Melanoma

Basic Dermatology Curriculum

Last updated January 2015
Module Instructions

- The following module contains a number of underlined terms which are hyperlinked to the dermatology glossary, an illustrated interactive guide to clinical dermatology and dermatopathology.
- We encourage the learner to read all the hyperlinked information.
Goals and Objectives

- The purpose of this module is to help the learner develop a clinical approach to the evaluation and initial management of patients with lesions suspicious for melanoma.

- By completing this module, the learner will be able to:
  - Identify and describe the morphology of melanoma
  - Recall prognostic factors in melanoma survival
  - Practice providing patient education on the ABCDEs of melanoma and skin self-examinations
  - Determine when to refer patients with suspicious skin lesions to dermatology
Case 1: History

- Ms. Cary is a 40-year-old woman who presents to the dermatology clinic with a dark mole on her back.
- She has had this new mole for several months. She is not sure if it has changed in any way. It is not painful or itchy and it has never bled.
Case 1 History Continued

- **Past Medical History**
  - Usually burns, rarely tans (Fitzpatrick skin type II)
  - Sun bathed and used tanning booths as a teen
  - No personal history of skin cancer

- **Medications**
  - None

- **Family History**
  - Mother had unknown type of skin cancer removed from her cheek

- **Social History**
  - Married with 2 children; lives with partner. 10 pack-year smoking history. Uses alcohol occasionally; no illicit drug use
Case 1, Question 1

How would you describe her pigmented lesion?
Case 1, Question 1

1.8 x 0.9 cm dark blue to black plaque demonstrating asymmetry, irregularly notched borders and a pink erythematous rim
What is your differential diagnosis?
Differential Diagnosis

What is your differential diagnosis?

- **Basal cell carcinoma**
- **Dermatofibroma**
- **Melanoma**
- **Melanocytic Nevus**
- **Seborrheic keratosis**
Case 1, Question 2

What is your next step in management?

a. Excisional biopsy
b. Liquid nitrogen cryotherapy
c. Photograph the lesion and have the patient return in two months
d. Topical Imiquimod
Case 1, Question 2

Answer: a

What is your next step in management?

a. **Excisional biopsy** (Excisional biopsy is the best way of making a diagnosis of suspicious pigmented lesions)

b. **Liquid nitrogen cryotherapy** (You should not treat a pigmented skin lesion without knowing what it is. First, you must rule out skin cancers that can be black including melanoma and pigmented basal cell carcinoma)

c. **Photograph the lesion and have the patient return in two months** (This lesion is highly suspicious and must be removed or referred to a dermatologist for evaluation)

d. **Topical Imiquimod** (You should not treat a pigmented skin lesion without knowing what it is)
Biopsy Videos

- Click [here](#) to watch a video on obtaining informed consent
- Click [here](#) to watch a video on local anesthesia
- Click [here](#) to watch a video on how to perform an excisional biopsy
- Click [here](#) to watch a video on pathology requests
Biopsy reveals...

- Lesion is asymmetric (the left side does not match the right side) as indicated by the circles
- Melanocytes are grouped in nests in the dermis
Melanocytes (arrows) present in the upper portions of the epidermis. This is abnormal as melanocytes normally reside in the basal layer.

Their nuclei are large and of different shapes; this is abnormal and is known as “cytologic atypia”
What is the most likely diagnosis?

a. Basal cell carcinoma
b. Dermatofibroma
c. Melanoma
d. Melanocytic nevus
e. Seborrheic keratosis
Case 1, Question 3

a. Melanoma

What is the most likely diagnosis?

a. Basal cell carcinoma (can be pigmented but wouldn’t have this histology)

b. Dermatofibroma (different clinical and histological appearance)

c. Melanoma

d. Melanocytic nevus (different histologic appearance, usually more symmetric)

e. Seborrheic keratosis (different clinical and histological appearance)
In 2014, there were approximately 76,100 new cases of melanoma and 9,710 deaths from melanoma in the US.

The lifetime risk of melanoma has increased:
- 1 in 1500 of persons born in the early 1900s
- 1 in 50 (2%) of white persons born in 2014
  - 1 in 200 for Hispanics, 1 in 1000 for African-Americans

Melanoma can affect all ages:
- It is the most common cancer among young women between the ages of 25 and 29.
Melanoma: Pathogenesis

Cell of origin: melanocyte

Etiology:

• Cumulative and prolonged UVB and/or UVA exposure

• UVA exposure from tanning beds increases risk for melanoma by 75%
  • Especially risky if used before age 35
  • Click here for a personal story about tanning risk
Melanoma: Risk Factors

Individual risk factors for development of melanoma

- Increasing age
- Fair skin; blue eyes, red or blond hair; freckling
- Greater than 25 acquired nevi
- Atypical nevi
- Immunosuppression
- Personal or family history of melanoma (two or more 1st degree relatives)
- Ultraviolet exposure:
  - severe blistering sunburns before puberty
  - Indoor tanning
Heredity of Melanoma

A small percentage of melanomas are familial and have a genetic basis (CDKN2A, CDK4, BRCA2, p53, etc.)

