Polymorphous Low-Grade Adenocarcinoma

December 5th, 2008
Epidemiology

• Represents 2\textsuperscript{nd} or 3\textsuperscript{rd} most common minor salivary gland malignancy (17-26\%) – 1\textsuperscript{st} mucoepidermoid carcinoma
• Rare in reported Asian series
• Female preponderance (2 - 4.6:1 ratio)
• Peak incidence at age 60-70 but multiple case reports of children or adolescents
Relative incidence of PLGA

- Case series of 380 cases in a Northern Californian population
  - Benign (59%)
    - Pleomorphic adenoma (39.2%)
    - Cystadenoma (6.3%)
    - Canalicular adenoma (6.1%)
  - Malignant (41%)
    - Mucoepidermoid CA (21.8%)
    - PLGA (7.1%)
    - Adenoid cystic CA (7.1%)

Clinical presentation

- Most commonly presents in the oral cavity – palate (45-78%), upper lip and buccal mucosa
- Possible glandular presentation – usually parotid gland, but other uncommon areas include submandibular gland, lacrimal gland, retromolar trigone, tongue and sinus mucosa
- Neurotropism common
Pathology

- Other microarchitectural forms
  - Solid
  - Trabecular
  - Papillary

Beads on a string
Differential diagnosis

- Pleomorphic adenoma
  - Chondromyxoid matrix with hyaline and plasma

- Adenocystic carcinoma
  - Possible utility of c-kit, smaller cells with hyperchromatic nuclei, bilayered tubules

- Presence of PLGA subtypes
  - Papillary cystadecarcinoma (higher recurrence and regional metastasis)
  - Cribiform adenocarcinoma (tongue localization and regional metastasis)
<table>
<thead>
<tr>
<th>Antibody</th>
<th>No. of cases with positive reactions (%)</th>
<th>No. of cases positive by percentage of cells (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytokeratin (AE1/AE3 and CK1)</td>
<td>39 of 39 (100)</td>
<td>39 (&gt;90)</td>
</tr>
<tr>
<td>CEA</td>
<td>21 of 39 (53.8)</td>
<td>4 (10-50)</td>
</tr>
<tr>
<td>SMA</td>
<td>5 of 39 (12.8)</td>
<td>5 (&lt;10)</td>
</tr>
<tr>
<td>S-100 protein</td>
<td>38 of 39 (97.4)</td>
<td>1 (10-50)</td>
</tr>
<tr>
<td>GFAP</td>
<td>6 of 39 (15.4)</td>
<td>6 (&lt;10)</td>
</tr>
<tr>
<td>Bcl-2 protein</td>
<td>39 of 39 (100)</td>
<td>6 (10-50)</td>
</tr>
<tr>
<td>p53</td>
<td>37 of 39 (94.9)</td>
<td>22 (10-50)</td>
</tr>
<tr>
<td>Ki-67 (MIB-1)</td>
<td>29 of 39 (74.4)</td>
<td>6 (10-50)</td>
</tr>
</tbody>
</table>

CEA: carcinoembryonic antigen; SMA: smooth muscle actin; GFAP: glial fibrillary acidic protein.

*1+ = weak; 2+ = moderate; 3+ = strong.*
Management

• Surgical excision with adequate margins
• Neck dissection recommended in advanced cases
• Improved control with local radiation reported in a few case series
• Experience with chemotherapy very limited
• Importance of long (20 year) follow up
## Local control

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Number of patients</th>
<th>Local control (%)</th>
<th>Year of recurrence posttreatment</th>
<th>Median follow-up (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frierson et al. (1985) [54]</td>
<td>5</td>
<td>80</td>
<td>13</td>
<td>–</td>
</tr>
<tr>
<td>Colmenero et al. (1992) [55]</td>
<td>14</td>
<td>79</td>
<td>2, 3, 5</td>
<td>10.5</td>
</tr>
<tr>
<td>Vincent et al. (1994) [49]</td>
<td>10</td>
<td>93</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Perez-Ordonez et al. (1998) [56]</td>
<td>12</td>
<td>75</td>
<td>6, 12, 14</td>
<td>3</td>
</tr>
<tr>
<td>Castle et al. (1999) [14]</td>
<td>164</td>
<td>90</td>
<td>2–14 (7.2)</td>
<td>9.6b</td>
</tr>
<tr>
<td>Evans and Luna (2000) [15]</td>
<td>40</td>
<td>67.5</td>
<td>1–24 (7.5)</td>
<td>16</td>
</tr>
<tr>
<td>Kokemueller et al. (2004) [57]</td>
<td>10</td>
<td>90</td>
<td>≈3c</td>
<td>5.2b</td>
</tr>
<tr>
<td>González-García et al. (2005) [44]</td>
<td>6</td>
<td>67</td>
<td>1, 7</td>
<td>5.5</td>
</tr>
<tr>
<td>Pogodziński et al. (2006) [42]</td>
<td>15</td>
<td>80</td>
<td>3, 7, 15</td>
<td>7.4</td>
</tr>
</tbody>
</table>
Salvage control

