Head and Neck Tumors at the Interface of Benign and Malignant

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The Interface of Benign and Malignant

- Keratinizing dysplasia
- Superficially invasive squamous cell carcinoma
- In situ and low grade salivary gland carcinomas

Keratinizing Squamous Lesions

- Keratin in mucosal surfaces = abnormal
  - Surface keratinization
  - Dyskeratosis
  - “Pink Cell” Change

Keratinizing Lesions

- Clinical terminology: “Leukoplakia”
- Pathology terminology: “Keratosis”
- Reaction to irritation
  - Denture rub
  - Bite lines
  - Tobacco

Keratosis
Diagnosing Keratosis with Dysplasia

- Keratosis with dysplasia
  - Early lesions may be reversible
  - Try to grade the dysplasia
    - But, recognize the inexactness
    - “Keratinizing dysplasia” is acceptable!

Dysplasia Continuum

Normal  Mild Dysplasia  Moderate Dysplasia  Severe Dysplasia
The Problem with Keratinizing Dysplasia

• “Drop-off” carcinoma: A carcinoma that does not go through the usual dysplasia pathway
  • Invasive carcinoma
  • No high grade dysplasia
  • But, often keratinizing dysplasia
The Interface of Benign and Malignant

- Keratinizing dysplasia
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Superficial Invasion

- Nomenclature
  - Superficially invasive squamous cell carcinoma
  - Microinvasive squamous cell carcinoma

Superficial Invasion: Definition

<table>
<thead>
<tr>
<th>Author</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Miller</td>
<td>12-50 cells present just below the basement membrane</td>
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<tr>
<td>Friedman</td>
<td>Scattered tongues or discrete foci of invasion through the basement membrane</td>
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<td>Padovan</td>
<td>2 mm or less of invasion</td>
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<tr>
<td>Crissman</td>
<td>1-2 mm of invasion (no angiolymphatic invasion)</td>
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<tr>
<td>Barnes</td>
<td>0.5 mm of invasion, measured from basement membrane (no angiolymphatic invasion)</td>
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Clues to Identifying Superficial Invasion

- Deep keratinization
  - Keratin pearls
  - Dyskeratosis
- Breach of basement membrane
  - Single dropping off cells
  - Islands of epithelium in the stroma
  - Ragged borders & desmoplasia
  - Reaction around stromal tumor cells
Deep dyskeratosis: Suspicious for superficial invasion

Deep keratin pearls: Superficial invasion

Islands and single cells in the stroma

SCC with invasion (not superficial)

Tumors at the Interface

- Keratinizing squamous dysplasia
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Low Grade Cribriform Cystadenocarcinoma

- Other names that have been used
  - Low grade salivary duct carcinoma
  - Low grade cribriform cystadenocarcinoma
- Clinical
  - Excellent prognosis
  - Unknown relationship to salivary duct carcinoma
  - Rare tumor

Low Grade Cribriform Cystadenocarcinoma

- Histology
  - Smooth cysts with micropapillae
  - Cribriform, roman arches
  - Cytoplasmic microvacuoles
    - Refractile yellow pigment
  - Apocrine, with snouts
  - Intraductal pattern
    - Maintenance of myoepithelial cells
Low Grade Cribriform Cystadenocarcinoma

- Immunohistochemistry
  - Cytokeratin positive
  - S100 positive
  - Her-2 and AR negative
  - Myoepithelial layer preserved

In Situ Salivary Duct Carcinoma

- Clinical
  - Extremely rare, poorly understood
- Histology
  - In situ or minimally invasive
  - High grade features
  - Necrosis, pleomorphism, mitotic figures
In Situ Salivary Duct Carcinoma

- Immunohistochemistry
  - Myoepithelial cells should be present
  - Invasive component loses myoepithelial cells
  - Androgen receptor and HER2/neu positive

Mammary Analogue Secretory Carcinoma

- Clinical
  - Rare tumor, but not well described yet
  - Mean age 46 (M:F approximately equal)
  - Parotid 13/16 cases
  - 3/15 developed recurrence, one died of disease

- Histology
  - Circumscribed, but not encapsulated
  - Lobulated mass divided by fibrous septae
  - Microcystic, tubular, solid structures
  - Low grade vesicular nuclei with nucleoli
  - Bubbly secretion in microcysts (PAS +)
Mammary Analogue Secretory Carcinoma

- Immunohistochemistry
  - Strong cytokeratin (7, 8, 18)
  - Strong diffuse S100
  - GCDFP (70%) and mammoglobin (100%)
- Molecular
  - ETV6-NTRK3
  - t(12;15)

Carcinoma Ex Pleomorphic Adenoma

- In situ carcinoma ex PA
- Intracapsular carcinoma ex PA
- Minimally invasive carcinoma ex PA
- Invasive (high grade) carcinoma ex PA

Carcinoma ex Pleomorphic Adenoma

- In situ carcinoma ex pleomorphic adenoma
  - Histologically malignant
  - Myoepithelial cells present
  - No invasion
In situ carcinoma ex pleomorphic adenoma

Carcinoma ex Pleomorphic Adenoma

- Intracapsular carcinoma ex pleomorphic adenoma
  - Histologically malignant
  - No myoepithelial cells present
  - No invasion

Di Palma, Histopath 46, 2005
Brandwein, Oral and Max Path, 81, 1996

Intracapsular carcinoma ex pleomorphic adenoma

Carcinoma ex Pleomorphic Adenoma

- Minimally invasive carcinoma ex pleomorphic adenoma
  - Histologically malignant
  - No myoepithelial cells present
  - Invasion is present, but is not extensive
    - <1.5 mm
    - <5 mm
    - <8 mm

Excellent prognosis

Di Palma, Histopath 46, 2005
Brandwein, Oral and Max Path, 81, 1996
Carcinoma ex Pleomorphic Adenoma

- Invasive carcinoma ex PA
  - Relatively rare
  - Clinical
    - Long standing mass with recent rapid enlargement
    - History of PA
      - Resected incompletely
      - Recurrent

Invasive Carcinoma ex PA

- Histology
  - Residual pleomorphic adenoma
  - Carcinoma component
    - Specific salivary carcinoma (any type)
    - Adenocarcinoma, NOS
  - IHC
    - Specific to type of carcinoma

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