Surgical Dermatology: Leading the way in Cutaneous Oncology

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Disclosures: None

Ashley Crew, MD

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Why cutaneous oncology?

NMSC has become an **epidemic**:
Why cutaneous oncology?

NMSC has become an **epidemic**:

- Incidence – 1,200,000 (1994) \(\rightarrow\) **5,434,193** (2012)
- Annual incidence **3-4 times greater** than all other types of cancer combined

Rogers H. JAMA Derm. 2015.
American Cancer Society
• Patient is a 56 year old Caucasian female with a three month history of a growing brown papule on her left upper eyelid.
PMH: Hx of ectopic pregnancy, migraines, ovarian cyst, trigeminal neuralgia, menopause. Hx of blistering sunburns and tanning bed use

PSH: Exploratory laparotomy, Breast surgery, Salpingostomy, Blepharoplasty (Bilateral), and Facelift

FMH: No family history of cancer

Social History: Denies smoking and drugs. Grew up in Southern California.

Meds: Estradiol, progesterone

Allergies: Albuterol
Karnofsky Performance Score: 90

GENERAL: A&Ox3, NAD

SKIN: Left upper eyelid – 11 x 4 mm tan patch with a darker 5 x 4 mm component of the center

LYMPHATIC: No preauricular, cervical, clavicular, or submental lymphadenopathy
Diagnosis:
Lentigo Maligna Melanoma –
Breslow Depth 0.86 mm
Melanoma Staging

• All Melanomas Should Be Staged

• For Epidemiology, Staging, and Guidelines for Standard of Care
  • AJCC, AAD, ESMO, NCCN, UICC, and Others

• SEER 18 2006-2012 Suggests at Time of Diagnosis:
  • 83.8% Localized
  • 9% Regional Lymph Node Disease
  • 4% Distant Metastatic Disease
  • 3% Un-staged

• For Newly Diagnosed Melanomas of All Breslow Depths

More People Die from Thin Melanomas ($\leq 1$ mm) than from Thick Melanomas ($> 4$ mm) in Queensland, Australia

**Table 1**

**American Joint Committee on Cancer (AJCC)**

**Definitions of TNM for Melanoma (8th ed., 2016)**

**Definition of Primary Tumor (T)**

<table>
<thead>
<tr>
<th>T Category</th>
<th>Thickness</th>
<th>Ulceration Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TX</strong>: primary tumor thickness cannot be assessed (e.g., diagnosis by curettage)</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>T0</strong>: no evidence of primary tumor (e.g., unknown primary or completely regressed melanoma)</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Tis (melanoma in situ)</strong></td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>T1</strong></td>
<td>≤1.0 mm</td>
<td>Unknown or unspecified</td>
</tr>
<tr>
<td><strong>T1a</strong></td>
<td>&lt;0.8 mm</td>
<td>Without ulceration</td>
</tr>
<tr>
<td><strong>T1b</strong></td>
<td>&lt;0.8 mm</td>
<td>With ulceration</td>
</tr>
<tr>
<td></td>
<td>0.8–1.0 mm</td>
<td>With or without ulceration</td>
</tr>
<tr>
<td><strong>T2</strong></td>
<td>&gt;1.0–2.0 mm</td>
<td>Unknown or unspecified</td>
</tr>
<tr>
<td><strong>T2a</strong></td>
<td>&gt;1.0–2.0 mm</td>
<td>Without ulceration</td>
</tr>
<tr>
<td><strong>T2b</strong></td>
<td>&gt;1.0–2.0 mm</td>
<td>With ulceration</td>
</tr>
<tr>
<td><strong>T3</strong></td>
<td>&gt;2.0–4.0 mm</td>
<td>Unknown or unspecified</td>
</tr>
<tr>
<td><strong>T3a</strong></td>
<td>&gt;2.0–4.0 mm</td>
<td>Without ulceration</td>
</tr>
<tr>
<td><strong>T3b</strong></td>
<td>&gt;2.0–4.0 mm</td>
<td>With ulceration</td>
</tr>
<tr>
<td><strong>T4</strong></td>
<td>&gt;4.0 mm</td>
<td>Unknown or unspecified</td>
</tr>
<tr>
<td><strong>T4a</strong></td>
<td>&gt;4.0 mm</td>
<td>Without ulceration</td>
</tr>
<tr>
<td><strong>T4b</strong></td>
<td>&gt;4.0 mm</td>
<td>With ulceration</td>
</tr>
</tbody>
</table>
Sentinel Lymph Node Biopsy