- Having a primary family member (parents, sibling, child) with a melanoma increases one’s risk
- Consider referral to medical genetics if greater than 3 family members have biopsy-proven melanomas
- 50% of familial melanoma patients have no identified mutation in the family, however
Melanoma: Risk Factors

- An individual can’t change their age, skin type, family history, or number of moles
- **The risk factor they CAN alter is ultraviolet exposure**
- Encourage the following, especially in patients at risk:
  - NEVER use tanning booths
  - Wear Sunscreen
  - Perform Self Skin Exams
- More on this later
Melanoma: Clinical Manifestations

- Usually asymptomatic
- Most develop *de novo*; some arise within a pre-existing nevus
- Sun-exposed areas *or* non-sun-exposed areas
- Typically appears as a pigmented papule, plaque or nodule.
- Demonstrates any of the ABCDEs
  - It may bleed, be eroded or crusted
  - Patients may give history of change
Melanoma: Clinical Subtypes

See the following slides to learn about each subtype
Melanoma: Superficial Spreading

Superficial spreading type

- Most common type
- Involves back in men; back and legs in women
- Growth of tumor is primarily horizontal rather than down into the dermis
More examples of superficial spreading melanoma
Melanoma: Nodular

Nodular type

- Rapid growth; more aggressive
- Growth is vertical, so thicker tumors
- **Breslow’s depth** = thickness of the primary melanoma measured from the granular layer of the epidermis to the deepest part of the tumor
More examples of nodular melanoma
Melanoma: Lentigo Maligna

Lentigo maligna type

- Occurs on chronically sun-damaged skin, more common in elderly patients
- Slow progression
- Growth of tumor is primarily horizontal, and not vertical
More examples of lentigo maligna melanoma

These two examples are subtle, but the patients noticed a recent change.
Melanoma: Acrall Lentiginous

Acrall lentiginous type

• More common in people with darker skin color (persons of African or Asian ancestry)
• Diagnosis is often delayed, so lesions tend to be larger
• Look at the soles of your patients! Have them remove their socks!
• Educate all patients to look at their feet
More examples of acral melanoma
Subungual melanoma

- Most commonly on great toe or thumb
- Often a history of trauma
- Refer to dermatology if:
  - > 6mm width of dark streak*
  - Asymmetric
  - Involves the proximal nail fold
  - Dystrophy of the nail

*Note: pigmented streaks in multiple nails is normal ethnic variation in some families
Melanoma: Amelanotic

Amelanotic type

- Morphologic appearance is variable, and the clinical appearance of pigment is subtle or often absent
- As such, the lesion may be confused with a variety of lesions, such as psoriasis, dermatitis, squamous cell carcinoma *in situ*, or basal cell carcinoma
- This is a difficult diagnosis to make, which is why it is important to biopsy when unsure of the diagnosis
- The clue to amelanotic melanoma is usually recent change or growth (E = Evolving)
More examples of amelanotic melanoma
The diagnosis of melanoma should prompt referral to a dermatologist or a multi-specialty melanoma clinic.

Ms. Cary is doing well after wide local excision with sentinel lymph node evaluation, which was negative.
Management & Follow-up

- For melanomas, a multidisciplinary approach is often taken.
- At follow-up visits you perform total body skin exams, which include inspection of the scalp, genitalia, palms and soles, nails and mucous membranes.
- You also counsel Ms. Cary on the importance of continued sun protection, skin self-exams, and regular follow-ups with the dermatologist.
A history of skin cancer or suspected skin cancer is an indication to perform a Total Body Skin Exam (TBSE)

Click [here](#) to view a video on the TBSE

The TBSE is often performed in the dermatology clinic, however, a full skin exam can and should be done in other clinical settings

A “head to toe” approach of the skin exam easily incorporates into the full physical exam
The Skin Exam

- Primary care providers and specialists have an opportunity to find melanoma early; incorporate an integrated skin exam into your physical exam
- Get in the habit of asking all your patients to get into a gown, and look at their skin while you examine them
- You cannot diagnose what you cannot see
- Click here to watch a video on how any medical provider could detect a melanoma
What to look for on the skin exam

The ABCDE mnemonic is a useful tool for remembering what features to pay attention to in evaluating pigmented lesions.
The ABCDEs of Melanoma

