Melanoma 101
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Objectives
- What is melanoma?
- Why do we care?
- Who gets it?
- What does it look like?
- How do we sample and treat?
- What can we do about it?

Melanoma: The What

- Cell of Origin: Melanocyte

Melanin=Protection

https://www.slideshare.net/IbrahimMohammed15/biologyof-melanocyte
The Melanoma Numbers

- 1:40 for Caucasians, 1:200 Hispanics, 1:2000 for African Americans
- 160,000 Americans diagnosed annually
- 10,000 will die from melanoma this year
- From 1970-2009, incidence of melanoma increased 400% in young men and 800% in young women.
- Melanoma comprise 4% of all skin cancers but 80% of deaths.
- One of most common cancers in young adults
- Every hour one person dies from melanoma in America.


Melanoma Risk Factors

- Fair complexion
- Ultraviolet radiation exposure
  - Total mole number
  - Atypical moles
  - Genetic risk
  - Personal history of melanoma
  - Others?

Skin Type

<table>
<thead>
<tr>
<th>Skin Type</th>
<th>Skin Colour</th>
<th>Hair Colour</th>
<th>Eye Colour</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>White or very pale</td>
<td>Blonde</td>
<td>Blue, Grey, Green</td>
<td>Always burns, never tans</td>
</tr>
<tr>
<td>II</td>
<td>Pale white with freckles</td>
<td>Chestnut or Dark Blond</td>
<td>Blue</td>
<td>Always burns, sometimes tans</td>
</tr>
<tr>
<td>III</td>
<td>Red to light brown</td>
<td>Dark brown</td>
<td>Dark brown</td>
<td>Sometimes burns, always tans</td>
</tr>
<tr>
<td>IV</td>
<td>Light to medium brown</td>
<td>Black</td>
<td>Brown</td>
<td>Rarely burns, always tans</td>
</tr>
<tr>
<td>V</td>
<td>Medium to dark brown</td>
<td>Black</td>
<td>Dark-ochre black</td>
<td>Rarely burns, tans more than average</td>
</tr>
<tr>
<td>VI</td>
<td>Dark brown to black</td>
<td>Black</td>
<td>Black</td>
<td>Never burns</td>
</tr>
</tbody>
</table>
UV radiation

https://www.researchgate.net/publication/47509087_Hot_or_Not-Evaluating_the_Effect_of_Artificial_Tanning_on_the_Public%27s_Perception_of_Attractiveness

Dysplastic nevi

Differential Diagnoses

- Dysplastic nevus
- Seborrheic keratoses
- Dermatofibroma
- Pigmented basal cell carcinoma
- Solar lentigo
- Congenital nevus
- Angiokeratoma
- Pyogenic granuloma
- Spitz nevus
- Blue nevus
- Many more

ABCs

![ABCs Image](http://www.webmd.com/melanoma-skin-cancer/abcds-of-melanoma-skin-cancer)

Dermoscopy

![Dermoscopy Image](http://www.webmd.com/melanoma-skin-cancer/dermoscopy-for-the-family-physician)

Dermoscopy (Carli et al., 2004) (Koller et al., 2002)

Dermoscopy

http://www.dermoscopy.org/consensus/2d.asp

Histopathologic Subtypes

- Superficial Spreading melanoma: 60%
- Nodular Melanoma: 20%
- Lentigo maligna melanoma: 10%
- Acral lentiginous Melanoma: 4%
- Others: 6%
Superficial Spreading

Nodular melanoma

Lentigo maligna

Acral Lentiginous
Sampling

- Gold standard: Excisional Biopsy
- Also acceptable by some standards:
  - Punch excision
  - Deep Shave/Saucerization

Table III. Summary of preferred biopsy methods by US dermatologists for skin lesions suspicious for melanoma

<table>
<thead>
<tr>
<th>Preferred biopsy method</th>
<th>% with 99% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide local excision</td>
<td>17 (3% ± 1.6%)</td>
</tr>
<tr>
<td>Narrow local excision</td>
<td>153 (31% ± 4%)</td>
</tr>
<tr>
<td>Shave biopsy</td>
<td>178 (35% ± 4.2%)</td>
</tr>
<tr>
<td>Saucerization/Scoop</td>
<td>63 (12% ± 2.9%)</td>
</tr>
<tr>
<td>Punch biopsy</td>
<td>53 (11% ± 2.7%)</td>
</tr>
<tr>
<td>Other</td>
<td>35 (8% ± 2.3%)</td>
</tr>
</tbody>
</table>

CI, Confidence interval.


Staging

- Stage IB: Melanoma 1-2 mm thick or Melanoma >0.75 mm thick with ulceration
- Offers prognostic information but has not been shown to increase survival.

Do I need a lymph node biopsy?

- Stage IB: Melanoma 1-2 mm thick or Melanoma >0.75 mm thick with ulceration
- Offers prognostic information but has not been shown to increase survival.

Survival

<table>
<thead>
<tr>
<th>Stage</th>
<th>5-Year Survival Rate</th>
<th>10-Year Survival Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>97%</td>
<td>95%</td>
</tr>
<tr>
<td>IB</td>
<td>92%</td>
<td>86%</td>
</tr>
<tr>
<td>II</td>
<td>81%</td>
<td>77%</td>
</tr>
<tr>
<td>II A</td>
<td>70%</td>
<td>67%</td>
</tr>
<tr>
<td>II B</td>
<td>53%</td>
<td>46%</td>
</tr>
<tr>
<td>II C</td>
<td>71%</td>
<td>68%</td>
</tr>
<tr>
<td>II D</td>
<td>59%</td>
<td>43%</td>
</tr>
<tr>
<td>III</td>
<td>24%</td>
<td>10-15%</td>
</tr>
</tbody>
</table>


Survival

<table>
<thead>
<tr>
<th>Breslow Depth of Invasion</th>
<th>Approximate 5-Year Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 mm</td>
<td>95 – 100%</td>
</tr>
<tr>
<td>1-2 mm</td>
<td>80 – 96%</td>
</tr>
<tr>
<td>2.1 – 4 mm</td>
<td>60 – 75%</td>
</tr>
<tr>
<td>&gt; 4 mm</td>
<td>50%</td>
</tr>
</tbody>
</table>


Survival

5-Year Survival for Patients Depending on Progression of Melanoma


Treatments

- Wide local excision with margins
- Lymph node biopsy to assess for spread
- Immunotherapy
- Targeted therapy
- Chemotherapy
- Radiation

How can you help?

But I need vitamin D!

- UVA does NOT increase vitamin D
- UVB does so inconsistently
- Oral supplementation can consistently increase levels
- Sunscreens have not been shown to decrease systemic Vitamin D levels significantly


But my tan looks so good!

- Not really
- Sunless tanners safe
- Spray tans probably safe, just don’t inhale
- Tanning pills not so safe
- Embrace the pale!

http://www.skincancer.org/skin-cancer-information/ask-the-experts/self-tanners

Tanning addiction

1. Precontemplation
   - No intention to change
2. Contemplation
   - Thinking about changing
3. Preparation
   - Planning for change
4. Action
   - Making changes
5. Maintenance
   - Sustaining positive changes


https://tanningaddiction.com
Ban the tan

Tanning Restrictions for Minors


Sunscreen

- Broad Spectrum
- SPF 30 or greater
- Applied every 2 hours!
- Mineral blockers: titanium dioxide/zinc oxide

Skin screening

- Photos for monitoring and referral
- Make sure that skin exam is part of complete physical
- Gain comfort with skin biopsies
- Feel free to refer patients that appear high risk
  - many moles, funny moles, lots of sun damage, history of skin cancers, tanning bed users
- Consider dermoscopy training

Dermoscopy for the Family Physician

ASHFAQ A. MARGHOOB, MD, Memorial Sloan-Kettering Cancer Center, New York, New York
RICHARD P. USATINE, MD, University of Texas Health Science Center, San Antonio, Texas
NATALIA JAMES, MD, Aurora Skin Cancer Center and Universidad Pontificia Bolivariana, Medellin, Colombia

Have dermatopathologist read

- Receive advanced training regarding the analysis of skin specimens
- Have both clinical and pathology experience

Summary

- What is melanoma? A common and deadly cancer
- Why do we care? Significant impact on lives of many thousands annually
- Who gets it? Young and old, male and female, black and white.
- What does it look like? Lots of things but usually has recognizable features
- How do we sample and treat? Full thickness specimen is preferred. ASAP!
- What can we do about it? Lots!

Resources

- https://www.visualdx.com/
- https://www.dermnetnz.org/
- Skin biopsy workshops
- Dermoscopy workshops

Call me!

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- michael-elliott@uiowa.edu
References