- A. Important Prognostic Indicator
- B. Guides treatment options/recommendations

Who should have a SLNB (NCCN Guidelines 1.2018)?
- Stage IA (T1a, < 0.8 mm thick, no ulceration):
  - Consider SLNB only if there is significant uncertainty regarding microstaging
Sentinel Lymph Node Biopsy

- A. Important Prognostic Indicator
- B. Guides treatment options/recommendations

Who should have a SLNB (NCCN Guidelines 1.2018)?
- Stage IA (T1a, < 0.8 mm thick, no ulceration):
  - Consider SLNB only if there is significant uncertainty regarding microstaging
- Stage IB (T1b, < 0.8 mm thick + ulceration, 0.8-1.0 mm)
  - Discuss and consider SLNB
- Stage 1B or II (T2a, >1 mm thick):
  - Discuss and offer SLNB
### PRINCIPLES OF SURGICAL MARGINS FOR WIDE EXCISION OF PRIMARY MELANOMA

<table>
<thead>
<tr>
<th>Tumor Thickness</th>
<th>Recommended Clinical Margins$^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>In situ$^1$</td>
<td>0.5–1.0 cm</td>
</tr>
<tr>
<td>≤1.0 mm</td>
<td>1.0 cm (category 1)</td>
</tr>
<tr>
<td>&gt;1.0–2 mm</td>
<td>1–2 cm (category 1)</td>
</tr>
<tr>
<td>&gt;2.0–4 mm</td>
<td>2.0 cm (category 1)</td>
</tr>
<tr>
<td>&gt;4 mm</td>
<td>2.0 cm (category 1)</td>
</tr>
</tbody>
</table>

*Margins may be modified to accommodate individual anatomic or functional considerations.*
Summary: 56 year old woman with AJCC c8th Ed Stage IBT1bN0M0 melanoma of the left upper eyelid s/p Mohs with permanent sections.

Take Home Points:
- T1b melanoma includes invasive melanoma < 0.8 mm with ulceration or 0.8-1.0 mm with or without ulceration
- SLNB should be considered for patients with invasive melanoma < 0.8 mm with ulceration
HPI:

- 86 y/o M who presented to his dermatologist with an ulcerated nodule on his left temporal hairline.
- The nodule had developed over several months and was painful, oozing and bled with minimal trauma.
- Approximately three years prior the patient underwent MMS for an SCC with acantholytic features near his L temple.

ROS:

- Negative
Medical History

PMH: Hyperlipidemia, Hypertension

PSH: MMS SCC L temple 9/2013

Allergies: NKDA

FMH: NMSC, CAD

Social History: Social alcohol, denies tobacco and illicit drugs

Meds: Benazepril, Simvastatin
GENERAL: A&Ox3, NAD

SKIN: L temporal scalp with 55 x 45 mm ulcerated and friable nodule

LYMPHATIC: No palpable occipital, pre or post auricular, submental, submandibular or cervical lymphadenopathy

Karnofsky performance score: 80

Labs: 5/24/17 Cr. 1.2
Diagnosis:
Acantholytic Squamous Cell Carcinoma
CT Head and Neck with and without contrast

### Primary Tumor (T)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX</td>
<td>Primary tumor cannot be assessed</td>
</tr>
<tr>
<td>Tis</td>
<td>Carcinoma in situ</td>
</tr>
<tr>
<td>T1</td>
<td>Tumor smaller than 2 cm in greatest dimension</td>
</tr>
<tr>
<td>T2</td>
<td>Tumor 2 cm or larger, but smaller than 4 cm in greatest dimension</td>
</tr>
<tr>
<td>T3</td>
<td>Tumor 4 cm or larger in maximum dimension or minor bone erosion or perineural invasion or deep invasion*</td>
</tr>
<tr>
<td>T4</td>
<td>Tumor with gross cortical bone/marrow, skull base invasion and/or skull base foramen invasion</td>
</tr>
<tr>
<td>T4a</td>
<td>Tumor with gross cortical bone/marrow invasion</td>
</tr>
<tr>
<td>T4b</td>
<td>Tumor with skull base invasion and/or skull base foramen involvement</td>
</tr>
</tbody>
</table>
BWH Staging

Alternative Staging System Risk Factors:
- Size > 2 cm,
- Poorly differentiated
- Extension beyond subcutaneous fat
- Perineural invasion (>0.2 mm)

