Cutaneous Malignancy

Robert H. Stroud, M.D.
Faculty Advisor: Anna M. Pou, M.D.
The University of Texas Medical Branch
Department of Otolaryngology
Grand Rounds Presentation
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Epidemiology

- Most common human cancer
- 600,000 to 800,000 cases per year in U.S.
- Male:Female 2-3:1
- 80% arise in head and neck
- SCCa over 60 years old
- BCCa over 40 years old
Etiology

- Ultraviolet radiation
- Ethnicity
- Ionizing radiation exposure
- Chemical exposure - arsenic
- Burns, scarring
- Immunosuppression
Syndromes

- Xeroderma pigmentosum
- nevoid basal cell syndrome
- albinism
- epidermodysplastic verrucoformis
- epidermolysis bullosa dystrophica
- dyskeratosis congenital
Skin

- Largest organ
- Major functions
  - Protection
  - Sensation
  - Thermoregulation
  - Metabolic
Skin structure

- Epidermis
- dermis
- hypodermis
- epidermal appendages
Skin Histology

- Stratum corneum
- Stratum lucidum
- Stratum granulosum
- Stratum spinosum
- Stratum basale
Actinic Keratosis

- Most common
- Progress to malignancy in 5-20%
- Cryotherapy, shave excision, 5-FU, TCA
Actinic Keratosis
Keratoacanthoma

- Solitary or multiple
- rapid growth
- 1 to 2.5 cm
- ulcer with keratinous material
- spontaneous resolution
- observe, 5-FU, Mohs'
Keratoacanthoma
Bowen’s Disease

- Carcinoma in situ
- Erythematous plaque
- Irregular borders
- Non-exposed areas with arsenic exposure
Bowen’s Disease
Basal Cell Carcinoma

- Raised, with pearly border
- Prominent vasculature
- Ulceration
- Nodular most common
Pigmented Basal Cell

- Produce brown pigment
- Often mistaken for melanoma
- Behave similar to nodular
Superficial Basal Cell

- Scaly patches
- Irregular borders
- Extremities, less common in head and neck
Morpheaform Basal Cell

- Indistinct margins
- Flat macule
- Scar-like
- Aggressive behavior
- Difficult to treat - Mohs’ surgery
Morpheiform Basal Cell
Basal Cell Carcinoma

- Cells resemble those of stratum basale
- Connective tissue stroma
- Peripheral palisading
- Stromal retraction
Keratotic Basal Cell

- Differentiation toward hair structures
- Undifferentiated cells
Cystic Basal Cell

- Differentiation towards sebaceous glands
- Cystic spaces within tumor
Adenoid Basal Cell

- Pseudo-glandular formation
- Strands of epithelial cells in lace-like patterns
Basal Cell Biologic Behavior

- Dependent upon stroma
- Locally invasive
- Spread along resistant planes
- Metastasis rare - 0.0028% to 0.1%
  - Adenoid and keratotic types more likely
Basal Cell Biologic Behavior

- Embryonic fusion planes at risk for deep invasion
  - inner canthus
  - philtrum
  - chin
  - nasolabial groove
  - pre-auricular
  - retro-auricular sulcus
Squamous Cell Carcinoma

- Sun exposure
- Erythematous, ulcerated, crusting
- Friable
- Adjacent induration
- Actinic vs. *de novo*
Squamous Cell Metastasis

- Actinic lesions  3% to 5%
- *de novo*  8%
- Scar or chronic inflammation  10% to 30%
- Deep invasion
- Higher grade
- Perineural invasion
Squamous Cell Histopathology

- Well, moderate and poorly differentiated
- generic
- adenoid
- Bowenoid
- verrucous
- Spindle cell or pleomorphic
Squamous Cell Histopathology
Adenoid Squamous Cell

- Pseudoglandular arrangement
- Dyskeratosis
- Acantholysis
- Periauricular
Verrucous Squamous Cell

- Rare on skin
- Cauliflower-like
- Well-differentiated
- Marked hyperkeratosis, parakeratosis, acanthosis
- Invasion with pushing margins
Spindle Cell Squamous Carcinoma

- Least common
- Poorly differentiated
- Anaplastic cells
- Absent keratinization
- Pleomorphic giant cells
# Staging

## Table 21-1. TNM Staging of Basal Cell and Squamous Cell Carcinoma of the Skin (Excluding Eyelid, Vulva, and Penis)

### Primary Tumor (T)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>T0</td>
<td>No evidence of primary tumor</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in situ</td>
</tr>
<tr>
<td>T1</td>
<td>Tumor ≤2 cm in greatest dimension</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor &gt;2 cm in greatest dimension but not &gt;5 cm in greatest dimension</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor &gt;5 cm in greatest dimension</td>
</tr>
<tr>
<td>T4</td>
<td>Tumor invades deep extradermal structures (eg, cartilage, skeletal muscle, or bone)</td>
</tr>
</tbody>
</table>

### Regional Lymph Nodes (N)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NX</td>
<td>Regional lymph nodes cannot be assessed</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis</td>
</tr>
<tr>
<td>N1</td>
<td>Regional lymph node metastasis</td>
</tr>
</tbody>
</table>