Suspicious moles may have any of the following features:

- **ASYMMETRY**
  - With regard to shape or color

- **BORDER**
  - Irregular or notched

- **COLOR**
  - Very dark or variegated colors
  - Blue, Black, Brown, Red, Pink, White

- **DIAMETER**
  - >6 mm, or “larger than a pencil eraser”
  - Diameter that is rapidly changing

- **EVOLVING**
  - Evolution or change in any of the ABCD features

American Academy of Dermatology
Practice the ABCDEs with this Evolving Lesion
Case Two

Mr. Allen Clark
Case Two: History

- **HPI:** Allen Clark is a 58-year-old healthy man who presents to his primary care physician for a spot on his left arm that has been present for several years but has been growing bigger and darker in the last year.
- **PMH:** hypertension, carpal tunnel, asthma
- **Medications:** lisinopril, hydrochlorothiazide, aspirin
- **Allergies:** no known allergies
- **Family history:** no skin cancer
- **Social history:** construction worker, lives with wife
Case Two: Skin Exam

How would you describe these exam findings?
Case Two: Skin Exam

- 1.2 cm variegated plaque with irregular borders and several colors (light brown, dark brown, red, and black), on left upper arm

- What about this is worrisome for melanoma?
Classic features of melanoma

ABCDEs

• Asymmetry
• Border
• Color
• Diameter
• Evolving

Melanoma

Note by physician:
irregularly different colors

• This plaque is 1.2 cm
• At least four colors in this lesion

black
red
dark brown
light brown
Learn more about evaluating pigmented lesions

- Review the Evaluation of Pigmented Lesions module
- Primary care doctors who review resources like the free INFORMED Skin Cancer Education Series double the likelihood of detecting thinner melanoma in their patients
  - Know how to look at moles for the rest of your career, and help your patients
  - 1.5 hours of your time could save a life
Case Two, Question 1

You’re worried this might be a melanoma. What would be your next step?

a. Measure and follow up in 6 months
b. Excise with 5 mm margins
c. Perform a shave biopsy
d. Take a picture, and call dermatology for an immediate referral
Case Two, Question 1

Answer: d
You’re worried this might be a melanoma. What would be your next step?

a. Measure and follow up in 6 months (delay increases the likelihood of metastasis)
b. Excise with 5 mm margins (may be inadequate; Breslow depth determines surgical margins)
c. Perform a shave biopsy (may lose important information for staging)
d. **Take a picture, and call dermatology for an immediate referral** (most dermatologists will arrange to see this patient within a few days if they see this picture)
Biopsy of a Pigmented Lesion

- Take a photo before biopsy or record landmarks
  - This is helpful if need to refer for excision
  - If unsure, CALL your dermatologist and ask them to look at the photo§; this will help triage the patient
- Biopsy the **entire** lesion (nearly always possible)*
  - Include the **entire breadth and depth of the lesion** plus 1-2 mm
  - If only a portion is biopsied, it may be falsely negative

§ Preferably use a secure electronic communication

* Except when on the face or cosmetically sensitive areas
Case Two: Clinical Course

- Biopsy showed malignant melanoma
  - 1.1 mm Breslow depth
  - No ulceration
  - Increased mitotic rate
- Excision with 1 cm margins was performed; sentinel lymph node biopsy was negative
- This is stage 1B melanoma (T2aN0M0)
Melanoma: Course & Prognosis

- Melanoma has high cure rates if diagnosed and treated early
- Key prognostic factors for primary tumor
  - Thickness or depth of tumor invasion is the single most important prognostic factor for survival and clinical management
    - Survival decreases with increasing Breslow’s depth
    - Ulceration and high mitotic rate confer worse prognosis
    - Involvement of lymph nodes or distant metastases have a worse prognosis than limited, local disease
Melanoma staging and follow-up

- The most important factors currently used to stage melanoma are **Breslow depth**, ulceration, mitotic rate, and lymph node involvement.

- Patients with biopsy-proven melanomas should be followed by a dermatologist every 6 months for 2 years.