Table 3. Alternative T Staging System

<table>
<thead>
<tr>
<th>Alternative T Staging System</th>
<th>Definition</th>
<th>Patients in Study Cohort, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>In situ SCC</td>
<td>Not included</td>
</tr>
<tr>
<td>T1</td>
<td>0 Risk factors&lt;sup&gt;a&lt;/sup&gt;</td>
<td>134 (52)</td>
</tr>
<tr>
<td>T2a</td>
<td>1 Risk factor&lt;sup&gt;a&lt;/sup&gt;</td>
<td>67 (26)</td>
</tr>
<tr>
<td>T2b</td>
<td>2-3 Risk factors&lt;sup&gt;a&lt;/sup&gt;</td>
<td>49 (19)</td>
</tr>
<tr>
<td>T3</td>
<td>4 Risk factors&lt;sup&gt;a&lt;/sup&gt; or bone invasion</td>
<td>6 (2)</td>
</tr>
</tbody>
</table>

Table 3. Evaluation of Staging System Distinctiveness: 10-Year CIN of Tumor Outcomes by AJCC, UICC, and BWH T Stages

<table>
<thead>
<tr>
<th>T Stage</th>
<th>No. of Tumors</th>
<th>LR 10-Year CIN (%)</th>
<th>95% CI</th>
<th>NM 10-Year CIN (%)</th>
<th>95% CI</th>
<th>DSD 10-Year CIN (%)</th>
<th>95% CI</th>
<th>OD 10-Year CIN (%)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>BWH, current study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>1,393</td>
<td>0.6</td>
<td>0 to 1</td>
<td>0.1</td>
<td>0 to 0.4</td>
<td>No events</td>
<td></td>
<td>54</td>
<td>50 to 58</td>
</tr>
<tr>
<td>T2a</td>
<td>332</td>
<td>5</td>
<td>3 to 8</td>
<td>3</td>
<td>1 to 5</td>
<td>1</td>
<td>0 to 3</td>
<td>58</td>
<td>50 to 67</td>
</tr>
<tr>
<td>T2b</td>
<td>86</td>
<td>21</td>
<td>13 to 27</td>
<td>21</td>
<td>13 to 27</td>
<td>16</td>
<td>7 to 28</td>
<td>78</td>
<td>69 to 89</td>
</tr>
<tr>
<td>T3</td>
<td>6</td>
<td>82</td>
<td>74 to 91</td>
<td>69</td>
<td>41 to 100</td>
<td>100</td>
<td>61 to 100</td>
<td>100</td>
<td>61 to 100</td>
</tr>
</tbody>
</table>

Discussion

Summary: 86 y/o M with a recurrent (AJCC T3, BWH T2b) acantholytic SCC with perineural invasion of the L temporal hairline.

Take Home Pointss:
• Cutaneous SCC’s should be staged and in high risk tumors additional metastatic evaluation should be considered.
• According to BWH, high risk features include size > 2 cm, poor differentiation, perineural invasion > 0.1 mm, tumor invasion beyond fat
CASE 3
HPI:
• 81 y/o F who presented with irritation in her L eye that developed after a traumatic fall.
• The irritation progressed over several months.

ROS: No weight loss, fevers, chills, nausea or vomiting
Medical History

PMH: L breast cancer ~30 years ago, Syncope, Macular Degeneration

PSH: L breast lumpectomy, Arthrodesis, Lumbar Fusion, Knee Arthroplasty

Allergies: NKMA

FH: Father (Lung Cancer), Mother (Colon Cancer), Brother (Dementia)

Social History: Retired Nurse. No history of smoking or alcohol use.

Meds: Benica HCT, Escitalopram, Rosuvastatin
GENERAL: A&Ox3, NAD

SKIN: L upper lid conjunctiva with < 1 cm sessile nodule

LYMPHATIC: no lymphadenopathy

Karnofsky performance score: 90

Labs: 8/1/17 – Cr 0.7, Hgb 13.3
Diagnosis: Sebaceous Carcinoma
MRI Orbit/Face
3/30/17, Tartar
• Linear, hypointense, subcutaneous finding is seen at the lateral aspect of the L orbit, suggesting a surgical scar. No evidence of underlying mass or orbital anomaly.