<table>
<thead>
<tr>
<th>Author (year)</th>
<th>Number of recurrences</th>
<th>Local control (%)</th>
<th>Median follow-up (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vincent et al. (1994) [49]</td>
<td>1</td>
<td>100</td>
<td>36</td>
</tr>
<tr>
<td>Perez-Ordonez et al. (1998)</td>
<td>3</td>
<td>100</td>
<td>36</td>
</tr>
<tr>
<td>Castle et al. (1999) [14]</td>
<td>16</td>
<td>81</td>
<td>187</td>
</tr>
<tr>
<td>González-García et al. (2005)</td>
<td>2</td>
<td>50</td>
<td>84</td>
</tr>
<tr>
<td>Pogodziński et al. (2006) [42]</td>
<td>3</td>
<td>100</td>
<td>No evidence of disease for at least 2 years in three patients</td>
</tr>
<tr>
<td>Pogodziński et al. (2006) [43]</td>
<td>4</td>
<td>50</td>
<td>Three alive at median follow-up of 17 years</td>
</tr>
</tbody>
</table>

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Conclusions

• PLGA is an uncommon malignancy of the head and neck usually presenting in the minor salivary glands
• There is a strong female preponderance
• Regional metastasis is uncommon and distant metastasis is rare
• Surgical management provides excellent local control and radiation should be reserved for extensive tumors or positive margins
Case Study

- **HPI:** 36 yo M w/ c/o dysphagia, otalgia and voice change (9/08)
- Found to have large tongue base mass
- Prev noted L neck mass, concurrent w/ sinusitis → took abx → reported dec in size (8/08)
- Exam yr prior was nml
Case Study

- **PMH:** OSA, GERD, HTN, hypo/hyperT4
- **PSH:** Wrist
- **SH:** 5pk/yr smoking, quit 1994, ETOH: 6-10 drinks/wk
- **FH:** CAD, DM
- **ROS:** problems concentrating
Physical Exam

- Muffled Voice
- FOL: Large BOT mass, midline extending left
- Retroflexing epiglottis
- View of larynx limited

- Left Lvl II: 2cm mass  None Right
W/U and Interventions

- PET/CT
- FNA: non small cell cancer
- Awake Tracheostomy, PEG, Port
- DL w/ Bx’s→
- Frozen: atypical lymphoid tissue
- Permanent: Polymorphous Low grade adenocarcinoma
Axial T2- and post contrast T1-weighted MR Images showing a large mass at the tongue base with an adjacent enlarged left jugular lymph node
Sagittal Images show the bulky tongue base mass
Coronal Image shows Tongue base mass as well as thyroid goiter
PET/CT Image showing no evidence of distant metastatic disease
Non-small carcinoma.

Material insufficient for further analysis
08-S-17285 Tongue base mass biopsies

Papillary – papillary cystic pattern
Trabecular pattern with stromal mucinosis
Solid and lobular pattern with stromal hyalinization

08-S-17285  Tongue base mass biopsies
Small to medium sized uniform, bland cells with oval nuclei, inconspicuous nucleoli, and low mitotic index
Trabecular and cribriform pattern

08-S-18787  Tongue base resection
Papillary – papillary cystic pattern

08-S-18787  Tongue base resection
Solid pattern

08-S-18787  Tongue base resection
Solid areas with greater cellular pleomorphism in increased mitoses.
08-S-18787 Tongue base resection
Perineural invasion

08-S-18787  Tongue base resection
08-S-18787  Left level II lymph node
Resection

- Posterior Hemiglossectomy (subtotal)
- Right Modified RND, I-IV
- Left Modified RND, I-V
- Lingual Release
- Radial Forearm Free Flap Reconstruction