### Distant Metastasis (M)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX</td>
<td>Presence of distant metastasis cannot be assessed</td>
</tr>
<tr>
<td>M0</td>
<td>No distant metastasis</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
</tr>
</tbody>
</table>

### Stage Grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>T Stage</th>
<th>N Stage</th>
<th>M Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Tis</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>I</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>II</td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>II</td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>III</td>
<td>T4</td>
<td>N0</td>
<td>M0</td>
</tr>
<tr>
<td>IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
</tr>
</tbody>
</table>
Treatment - ED&C

- Most useful with BCCa <2 cm
- 92% to 98% cure

Advantages
- quick and easy

Disadvantages
- open wound
- scarring
Treatment - Cryotherapy

- Small, well-circumscribed lesions
- -30° F to -50° F

Advantages
  - Quick
  - In-office

Disadvantages
  - Prolonged healing with potential for scarring
  - No margins
Treatment - Excision

- Most often used by head & neck surgeons
- 93% to 95% cure

Advantages:
- Specimen for evaluation
- Control of margins (3 to 5 mm)

Disadvantages:
- Expensive
- Time-consuming
Treatment - Laser

- Patients with medical diseases
- Multiple lesions
- Palliation
Treatment - Mohs' Surgery

96% to 99% cure

Table 12-1. Cutaneous Tumors Amenable to Mohs' Surgery

- Basal cell carcinoma
- Squamous cell carcinoma
- Bowen's disease
- Erythroplasia of Queyrat
- Verrucous carcinoma
- Microcystic adnexal carcinoma
- Dermatofibrosarcoma protuberans
- Malignant fibrous histiocytoma
- Atypical fibroxanthoma
- Extramammary Paget's disease
- Merkel cell carcinoma
- Sweat gland carcinoma
- Keratoacanthoma

Table 12-2. Indications for Consideration for Mohs' Surgery

**Tumors with High Recurrence Rates Following Standard Skin Cancer Treatment**

- Recurrent tumors
- Size > 2 cm in diameter
- Tumors in high-risk locations (H-zone of the face)
- Histology (aggressive growth pattern, basal cell carcinoma)
- Poorly differentiated squamous cell carcinoma,
  - dermatofibrosarcoma protuberans,
  - microcystic adnexal carcinoma
- Tumors with poorly defined clinical margins
- Tumors with perineural invasion
- Immunosuppressed patients with squamous cell carcinoma
- Incompletely excised tumors

**Tumors for Which Maximal Conservation of Adjacent Tissue May Be Important**

- Tumors on the eyelid, nose, ear, lip, digit, genitalia
- Tumors in young patients
- Tumors that potentially involve vital structures (extraocular muscles, large vessels, nerves, cartilage, bone, tendon)
Treatment - Radiation

- Prolonged course
- Radiodermatitis
- Carcinogenesis
- Useful in poor surgical patients
- No control of margins
- Recurrence in 4.4% to 9.5%
Treatment - Photodynamic Therapy

- Photosensitive drug concentrated in tumor
- Porphyrin, argon ion dye pump laser most common
- Still experimental
Treatment - Interferon

- Interferon - $\alpha$
- Low dose, intralesional
- 3 times a week
- Flu-like illness
- Erythema, pain
- Stimulation of macrophages and NK cells
Treatment - Chemotherapy

- Retinoids
- cis-platin - most widely used
- bleomycin
- cyclophosphamide
- 5-fluorouracil
- vinblastine
Treatment - Regional Lymphatics

- Deep invasion into muscle, bone, nerve
- Tumors >2 cm
- Recurrent tumors
- Tumors arising *de novo* or in scarred areas
Treatment - Regional Lymphatics

- Parotidectomy for periauricular tumors
- Spare uninvolved structures
- Post op XRT as indicated
# Treatment - Selection

## Basal Cell Carcinoma (BCC)

### Recurrent

- **High risk (central face, ear, chin, mandible)**

### Aggressive Growth

- > 2 cm off face
- 0.6 - 1 cm on face

### Ill defined borders

- Multicentric
- Radiation
- Neurotropism
- Genetic syndromes
  - with multiple tumors

### Location

- **Low risk** (trunk, neck, extremities)

### Histology

- Nodular
- Superficial

### Size

- < 2 cm off face
- < .6-1 cm on face

### Clinical Nature

- Well-defined borders

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### Treatment Options

- **Mohs' Surgery**
- **Incomplete Excision**
- **Excision, ED&C**
- **Cryosurgery**
- **Radiation**
Recurrence

- BCCa 1-39%
  - Nodular 1-6%
  - Morpheaform 12-30%
  - 3 years

- SCCa variable recurrence rates
  - 75% of recurrences occur within 2 years
  - 95% of recurrences occur within 5 years
Recurrence

- 70% recurrence risk for:
  - Size greater than 2 cm
  - Invasion of bone, cartilage, muscle, nerve
  - Regional lymphatic involvement
- Perineural invasion
  - 47% recur
  - 35% metastasize
Mortality

- Exact numbers not available - not consistently reported
- 0.44 per 100,000 persons per year
- 2,000 to 3,000 deaths per year in U.S.
- Patients 65-70 years old
- Widespread SCCa arising in periauricular region
Conclusion

- Common tumors
- best chance for cure is early diagnosis and treatment
- prevent new lesions with sun protection