MRI Orbita/Face and Neck
5/3/17, Bates
• No pathologic mass or adenopathy within the head or neck.
Sebaceous Carcinoma

- Incidence: 1 to 2 per 1,000,000 per year
  - >90% in patients 50 or older

- Most common eyelid malignancy after BCC

- Erythematous papules or nodules that may be ulcerated or crusted, occasionally with yellowish coloration.
  - Commonly develops in periorbital area but also occur on other areas of the head and neck and can occur on the trunk

- Sebaceous carcinoma can occur in patients with Muir Torre, but diagnosis alone is not sufficient to diagnose the syndrome.
Conclusion: For patients with eyelid sebaceous carcinoma that are full thickness or 10 mm or more in greatest dimension recommend SLNB or at least strict regional lymph node surveillance.
A clinical scoring system to identify patients with sebaceous neoplasms at risk for the Muir-Torre variant of Lynch syndrome.

Table 2: The Mayo Muir–Torre syndrome risk score algorithm

<table>
<thead>
<tr>
<th>Variable</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at sebaceous neoplasm(^a) diagnosis (years)</td>
<td></td>
</tr>
<tr>
<td>60 or older</td>
<td>0</td>
</tr>
<tr>
<td>Younger than 60</td>
<td>1</td>
</tr>
<tr>
<td>Total number of sebaceous neoplasms</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2 or more</td>
<td>2</td>
</tr>
<tr>
<td>Personal history of any Lynch-related cancer</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Family history of any Lynch-related cancer</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
</tbody>
</table>
### Table 3: Proportion of patients with Muir–Torre syndrome according to Mayo Muir–Torre syndrome risk score

<table>
<thead>
<tr>
<th>Mayo MTS risk score</th>
<th>Fraction (%)</th>
<th>95% Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0/10 (0%)</td>
<td>0–31%</td>
</tr>
<tr>
<td>1</td>
<td>0/29 (0%)</td>
<td>0–12%</td>
</tr>
<tr>
<td>2</td>
<td>12/20 (60%)</td>
<td>36–81%</td>
</tr>
<tr>
<td>3</td>
<td>11/11 (100%)</td>
<td>72–100%</td>
</tr>
<tr>
<td>4</td>
<td>10/11 (91%)</td>
<td>59–100%</td>
</tr>
<tr>
<td>5</td>
<td>7/7 (100%)</td>
<td>59–100%</td>
</tr>
</tbody>
</table>
Summary: 81 y/o F with sebaceous carcinoma of the L upper lid (AJCC T2a) without clinical or radiologic evidence of lymphadenopathy

Take Home Points:
• Patients with sebaceous carcinoma should be referred to ophthalmology for exam of the conjunctiva
• Consider additional metastatic work-up in patients with sebaceous carcinoma of the eyelid that is full thickness or > 10 mm in size.
• Age, number of sebaceous neoplasms, family and personal history of Lynch syndrome related cancers help stratify patients into low, intermediate or high likelihood for having Muir-Torre
HPI:
• 73 y/o M with a history of Alport’s Syndrome status post renal transplant in 2015 who presented to his dermatologist with a recurrent bleeding papule in his right concha.

ROS: No fevers, chills, night sweats or weight loss
Medical History

PMH: Alport’s Syndrome, NMSC, Melanoma (0.19mm) L temple, Renal Transplant 2015, HTN, CAD, CAD, Atrial Flutter, Peripheral Neuropathy, Severe MR


Allergies: Iron Sucrose

FMH: Father with colon cancer, brother with kidney disease


Meds: Allopurinol, ASA, Sensipar, Clonidine, Cyclosporine, Digoxin, Furosemide, Lopressor, Mycophenolate Mofetil, Propafenone, Sertraline, Sirolimus
GENERAL: A&Ox3, NAD

SKIN: 1.7 x 1.1 cm crusted papule R concha

LYMPHATIC: No lymphadenopathy

Karnofsky performance score: 80

Labs: Cr 1.4, BUN 30, Hgb 14.0
Diagnosis:
Merkel Cell Carcinoma
Merkel Cell Carcinoma

• Primary neuroendocrine carcinoma of the skin

Clinical Features:
• Head and neck of older adults, followed by extremities and buttocks
• More common in women
• Solitary, rapidly growing papule
• Aggressive malignant behavior

• Polyomavirus is associated in 80% of cases

• Work-up should include SLNB

Prognosis – 5 year survival:
• < 2 cm: 66%
• > 2 cm: 51%
Organ transplant recipients with Merkel cell carcinoma have reduced progression-free, overall, and disease-specific survival independent of stage at presentation.

