Squamous Cell Carcinoma of the Head and Neck (SCCHN)

Part 1

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SCCHN
Objectives

• Diagnose and identify the clinical importance of epithelial dysplasia of the UADT
• Diagnose and identify the clinical importance of early invasive SCCHN
• List key prognostic predictors of SCCHN
• Detail key issues in the intraoperative consultation of squamous cell lesions UADT
• Identify the diagnostic criteria and clinical importance of variants of SCCHN
SCCHN Outline

• Premalignant Lesions & Intraepithelial Neoplasia
• Squamous cell carcinoma:
  – Microinvasive and Invasive
  – “Look-alike” lesions
• Intraoperative consultation
• Variants
SCCHN Agenda

• 8:30 – 10:20:
  – Premalignant Lesions & Intraepithelial Neoplasia
  – Microinvasive SCC
  – “Look-alike” lesions
  – Intraoperative consultation

• 10:40 – 12:00:
  – SCCHN Variants
Epithelial Alterations

Clinical

• Leukoplakia
• Speckled Leukoplakia
• Erythroplakia
<table>
<thead>
<tr>
<th>Reference</th>
<th>Dysplasia</th>
<th>Leukoplakia</th>
<th>Speckled</th>
<th>Erythroplakia</th>
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<tbody>
<tr>
<td>Mashberg, 1978</td>
<td>3/43 (7%)</td>
<td>153/3256 (5%)</td>
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<tr>
<td>Waldron and Shafer, 1975</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Silverman, 1968</td>
<td>0/117</td>
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<td>Mashberg, 1978</td>
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<tr>
<td></td>
<td>6/58 (10%)</td>
<td></td>
<td></td>
<td>33/58 (57%)</td>
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<tr>
<td>Mashberg, 1978</td>
<td></td>
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<tr>
<td></td>
<td>1/44 (2%)</td>
<td></td>
<td></td>
<td>28/44 (64%)†</td>
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<tr>
<td>Shafer and Waldron, 1975</td>
<td></td>
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<td>33/65 (51%)</td>
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</tbody>
</table>
Epithelial Alterations

Histopathology

- Keratosis
- Hyperplasia
- Dysplasia
  - Abnormality in epithelial maturation
Squamous Cell Carcinoma
Dysplastic Epithelium

• Cellular abnormalities:
  – Nuclear pleomorphism, hyperchromasia
  – increased mitotic activity
  – prominent nucleoli

• Maturation abnormalities:
  – Loss of maturation, polarity
  – Increased nuclear-to-cytoplasmic ratio
  – Abnormal keratosis (dyskeratosis)
Upper Aerodigestive Tract

Epithelial Dysplasia

• “Classic” or Non-Keratinizing:
  – Mild dysplasia
  – Moderate dysplasia
  – Severe dysplasia = Carcinoma in situ
Upper Aerodigestive Tract
Epithelial Dysplasia

• Keratinizing:
  – Mild dysplasia
  – Moderate dysplasia
  – Severe dysplasia
Upper Aerodigestive Tract
Keratinizing Dysplasia

• Is the use of the term CIS justified?
• What is severe dysplasia?
Upper Aerodigestive Tract
Epithelial Dysplasia

• Goal of any grading system is:
  – Reproducible and Applicable
  – Convey to the clinician the potential risk for progression of disease
Upper Aerodigestive Tract
Grading Epithelial Dysplasia

- Squamous Intraepithelial Neoplasia (SIN)
- Laryngeal Intraepithelial Neoplasia (LIN)
- Epithelial Hyperplastic Laryngeal Lesions (EHLL)
Upper Aerodigestive Tract
Grading Epithelial Dysplasia

- Imprecise and subjective
- Preferred grading based on degree and extent of cellular and maturation alterations
  - mild dysplasia
  - moderate dysplasia
  - severe dysplasia
CIS/Severe Dysplasia

- Mucosal alterations confined to the surface epithelium; includes extension into seromucinous glands
- Persist or progress to invasive carcinoma if left untreated
- Synchronous CIS and invasive squamous carcinoma
### Incidence of Invasive Carcinoma Developing in Patients with Keratosis Without Atypia