- After that, annual follow-up is recommended.
Case Three

Mr. Harvey Hawkins
Case Three: History

- HPI: Harvey Hawkins is a 71-year-old man who presents to his primary care physician for a subcutaneous growth in his wrist; he has not seen a physician in many years
- PMH: no skin cancer, distant history of gout
- Medications: none
- Allergies: no known allergies
- Family history: no skin cancer
- Social history: retired, lives alone, no alcohol or tobacco
- ROS: negative except 40 pounds of intentional weight loss
Case Three, Question 1

Which of the following is the best approach today?

a. Examine only the wrist and bring the patient back for a full exam in 6 months
b. Have the patient undress for a full physical exam including the skin
c. Refer to dermatology for a full body skin exam
Case Three, Question 1

Answer: b

Which of the following is the best approach today?

a. Examine only the wrist and bring the patient back for a full exam in 6 months (possible delay in therapy)

b. Have the patient undress for a full physical exam including the skin

c. Refer to dermatology for a full body skin exam (screening skin exams should be performed by primary care doctors with targeted referrals)
Case Three: Skin Exam

- The patient has a ganglion cyst on his wrist
- You perform a skin exam and also notice a 0.6 x 2.2 cm red and brown patch on his left back
- Upon questioning, he noticed it 4-5 years ago and froze it with wart remover, but it has gotten darker in the last year
Look at the skin!

- White males over 50 (especially if they live alone) are at the greatest risk for lethal melanoma, and they are more likely to present to their primary care provider than a dermatologist.

- Integrating the skin exam into your physical exam can help find melanomas at thinner stages:
  - Focus on higher risk patients: men over 50, fair skin types, patients with > 25 nevi or > 5 atypical nevi, and patients with parents, siblings, or children who had biopsy-proven melanoma.
Case Three

- You call the dermatologist because you’re very worried this is a melanoma
- They see him that afternoon
  - A biopsy that reveals a 1.2 mm thick Breslow depth melanoma that is later excised with 1 cm margins
  - The patient declines sentinel lymph node biopsy
Case Three, Question 2

The patient’s daughter comes with him to your next visit and has some questions. Which of the following is true?

a. Indoor tanning to get a base tan helps prevent melanoma

b. Patients who perform regular skin exams are more likely to find a melanoma when it’s thin

c. People who use sunscreen are more likely to get skin cancers including melanoma
Case Three, Question 2

Answer: b

The patient’s daughter comes with him to your next visit and has some questions. Which of the following is true?

a. Indoor tanning to get a base tan helps prevent melanoma (tanning *increases* melanoma risk)

b. Patients who perform regular skin exams are more likely to find a melanoma when it’s thin

c. People who use sunscreen are more likely to get skin cancers including melanoma (studies show regular sunscreen use *decreases* melanomas)
What you can do

1. Help patients understand their risk
   - The melanoma risk assessment tool is one way to stratify patients’ risk for melanoma
   - Counsel all patients on sun safety
Prevent skin cancer...

- A large study in Australia showed that regular use of sunscreen decreases the risk of melanoma

- Wear sunscreen daily, and reapply often when in the sun

American Academy of Dermatology
Prevent skin cancer...
Patient Education:
Be Sun Smart®

- Generously apply a broad-spectrum, water-resistant sunscreen with a Sun Protection Factor (SPF) of 30 or more to all exposed skin.
- Wear protective clothing, such as a long-sleeved shirt, pants, a wide-brimmed hat, and sunglasses.
- Seek shade.
- Get vitamin D safely through a healthy diet that may include vitamin supplements. Don't seek the sun.
- Avoid tanning beds. Ultraviolet light from the sun and tanning beds can cause skin cancer and wrinkling. If you want to look tan, consider using a self-tanning product, but continue to use sunscreen with it.
What you can do

1. Help patients understand their risk

2. Teach patients about self skin exams
   - Especially those at higher risk, like men over 50 who live alone
   - Patients with melanoma who examined their skin in the year before diagnosis, had thinner tumors (better prognosis) than those who didn’t
The American Academy of Dermatology encourages everyone to check your skin regularly.
Melanoma: Patient Education

There are multiple resources to educate patients about melanoma and skin cancer prevention:

• American Academy of Dermatology
  • Skin Cancer Prevention
  • How to Perform a Skin Exam video
  • Free resources (handouts, presentations, videos)

• American Cancer Society:
  • Skin Cancer Prevention and Early Detection

• This powerful video geared toward youth
Teach patients what melanoma looks like:

- Skin Cancer Foundation:
  - Warning Signs of Melanoma
  - Skin Cancer Information
- American Academy of Dermatology
  - Melanoma signs and symptoms
What you can do

1. Help patients understand their risk
2. Teach patients about self skin exams
3. Integrate the skin exam into your physical exams, especially on patients at higher risk of getting melanoma
   – You can’t diagnose what you can’t see
   – Refer concerning lesions to dermatology
Take Home Points

- Melanoma is a common and deadly cancer
- Physicians should integrate a skin exam into the routine visit
- Patient education is a crucial component to skin cancer prevention
- Suspect pigmented lesions may be identified through the ABCDEs of melanoma
- Suspicion or diagnosis of melanoma should prompt immediate referral to a dermatologist
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References


To take the quiz, click on the following link:

https://www.aad.org/quiz/melanoma-learners