CIAK ON SUMP CASE

ESTHER ROSSI
MD PHD MIAC
No financial conflict of interest •

• Co-editor of the Milan System of Reporting Salivary Gland Cytology, Springer 2018

• Author of the Bethesda System of Reporting Thyroid Cytology, Springer 2017

• No royalties accepted from either book
i) Benign Neoplasm
Reserved for clear-cut benign neoplasms

ii) Salivary Gland Neoplasm of Uncertain Malignant Potential
CASE HISTORY

48 y/o man

1.5 cm left parotid nodule

Evaluation under sonographic guidance (US): Ipervasculated solid encapsulated nodule with a dishomogenous pattern

Aspiration performed with two passages with 25 G needles

FNAC processed with conventional cytology and liquid based cytology (LBC)
Cytological Findings

Scanty isolated and numerous solid clusters of cells

Small-Medium sized cellularity

Epithelioid-plasmacytoid and fusiform-spindle cells

Round-oval nuclei with finely dispersed or finely granular chromatine

Mild atypia

Several basaloid features

Scanty fibro-vascular fragments

Some histiocytes
How should I sign out this case??

A diagnostic dilemma
Take a deep breath: looking for clues

Morphology?
Pattern?
Age?
Pain?

LET'S WORK ON THEM
Possible differential diagnoses

**BENIGN**
- Pleomorphic adenoma
- Basal cell adenoma
- Myoepithelioma

**MALIGNANT**
- Adenoid cystic Carcinoma
- Myoepithelial Ca
<table>
<thead>
<tr>
<th></th>
<th>ACC</th>
<th>PA</th>
<th>Myoepithelioma</th>
<th>BCA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basaloid</td>
<td>Basaloid, Ductal, myoepithelial, fibroblasts, others (eg. chondroid, etc.)</td>
<td>Basaloid, spindle, plasmacytoid, clear, oncocytic</td>
<td>Basaloid</td>
<td></td>
</tr>
<tr>
<td>Basaloid cells surround HM</td>
<td>Basaloid cells surrounding HM</td>
<td>Basaloid cells surrounding HM</td>
<td>Acini, 3-dimensional cohesive clusters</td>
<td></td>
</tr>
<tr>
<td>HM</td>
<td>Acini, sheets, 3-dimensional clusters of variable size and cohesion</td>
<td>Basaloid cells surrounded by HM</td>
<td>Acini, 3-dimensional clusters of variable size and cohesive</td>
<td></td>
</tr>
<tr>
<td>HM dimension</td>
<td>Pale Mucoid/hyaline texture</td>
<td>Dense Fibrillary texture</td>
<td>Variable Fibrillary texture</td>
<td></td>
</tr>
<tr>
<td>texture borders</td>
<td>Well-defined borders</td>
<td>Myxofibrous or chondroid texture</td>
<td>Myxoid texture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Variable Fibrillary texture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Jurczyk M et al, Diagn Cytopathol 2014
### Table 3. Cytologic features of myoepithelial cell participation: An institutional experience in 10 cases

<table>
<thead>
<tr>
<th>Feature</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Arrangement</strong></td>
<td></td>
</tr>
<tr>
<td>Cluster + single cells</td>
<td>4/10 (40%)</td>
</tr>
<tr>
<td>Cluster only</td>
<td>6/10 (60%)</td>
</tr>
<tr>
<td><strong>Cell type</strong></td>
<td></td>
</tr>
<tr>
<td>Spindle</td>
<td>6/10 (60%)</td>
</tr>
<tr>
<td>Plasmacytoid</td>
<td>3/10 (30%)</td>
</tr>
<tr>
<td>Epithelioid</td>
<td>0/10 (0%)</td>
</tr>
<tr>
<td>Clear</td>
<td>1/10 (10%)</td>
</tr>
<tr>
<td><strong>Stroma</strong></td>
<td></td>
</tr>
<tr>
<td>Scant</td>
<td>4/10 (40%)</td>
</tr>
<tr>
<td>Fibrillar</td>
<td>3/10 (30%)</td>
</tr>
<tr>
<td>Hyaline</td>
<td>3/10 (30%)</td>
</tr>
<tr>
<td>Myxoid</td>
<td>0/10 (0%)</td>
</tr>
</tbody>
</table>
**Table 2. Cytologic features of basal cell adenoma**

<table>
<thead>
<tr>
<th>Characteristic cytology</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tight cluster</td>
<td>14/14 (100)</td>
</tr>
<tr>
<td>Palisading pattern</td>
<td>5/14 (35.7)</td>
</tr>
<tr>
<td>Hyaline material</td>
<td>8/14 (57.1)</td>
</tr>
<tr>
<td>Two-cell population</td>
<td>3/14 (21.4)</td>
</tr>
<tr>
<td>Luminal pattern</td>
<td>6/14 (42.9)</td>
</tr>
<tr>
<td>Hyperchromatic cells</td>
<td>14/14 (100)</td>
</tr>
<tr>
<td>Spindle cell morphology</td>
<td>8/14 (57.1)</td>
</tr>
</tbody>
</table>

Figures in parentheses are percentages.
Can I refine my cytological diagnosis?