- Retrospective cohort study of 8 SOTR with MCC and 89 immunocompetent control subjects
- SOTR recipients compared to immunocompetent:
  - Progression: HR 4.1
  - All cause mortality: HR 10.9
  - MCC Specific Death: HR 11.5
Summary: 73 y/o M with a history of renal transplant with a T1 merkel cell carcinoma of the R conchal bowl.

Take Home Points:
- Merkel cell carcinoma is a rare but highly aggressive neoplasm
- Management of primary lesion often involves surgical management with post-operative radiation
- Work-up for MCC often involves SLNB
- Patients diagnosed with Merkel Cell Carcinoma with solid organ transplants have worse overall prognosis
CASE 5
HPI:

- 69 y/o F who presented for evaluation of new red lesion on the R medial cheek at the edge of a scar from prior melanoma treatment.
- In 2009 the patient had a biopsy of a suspicious lesion on her R medial cheek which was simultaneously treated with electrodessication and curettage.
- Pathology demonstrated a melanoma, Breslow’s depth at least .31 mm and extending to the base, no mitoses or ulceration.
- Patient underwent wide local excision and pathology showed melanoma closely approaching the lateral margin, Breslow’s depth .31 mm with no mitoses or ulceration.

ROS: Negative
Medical History

PMH: Chronic interstitial cystitis, migraines, tinnitus, multiple non-melanoma skin cancers

PSH: Tubal ligation, hysterectomy, breast augmentation

Allergies: Estradiol

FMH: Daughter with melanoma, mother with non-melanoma skin cancer. No history of pancreatic or ovarian cancer.

Social History: Denies smoking, drugs, or etoh.

Meds: Zolpidem, Topiramate, Pantoprazole
GENERAL: A&Ox3, NAD

SKIN: 26 x 20 mm ill defined irregular hyperpigmented patch R medial cheek

LYMPHATIC: No palpable LAD

Karnofsky performance score: 90

Labs: 3/2017: CBC WNL, CMP (Cr 1.1)
Diagnosis:
Melanoma – Breslow Depth at least 0.31 mm
The rate of melanoma transection with various biopsy techniques and the influence of tumor transection on patient survival

Mohsin Mir, MD, C. Stanley Chan, MD, Farhan Khan, MD, MBA, Bhuvaneswari Krishnan, MD, Ida Orendo, MD, and Theodore Rosen, MD

Houston, Texas

26 transected melanomas (500 cases reviewed)
- 15 of 26 (58%) melanomas had residual tumor in the excision specimen
- 8 of 26 (31%) had greater breslow depth at excision, but tumor staging change in only 3 (12%)

Conclusion: Punch and saucerization biopsies were more likely to transect tumors than excisional biopsies. The transection of melanoma did not affect overall disease-free survival or mortality in the population studied. (J Am Acad Dermatol 2013;68:452-8.)
Multiple Primary Melanoma Patient Characteristics:

- Older age (mean age 64)
- 2:1 Male to Female Ratio
- Majority non-Hispanic, white

Location:

- In patients with MPM both primary and secondary melanomas were more likely to occur on the head and neck

Characteristics

Timing:
• 26-40% of subsequent melanomas develop within three months of primary incident melanoma
• Among patients with MPM, 91.9% developed subsequent melanomas within five years of primary melanoma diagnosis
• Subsequent primary melanomas were diagnosed after a mean of 3.83 (SD 3.61, median 2.82) years

Breslow’s Depth:
• Similar to national statistics for all primary melanomas
• Subsequent melanomas more likely to be MIS or thinner than primary melanoma

Why do patients with MPM have thinner subsequent melanomas?

- Biologic behavior
- Improved immune system surveillance
- Breslow thickness was significantly lower in patients who adhered to strict follow up compared with those who did not (0.36 mm vs. 1.22 mm, respectively)

Genetics Referral: Consider for p16/CDKN2A mutation testing in the presence of 3 or more invasive melanomas, or a mix of invasive melanoma and pancreatic cancer diagnoses in an individual or family (1st or 2nd degree relatives)

de Giorgi. 2010. Br J Dermatol
**Summary:** 69 y/o F with melanoma of the R medial cheek (T1a), Breslow’s at least .32 mm.

**Take Home Points:**
- All melanomas should be staged using AJCC 8th Edition
- Punch and saucerization biopsies are more likely to result in transection of the tumor
- Tumor upstaging of transected melanomas occurs in approximately 12% of cases
- Patients with multiple primary melanomas are more likely to be older (age 64) and melanomas are more likely to occur on the head and neck
- Genetics referral should be considered in patients with 3 or more invasive melanomas