized odontogenic cyst
  - Gingival (alveolar) cyst of the newborn
  - Gingival cyst of the adult
  - Lateral periodontal cyst
  - Calcifying odontogenic (Gorlin) cyst
  - Glandular odontogenic cyst
  - Eruption cyst

Cyst Lumen

Lining
Epithelium
• Dentigerous - “tooth containing” cyst
• Origin - reduced enamel epithelium (dental follicle)

If a radiolucency is ASSOCIATED with an unerupted tooth
Dentigerous cyst should be your FIRST differential diagnosis

Differential Diagnosis
• Dentigerous Cy
• Odontogenic Keratocyst
• Ameloblastoma
Odontogenic Keratocyst
Because of its behavior, many oral pathologists now consider the OKC an odontogenic tumor that has a cystic form

2005 Classification by the W.H.O.
Keratinocystic Odontogenic Tumor

Odontogenic Keratocyst (Keratinocystic Odontogenic Tumor)

Three important things associated with this diagnosis:
1. High recurrence rate (up to 60%)
2. Highly aggressive (now considered by W.H.O. to be an odontogenic tumor)
3. Relation to Gorlin syndrome

Odontogenic Keratocyst

• Can be in the location of any odontogenic cyst
• Can be isolated in the jaws

Odontogenic Keratocyst
Diagnosis entirely depends on the histology of the cyst lining

1. Uniform (5-8 cells) thickness
2. Hyperchromatic, cuboidal or columnar basal cell layer
3. Corrugated parakeratin layer
4. Virtually no inflammation in cyst wall
Daughter Cyst

Nevoid Basal Cell Carcinoma (Gorlin) Syndrome

- Multiple basal cell carcinomas
- Multiple jaw cysts (odontogenic keratocysts)
- Numerous bone abnormalities including bifid ribs, intracranial calcification, vertebral anomalies
- Mild ocular hypertelorism
- Epidermal cysts of the skin
- Etc.

Basal cell carcinomas in non-sun exposed areas
Multiple OKCs
Keratinizing odontogenic cyst

Gingival cysts of the newborn
No treatment needed - they'll regress in a short time

Gingival Cyst of the Adult

Lining derived from remnants of the dental lamina

Gingival cyst

Malignant lymphoma
Lateral Periodontal Cyst
Derived from remnants of the dental lamina

“Globulomaxillary” Cyst
Cyst of the globulomaxillary area

Califying Odontogenic (Gorlin) Cyst

“Ghost” cells calcify
Glandular Odontogenic Cyst
Squamous cell carcinoma arising in the epithelial lining of a cyst

A rare, but definite possibility in any cyst

Don’t ever throw tissue away

You’ll have trouble explaining to your kids why you can’t afford to send them to college