<table>
<thead>
<tr>
<th>Author (yr)</th>
<th>Total number of cases</th>
<th>Number of invasive carcinomas</th>
<th>% of all cases</th>
</tr>
</thead>
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<td>McGavran (1960)</td>
<td>66</td>
<td>1</td>
<td>1.5</td>
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<tr>
<td>Norris (1963)</td>
<td>30</td>
<td>1</td>
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<td>Gabriel (1973)</td>
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<td>3</td>
<td>6</td>
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<td>Henry (1979)</td>
<td>29</td>
<td>1</td>
<td>3.4</td>
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<td>Crissman (1979)</td>
<td>50</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Hellquist (1982)</td>
<td>98(^a)</td>
<td>2</td>
<td>2</td>
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<tr>
<td>Gillis (1983)</td>
<td>7</td>
<td>2</td>
<td>28.6</td>
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<tr>
<td>Kalter (1987)</td>
<td>38</td>
<td>2</td>
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<tr>
<td>Stammniku (1989)</td>
<td>604</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Hojslet (1989)</td>
<td>128(^a)</td>
<td>6</td>
<td>4.7</td>
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<tr>
<td>Blackwell (1995)</td>
<td>6</td>
<td>0</td>
<td>0</td>
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<tr>
<td><strong>Total</strong></td>
<td>1106</td>
<td>36 (3.3%)</td>
<td>5.25 (average)</td>
</tr>
</tbody>
</table>

\(^a\)Includes some patients with mild atypia.

Source: Sec. IX, Refs. 1–4, 7, 9–14.
Incidence of Invasive Carcinoma Developing in Patients with Keratosis with Atypia

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<th>Author (yr)</th>
<th>Total number of cases</th>
<th>Number of invasive carcinomas</th>
<th>% of all cases</th>
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<tr>
<td>McGavran (1960)</td>
<td>18</td>
<td>2</td>
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<tr>
<td>Norris (1963)</td>
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<td>5.8</td>
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<tr>
<td>Gabriel (1973)</td>
<td>55</td>
<td>4</td>
<td>7.3</td>
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<td>Henry (1979)</td>
<td>14</td>
<td>3</td>
<td>21.4</td>
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<td>Crissman (1979)</td>
<td>42</td>
<td>3</td>
<td>7.1</td>
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<tr>
<td>Hellquist (1982)</td>
<td>63(^a)</td>
<td>12</td>
<td>19</td>
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<tr>
<td>Gillis (1983)</td>
<td>17</td>
<td>5</td>
<td>29.4</td>
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<td>Kalter (1987)</td>
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<td>21.7</td>
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<tr>
<td>Slamniku (1989)</td>
<td>317</td>
<td>44</td>
<td>13.9</td>
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<tr>
<td>Hojslet (1989)</td>
<td>19</td>
<td>8</td>
<td>42.1</td>
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<tr>
<td>Blackwell (1995)</td>
<td>50</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>773</strong></td>
<td><strong>118 (15.3%)</strong></td>
<td><strong>18.4 (average)</strong></td>
</tr>
</tbody>
</table>

\(^a\)Includes only grade II and III atypia.

*Source:* Sec. IX. Refs. 1–4, 7, 9–14.
<table>
<thead>
<tr>
<th>Author (yr)</th>
<th>Mild (Carcinomas: total cases)</th>
<th>Moderate (Carcinomas: total cases)</th>
<th>Severe (Carcinomas: total cases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hellquist (1982)</td>
<td>2:98&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3:24</td>
<td>9:39&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>Hojslet (1989)</td>
<td>6:128&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4:9</td>
<td>4:10</td>
</tr>
<tr>
<td>Total</td>
<td>26:456 (5.7%)</td>
<td>16:71 (22.5%)</td>
<td>42:148 (28.4%)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Includes some cases of keratosis without atypia.

<sup>b</sup>Includes some cases of carcinoma in situ.

Source: Sec. IX, Refs. 2, 3, 13, 14.
Squamous Cell Carcinoma

“Early” or Microinvasive Carcinoma

- Neoplastic cells that have penetrated the basement membrane with invasion into the submucosa
- Develops as a continuum from CIS
- CIS is not a prerequisite:
  - “drop off” carcinoma
Squamous Cell Carcinoma
Microinvasive Carcinoma (MIC)

- No uniformity in defining MIC:
  - small number of cells below BM
  - invasion through the BM
  - invasion through the BM limited to 1-2mm of BM without angioinvasion
  - invasion no more than 0.5mm from epithelial BM with no angioinvasion
Squamous Cell Carcinoma
Microinvasive Carcinoma (MIC)

• Treatment for T1 SCC:
  – Conservative management:
    • stripping
    • laser ablation
  – Careful follow-up; at risk for recurrence or new primary carcinoma
  – Radiotherapy in selective settings

• Prognosis is excellent:
  – VC: early presentation, relative absence of lymph-vascular spaces
Squamous Cell Carcinoma

Diagnostic Pitfalls

• Inadequate sampling
• Look alikes:
  – Pseudoepitheliomatosus hyperplasia
  – Necrotizing sialometaplasia
  – Juxtaoral organ of Chievitz
• Radiation atypia
SCCHN

Factors Associated with Prognosis

- Adequacy of resection (surgical margins)
- Pattern of invasion: cohesive v dyscohesive
- Tumor size, thickness, location
- LVI, neurotropism and soft tissue invasion
- Regional metastasis - Extracodal Extension
- Distant metastasis
- Angiogenesis; Host immune response
- Second malignancy