Melanoma

Melanoma is a malignant tumor, typically of the skin, that is associated with significant morbidity and mortality. Melanotic lesions often begin as small, innocent-looking lesions with irregular borders, which progress to irregularly hyperpigmented asymmetric papules, nodules, or plaques with or without ulceration. If not treated early, metastasis is likely. Survival rates depend on the stage of the disease at the time of diagnosis and treatment (Swetter, 2018), therefore, education and early detection are critical to improving outcomes.

Assessment (Pullen, Whitehead, & Pastwa, 2011)

Assess for risk factors (Canavan & Cantrell, 2016)

- First or second degree relative with a history of melanoma
- Light brown, blond, or red hair or light eye color (blue or green)
- High freckle density (> 50 common nevi)
- Fair skin type
- High levels of exposure to sunlight and/or UV radiation (i.e. tanning beds)
- Weakened immune system (i.e. solid organ transplant, HIV/AIDS patients)

ABCDEs of assessment

A mole exhibiting any of the following should be referred for further examination and/or biopsy (Swetter, 2018).

- **Asymmetry:** if a lesion is cut in half, one side is not identical to the other; may be higher on one side, a different texture, or color
- **Border irregularity and bleeding:** normal moles have smooth, round borders; jagged edges, tails, bleeding or ulceration are signs of melanoma
- **Color:** 2 or 3 colors present or distributed unevenly
- **Diameter:** ≥ 6 mm
- **Evolving:** any change in mole over weeks to months in size, shape or color

“Ugly Duckling”

- When a single lesion does not match the patient’s nevus (mole) phenotype or pattern (i.e. has a different appearance to surrounding moles)
- While not systematically studied, clinicians have found this helpful in identifying suspicious moles in daily practice (Swetter, 2018).

In addition to the characteristics above, also assess for any new skin lesion that is pigmented or vascular in appearance, or any new pigmented line in a nail or lesion growing under a nail.
Documentation
- Number each mole including location, size, and appearance.
- Document the presence of pain or itch in or around moles and lesions.
- When possible, photograph all suspicious lesions.

Melanoma Subtypes

Subtypes of Melanoma (Canavan & Cantrell, 2016; Pullen, Whitehead, & Pastwa, 2011):

- **Superficial Spreading Melanoma (SSM)**
  - Most common type
  - Asymptomatic at first; thin, flat or slightly raised, with varying colors such as tan, brown, black, red, blue, or white and irregular borders, arising either de novo or from existing nevi
  - Confined to the epidermis
  - Slow-growing and curable by surgical excision

- **Nodular Melanoma (NM)**
  - Second most common type
  - Can develop on any area of the body; common on the head, neck, and trunk
  - Usually develops de novo as rapidly growing, darkly pigmented blue, black, pink, or red nodules that may ulcerate or bleed (late sign of invasive melanoma)
  - Difficult to diagnose if little to no pigment is present
  - Assess for elevation, firmness, and continuous growth for one month (Swetter, 2018).
  - Associated with a poor prognosis

- **Lentigo Maligna Melanoma (LMM)**
  - Develop in chronically sun-exposed areas (head and neck) as large, tan or brown pigmented macule that is flat or slightly raised with irregular borders, color variation and asymmetric pigmentation.
  - May become thick, indurated, ulcerated and invasive.

- **Acral Lentiginous Melanoma (ALM)**
  - Uncommon except in dark-skinned individuals
  - Arise in older patients on acral sites (palms, soles, or beneath the nail)
  - Appear as dark brown to black asymmetric macules with irregular borders and raised areas, ulceration, bleeding and/or larger diameter.

- **Amelanotic Melanoma**
  - Pink or red macules, plaques, or nodules, with well-defined borders
  - Often confused with benign lesions (melanocytic nevus, inflamed seborrheic keratosis, ruptured hair follicle or cyst, hemangioma, pyogenic granuloma) which could lead to a delay in diagnosis.
• **Subungual (nail) Melanoma**
  - Presents as a longitudinal brown or black band on the nail (typically great toe or thumb) with or without nail dystrophy
  - May lack pigmentation
  - Common in advanced age, African-Americans, Asians, and Native Americans (Swetter, 2018).