Investigations which can be carried out on cytologic samples:

- immunocytochemistry
- ISH
- flow-cytometry
- mutational analysis
CK14

Furthermore

P63 +
Me after wringing my brain for the case!!!!

so… how can I sign out this case?
To be, or not to be, that is the question.

*William Shakespeare*
Example 2:
Satisfactory for evaluation

NEOPLASM: SALIVARY GLAND NEOPLASM OF UNCERTAIN MALIGNANT POTENTIAL (SUMP)

Cellular basaloid neoplasm. See note.

Note: The specimen shows a monomorphic population of basaloid cells with minimal nuclear atypia associated with fibrillary matrix. No mitoses or tumor necrosis is seen. The findings are suggestive of a cellular pleomorphic adenoma; however, other matrix-producing basaloid tumors such as basal cell adenoma, basal cell adenocarcinoma, and epithelial-myoid epithelial carcinoma cannot be completely excluded.
2 MONTHS LATER HISTOLOGY:

Parotid gland (6,6x4.8x2.7 cm) with a 1,5 cm nodule

1) Capsulated tumor mass
2) Proliferation of ovoid elements with a reticular pattern
3) Round–ovoid nuclei with clearing and nuclear pseudoinclusions
4) Spindle component
5) No significant atypia
6) No mitoses

**Positivity**
- CK 14
- S100
- CAM 5.2
- CK 5/6 (focal)
- p63 (focal)
- Calponin
- SMA

**Negativity**
- CD117
- SMMHC
DIAGNOSIS?
NEXT EXIT
The final histological diagnosis:

Reticular myoepithelioma
<table>
<thead>
<tr>
<th>Myoepithelioma</th>
<th>Myoepithelial carcinoma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of occurrence ranges from 9 years to 85 years</td>
<td>Above 50 years</td>
</tr>
<tr>
<td>Size usually varies from 3 cm to 5 cm</td>
<td>Size usually is much larger approx ± 10 cm</td>
</tr>
<tr>
<td>No infiltration into adjacent structures</td>
<td>Multi-nodular growth pattern with infiltration into adjacent structures</td>
</tr>
<tr>
<td>No mitosis present</td>
<td>High mitotic activity, 7/HPF present</td>
</tr>
<tr>
<td>No cellular pleomorphism and necros is seen</td>
<td>Cellular and nuclear pleomorphism and necros is seen</td>
</tr>
<tr>
<td>Ki 67 is negative</td>
<td>Ki 67 positivity of more than 10% is diagnostic of this tumor</td>
</tr>
</tbody>
</table>

HPF = High power field
Table 5.2 Morphologic scenarios and differential diagnosis of cases classified as “basaloid neoplasm” [1–3, 5–8]

<table>
<thead>
<tr>
<th>Cytomorphologic features&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Differential diagnosis&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
</table>
| 1. Cellular basaloid neoplasm <i>with</i> fibrillary stroma | • Cellular pleomorphic adenoma  
• Epithelial-myop epithelial carcinoma  
• Basal cell adenoma/adenocarcinoma |
| 2. Cellular basaloid neoplasm <i>with</i> hyaline stroma | • Basal cell adenoma/adenocarcinoma  
• Adenoid cystic carcinoma  
• Epithelial-myop epithelial carcinoma  
• Polymorphous adenocarcinoma<sup>c</sup> |
| 3. Cellular basaloid neoplasm <i>with</i> mixed/other stroma | • Adenoid cystic carcinoma  
• Polymorphous adenocarcinoma<sup>c</sup> |
| 4. Cellular basaloid neoplasm <i>with</i> scant to no stroma | • Cellular pleomorphic adenoma  
• Canalicular adenoma  
• Myoepithelioma  
• Myoepithelial carcinoma  
• Adenoid cystic carcinoma |
Never trust to general impressions, my boy, but concentrate yourself upon details.

Sherlock Holmes
THANK YOU
FOR YOUR ATTENTION