Mid-Florida Dermatology Associates

Dermatology and Dermatological Surgery

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Moles and Melanoma

By: Laura L. Mays, PA-C

What is a Mole?

A mole, whose medical name is a melanocytic nevus, is a common benign growth of the color cells of the skin called melanocytes.

Moles normally appear in the first year of life and peak in number in the second or third decade, when the average number is 25. The total number of moles on the skin increases with significant sun exposure and in particular with sunburns before the age of 12. Some moles may disappear in the seventh to ninth decade.

The number of moles on your body is the strongest indicator for the risk of developing a malignant melanoma. There is also a direct relationship between the number of innocent moles on the skin and the chance of developing an abnormal or changing mole.

The number of moles on the arms is the greatest predictor of the number of moles present elsewhere on the body. Chronically sun exposed body sites have a higher density of moles, in particular small ones less than 5 mm in diameter. Larger moles are most prevalent on intermittently sun-exposed areas, like the back and chest. Moles may increase in size, particularly before the age of 20. Normal moles are unlikely to enlarge, as people get older. However, enlargement alone is not an indicator of malignancy or abnormality in a mole.

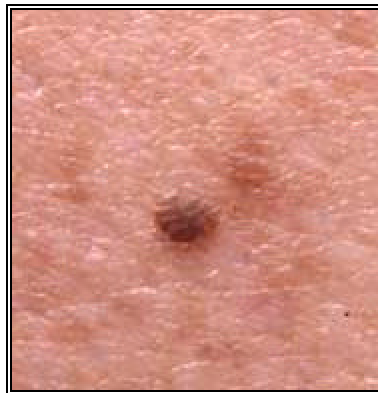

Figure 1 - Normal Mole

What is Melanoma?

Melanoma is the deadliest form of skin cancer. It begins in cells in the skin called melanocytes. Melanocytes produce melanin, the pigment that gives skin its natural color. When skin is exposed to the sun, the melanocytes produce more pigment, and the skin darkens or tans. When a cluster of melanocytes form noncancerous growths called moles (or nevi). A mole (or a nevus) is very common. Most people have about 10-40 moles. Moles can be pink, brown, tan, blue or flesh colored. They can be flat or raised. Statistics have shown that melanomas occur more commonly in a flat mole. However, if a flat mole becomes raised you should tell your dermatology provider. Moles are usually oval or round and are smaller than a pencil eraser (6 mm diameter). They can be present at birth or they can appear late on in life. Typically you get moles before age 40 and with time they begin to fade away.

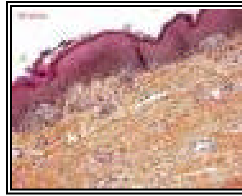

Figure 2- Cross Section of Malignant Mole

Quick Stats about Melanoma and Sun Exposure That You Need To Know:

- The incidence of melanoma is rising faster than **<u>any other cancer</u>**
- One person dies every hour from melanoma
- Melanoma is the most common cancer killer in women 24-29 and the second most in women 34-39.
- Melanoma is the **5th** most common cancer in men in the U.S and **6th** in women
- In the U.S., California has the highest rates of melanoma and here in Florida we rank #2 in the country
- Australia has the highest rates of melanoma in the world
- Melanoma is caused by sun exposure and can be linked genetically
- Sun damage is cumulative
- Neither a tan nor a burn is good for your skin
- Tanning beds are not good for your skin
- Don't forget to apply sun block to your ears, back of the neck, and tops of the feet
- Wear SPF 30 lip balm

- One blistering sunburn in childhood more than doubles a person's chances of having a melanoma

- SPF 30 blocks approximately 97% of UV radiation

- Remember to protect yourself from UV radiation reflected by sand, snow, water and ice.

- Put your sun block by your toothbrush so you remember to use it everyday. It is not just for sunny, summer days. On cloudy days, 80% of the sun's UV radiation passes through the clouds.

There are studies that suggest that melanoma is from intense exposure to UVA radiation, loss of tumor suppressor genes, and genetic predisposition.

Risk Factors for Melanoma

There are many risk factors for melanoma. People with fair complexions, light hair or light eyes are often more affected by melanoma. Individuals with multiple moles (or nevi) are also at a greater risk. It is safe to say that moles are markers for melanoma. This is your indication you may be at a higher risk. People who have a history of abnormal moles (or dysplastic nevi) are at an increased risk as well. These abnormal moles must be fully excised to ensure that no dysplastic or abnormal cells are left behind to further develop into a melanoma. People who have had a melanoma in the past or who have a family member with a melanoma are at a high risk as well.

Those patients with a weakened immune system have a higher risk than normal. Persons with cancer, HIV, or on organ transplantation medications are considered to have a weak immune system.

If you have had at least one blistering sunburn as a child or a teenager, your risk is higher than average.

Signs and Symptoms

The first sign of a melanoma is often a change in the size, shape, color, or feel of an existing mole. Melanoma can appear as a new mole as well. The ABCDs listed below is the criteria your dermatology provider will use in examining your moles. Please do not use the following information to self-diagnose. It is imperative that you only use these guidelines to help you determine a change in a mole or a problem for which you should see your provider.

A- **Asymmetry**-one half does not match the other half
B- **Border**-an irregular border. The edges are often ragged, notched, blurred, or irregular in outline and the pigment may spread into the surrounding skin.

- C- **Color**-the color is uneven, or possibly different shades of one color or two different colors. Shades of black, brown, and tan may be present. Areas of red, white, grey, pink or blue may also be seen.
- D- **Diameter**- Usually a mole is noted to have changed in size, usually an increase. Some melanomas are larger than 6mm, or the diameter of a pencil eraser.

Melanomas vary greatly and do not always have **all** of the ABCD characteristics. However, over 95% of melanomas will show at least **one** major feature of the ABCDs. It is important to be aware of any changes in your skin and have them checked.

Types of Melanoma

There are several different types of melanoma. Melanoma does not discriminate against sex, age, race, religion, or socioeconomic status. Anyone can get diagnosed with melanoma. Melanomas can occur in areas where one may not think possible. For example, melanomas can take place on the genitals, the anal area, inside the eye, inside the mouth, on the scalp, in the fingernails or toenails, and the palms and soles.

Superficial Spreading Melanoma-60-70% of melanoma cases

Superficial spreading is the most common type of melanoma and is usually a slowly enlarging brown or black spot that may have flat and/or raised areas. Early on, the lesion may be flat and then notching, scalloping or regression can occur.

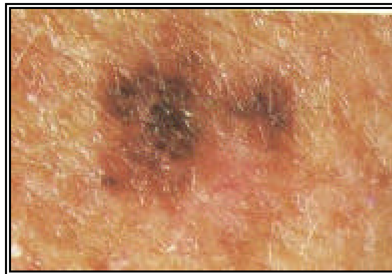

Figure 3 - Superficial Spreading Melanoma

Nodular Melanoma-15-30% of cases

Nodular melanoma is a brown or black nodule (or raised lesion) that grows quickly and frequently ulcerates. Nodular melanoma is usually darker and

thicker than superficial spreading melanoma with rapid onset and a blue-black or blue-red appearance.

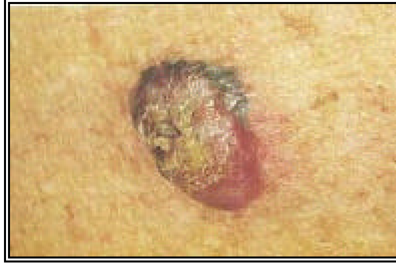

Figure 4 - Nodular Melanoma

Acral Lentiginous Melanoma-uncommon, {Asians (46%), African Americans (70%)}

Acral lentiginous melanoma is the most common type of melanoma in Hispanics, African Americans, and Asians. The American Academy of Dermatology conducted a study regarding melanoma in African Americans and found that even though these ethnicities don't get melanoma as often as Caucasians, when they do it is often **fatal.** This type of melanoma is on non-hair bearing areas of the body such as the palms, soles and nails. If a tan or brown discoloration with irregular border is noted on the nail or around the cuticle, or if a mole is on the palms or soles one should have it checked by his/her dermatology provider.

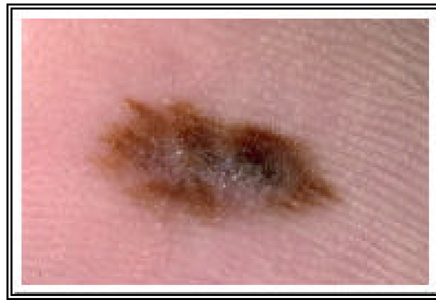

Figure 5 - Acral Lentiginous Melanoma

Lentigo Maligna-5% of cases

Lentigo maligna is melanoma in sun- exposed areas, most commonly the face. It is typically an irregularly shaped, flat, tan or brown, slow growing lesion on sun damaged skin. It may be increasing in size or changing to a darker brown.

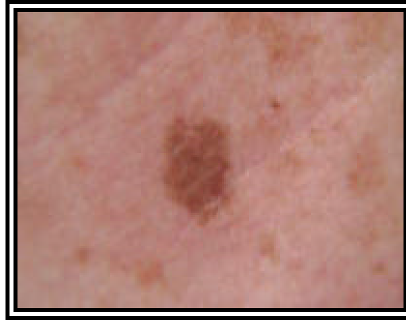

Figure 6 - Lentigo Maligna

Amelanotic Melanoma-variant of nodular-5% of nodular cases are amelanotic

Amelanotic melanoma is a non-pigment producing variant of nodular melanoma. These lesions are often overlooked by the patient or suspicioned to be a basal cell carcinoma.

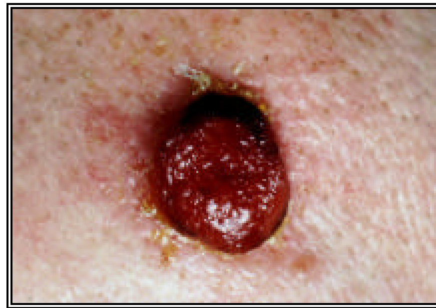

Figure 7 - Amelanotic Melanoma

Desmoplastic melanoma-1.7% of cases

Rare variant of melanoma that is locally aggressive and occurs primarily on the head and neck in the elderly.

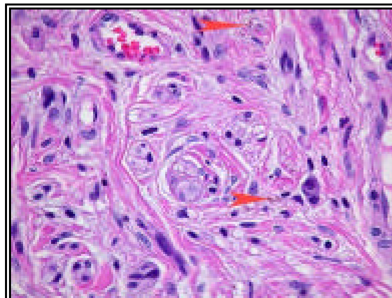

Figure 2 - Desmoplastic melanoma sample tissue

Staging of Melanoma

Healthcare professionals have created a melanoma staging system to identify the best treatment method for individual cases. The staging system divides melanoma into **stages**, based on the depth of the primary lesion or tumor and how far the cancer has spread from its starting point.

Clark's Level of Invasion

History:
Proposed by WH Clark, et al, in 1969. Showed that the risk of nodal metastases could be directly related to the depth of penetration of the tumor.

Criteria:
Histological classification based on resection of entire lesion.

Restrictions:

- Does not take nodal involvement into consideration; deals only with primary tumor.
- Uniformity of staging not always reproducible because of variations in the depth of layers of the skin.
- Cannot be applied accurately to melanomas of the palms and soles.
- Histological difference between growth patterns of superficial spreading and nodular malignant melanomas.

Categories:
Level I: Confined to epidermis (in situ); never metastasizes; 100% cure rate
Level II: Invasion into papillary dermis; invasion past basement membrane (localized)
Level III: Tumor filling papillary dermis (localized), and compressing the reticular dermis
Level IV: Invasion of reticular dermis (localized)
Level V: Invasion of subcutaneous tissue (regionalized by direct extension)

Guidelines for Clark's Levels:

- The most difficult differentiation is between Level II and Level III.
- If there is involvement of lymph nodes or distant metastases, another staging system must be used.
- Examination of entire tumor is important in order to accurately assess the level of invasion.
- Breslow's Depth of Invasion

History:

Proposed by A. Breslow in 1970.

Criteria:

Pathologic staging based on measurement of tumor invasion of dermis using the micrometer on the microscope. More reproductable system than Clark's Levels.

Categories:

- Actual measurement of depth of lesion is recorded Example: lesion measures 0.8 mm
- Cases are grouped for study as follows:
- 0.75 mm (comparable to Clark Level II)
- >0.75 - 1.5 mm (comparable to Clark Level III)
- >1.5 - 4.0 mm (comparable to Clark Level IV)
- >4.0 mm (comparable to Clark Level V)

Guidelines for using Breslow's system:

- Record measurement in abstract. If both Clark's and Breslow's stages are given, record both.

- If there is involvement of lymph nodes or distant metastases, another staging system must be used.

- Examination of entire tumor is important in order to accurately assess the level of invasion.

Clinical Staging for Malignant Melanoma

- Used for staging of melanomas, which have spread beyond the primary, tumor or which do not have adequate tissue for pathological examination.

- Clinical staging- includes results of tests and examinations as well as pathological findings.

- Clinical staging parallels Summary Staging

    1. Stage I Localized -- without metastases to distant or regional nodes (allows localized disease up to 5 cm. from initial tumor within primary lymphatic drainage area
    2. Stage II Regionalized -- involvement of regional nodes
    3. Stage III Disseminated -- visceral or lymphatic metastases or multiple cutaneous or subsequent metastases

- Reference to stage in melanoma cannot be assumed to be clinical, Clark's, or Breslow's unless specifically identified as such.

FAQs about Melanoma

1. What Is Melanoma?

Melanoma is a type of skin cancer that occurs when specialized skin cells called melanocytes become malignant and form a lesion. If the lesion is not removed early, cells can grow downward from the surface of the skin and attack healthy tissue. Medical professionals categorize melanoma into stages. Please see Melanoma Stages for more information.

2. What Causes Melanoma?

The exact causes of melanoma are unknown. However, risk factors exist which make a person more prone to the disease. Risk factors for skin cancer, including melanoma, are fair or light skin (sensitivity to the sun), one or more blistering sunburns in childhood, a family history of melanoma, and abnormal moles. 3.

3. What Are The Warning Signs Of Melanoma?

Melanoma usually grows from abnormal moles. Melanoma can occur anywhere on the body, including the eyes. The Skin Cancer Foundation outlines how to check for the ABCDs of melanoma (Asymmetry, Border irregularity, Color variation, and Diameter). It is important to consult a dermatology provider immediately if a mole or lesion matches any of these conditions. Please see Melanoma Signs and Symptoms for more information.

4. How Is Melanoma Diagnosed?

If a mole or a pigmented area on the skin looks abnormal, a biopsy of the growth will be performed to determine whether it contains cancer cells. If the cells are malignant, or cancerous, the provider will then determine the stage of the cancer and what treatment options are currently available.

5. What Is Metastatic Melanoma?

Metastatic melanoma is the most advanced form of melanoma. It occurs when the cancer has spread from the primary lesion on the skin to other parts of the body, where it continues to grow.

6. How Is Melanoma Treated?

The stage of melanoma determines how it is treated. Please see Melanoma Stages for more information. About 95% of cases are treated first with surgery. In stages I and II, the melanoma is usually surgically removed. In stage III, treatment may include drug therapy and/or the removal of surrounding tissue or lymph nodes. In stage IV metastatic melanoma, PROLEUKIN® IL-2 therapy and dacarbazine are the only treatment options approved by the U.S. Food and Drug Administration.

7. How Successful Are Treatments For Patients With Melanoma?

Treatment success and survival rates are directly related to the patients' particular stage of melanoma. Please refer to Melanoma Stages for a description of each stage.

8. What can be done to prevent melanoma?

Having a skin exam with your provider every 6 months to a year best prevents melanoma. It is also good to get into a new routine of sun protection. It is recommended that you apply a broad-spectrum sun block (that contains zinc oxide or titanium dioxide) 30 minutes prior to going out into the sun (to allow for adequate absorption). Then you should make sure to wear a wide brimmed hat, sunglasses, SPF 30+ lip balm, and sun protective clothing. Sun block should be reapplied every 90 minutes, or immediately after excessive perspiring, swimming or toweling off. Seeking shade as much as possible and avoiding the sun during 10am-4pm is best. You cannot rely on sun block alone to protect your skin. All precautions must be considered. But the most important preventative measure is EDUCATION. I firmly believe in patient education, especially when it comes to skin cancers. It is best to educate and encourage your family, friends, and loved ones to see a dermatology provider periodically for a skin exam. It could save their life. Remember, skin is your largest organ. What are you doing to protect it? And are you getting it checked for cancer? If not, it is time to call and make an appointment.

9. Where Can I Get More Information?

Your most important information resource is your healthcare team. You can also contact support groups and services through the following organizations. These organizations will be able to direct you to services more specific to your individual needs:

To contact the Orlando Melanoma Support Group- lead by Laura L. Mays PA-C log onto http://groups.yahoo.com/group/orlandomelanomasupportgroup

The Skin Cancer Foundation
212-725-5176

Melanoma Research Foundation
(1-800-MRF-1290 [673-1290])

The National Cancer Institute
(1-800-4-CANCER)

Expectations (prognosis)

Treatment success depends on many factors, including the patient's general health and whether the cancer has spread to the lymph nodes or other organs.

If caught early, melanoma can be cured. The risk of the cancer coming back increases with the depth of the tumor -- deeper tumors have greater likelihood of recurring. If the cancer has spread to lymph nodes, there is a greater chance that the melanoma will come back.

For melanoma that has spread to other tissues and organs, the cure rate is low. Melanoma that has spread may lead to death.

Complications of melanoma include the following:

* Spread to other organs
* Damage to deep tissue
* Side effects of treatment
* Nausea
* Hair loss
* Fatigue
* Pain

In the advanced stages of melanoma that has spread, death may occur.