**Diagnosis (Canavan & Cantrell, 2016)**

**Biopsy**

All suspicious lesions should be biopsied for definitive diagnosis. Include anatomic location, type of biopsy, size of lesion, ABCDE criteria, dermoscopic features or photos (if available) for pathologist.

- **Excisional biopsy**: removal of entire growth with a margin of normal surrounding skin (1- to 3-mm margins).
- **Incisional biopsy** (partial sampling), or core biopsy: removes only a sample of the lesion; appropriate in select cases such as on the face and acral areas.
- **Punch Biopsy**: removes a small, cylindrical sample of the skin, including epidermis and dermis.
- **Shave biopsy**: removes a small, upper layer of dermis; limit use to lesions with low suspicion of melanoma as there is a high risk for sampling error.
- **Fine-needle aspiration biopsy**: removes a small sample of tissue; not performed on a suspicious mole, but on deeper tissue (i.e. lymph node or internal organ) to check for metastasis.

**Dermoscopy**

A dermoscope is a handheld light magnifier (10-fold magnification) used to assess general appearance, pigmentation pattern, color, pigmentation network, globules, dots, depigmentation, and margins. Proper training is necessary to use this specialized instrument that helps distinguish benign and malignant pigmented lesions.

**Tumor Staging**

- **Breslow depth**
  - Measure at thickest point
  - Tumor thickness is indicator of prognosis – survival is high for melanomas ≤ 1 mm thick and lower for tumors > 4 mm thick.
- **Clark level** – essential for staging only in tumors ≤ 1 mm in thickness when mitotic rate cannot be assessed; optional for tumors > 1 mm in thickness (Bichakjian et al., 2011)
  - Level I: Tumor confined to epidermis
  - Level II: Tumor present in papillary dermis
  - Level III: Tumor fills papillary dermis
- Level IV: Tumor present in reticular dermis
- Level V: Tumor present in subcutis

- Mitotic rate: (number of mitoses/mm²) indicate how fast cancer cells are dividing
- Presence of ulceration
- Lymph node involvement

Treatment

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<thead>
<tr>
<th>Stage</th>
<th>Tumor Depth and Metastasis</th>
<th>Treatment</th>
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<tr>
<td>Stage 0 (melanoma in situ)</td>
<td>Tumor is limited to the epidermis; no invasion to the dermis, lymph nodes, and distant sites.</td>
<td>Surgical removal with a margin of normal skin surrounding the melanoma</td>
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<td>Stage I</td>
<td>Localized tumor, 1-2 mm thick with or without ulceration and involves epidermis, dermis, or subcutaneous tissue; hasn’t spread to the lymph nodes</td>
<td>Surgical removal with a margin of normal skin; sentinel lymph node (SLN) biopsy may be performed prior to excision to check for metastasis</td>
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<td>Stage II</td>
<td>Localized tumor may be &gt; 2 mm thick and involve muscle</td>
<td>SLN biopsy and surgical excision with wide margin of normal skin; immunotherapy may be prescribed</td>
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<td>Stage III</td>
<td>Invasion of the regional lymph nodes, but no spread to other parts of the body</td>
<td>Surgical removal with wide margin of normal skin and removal of regional lymph nodes to help prevent spread of disease; adjuvant therapy such as immunotherapy, chemotherapy, vaccine therapy, and radiation may be utilized to prevent spread</td>
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<td>Stage IV</td>
<td>Spread to lymph nodes that are distant from the original tumor or spread to internal organs (lung, liver, brain, bone, and GI tract)</td>
<td>Difficult to treat; surgical excision of lesions or lymph nodes in addition to aggressive immunotherapy, chemotherapy, and radiation therapy.</td>
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Tumor Surveillance

- Follow-up annually for full skin exam and clinical assessment of lymph nodes.
- Educate patients and family members to perform regular skin self-exams and to look for:
  - New moles
  - Moles that look abnormal
  - Change in size, shape, color, or texture of mole or birthmark
  - Sore that doesn’t heal

References:


