

Otterbein University

Digital Commons @ Otterbein

Nursing Student Class Projects (Formerly MSN)

Student Research & Creative Work

7-2018

Malignant Melanoma

Angie Whitt

Otterbein University, whitt.angie@yahoo.com

Follow this and additional works at: https://digitalcommons.otterbein.edu/stu_msn



Part of the [Nursing Commons](#)

Recommended Citation

Whitt, Angie, "Malignant Melanoma" (2018). *Nursing Student Class Projects (Formerly MSN)*. 304.
https://digitalcommons.otterbein.edu/stu_msn/304

This Project is brought to you for free and open access by the Student Research & Creative Work at Digital Commons @ Otterbein. It has been accepted for inclusion in Nursing Student Class Projects (Formerly MSN) by an authorized administrator of Digital Commons @ Otterbein. For more information, please contact digitalcommons07@otterbein.edu.

Malignant Melanoma

Angie Whitt, RN

Otterbein University, Westerville, Ohio

Presentation of Case/Introduction

Summer is here and it is an important time of year to teach about prevention and detection of skin cancer. Many people expose his/her skin (or a child's skin) to harmful ultraviolet light produced by the sun without knowing the risk that are involved. Malignant melanoma or cutaneous melanoma is the most deadly type of skin cancer and "the number of people that have acquired melanoma has nearly doubled since 1973. Although melanoma only accounts for approximately 1% of skin cancer diagnoses, it accounts for 70 - 75% of skin cancer related deaths (Deepanwita & Tackett, 2016, para 2)." Melanoma is also a highly invasive cancer. Early detection is key to positive prognosis (late stage melanoma is usually not curable because it is invasive and metastasizes). As an advanced practice nurse, it is important to recognize and assess for melanoma, even if this is not the patients primary complaint, since early detection could be life-saving.

"There are many types of melanoma but the four most common types of melanoma include:

- ~ Superficial spreading melanoma accounts for 70% of all diagnosed melanomas. It occurs most often in the younger populations. This type of melanoma begins to grow along the top of the skin (in situ) and will metastasize. Various colors (white, black, red, blue, brown, or tan) and irregular borders are typical for this melanoma.
- ~ Lentigo maligna usually occurs in the elderly population on skin that has been chronically exposed to direct sun light. It appears tan, brown, or dark brown in color. It is also a superficial type of melanoma that slowly becomes invasive.
- ~ Acral lentiginous melanoma is usually a black or brown pigmentation that grows under the nails or on the palms/soles of hands/feet. It is the most frequent melanoma in Asians and African-Americans, but is less frequently occurring in the Caucasian populations.
- ~ Nodular melanoma is visualized as a dark-colored lump on your skin. This type of melanoma is highly invasive and grows into the skin unlike the other types of melanomas that grow across the top of the skin. It may be black, blue, red, white, grey, brown, or tan. This type of melanoma makes up approximately 10%-15% of diagnosed melanomas.

("Skin Cancer Foundation," 2018) (Pullen, Whitehead, & Pastwa, 2011)

Underlying Pathophysiology

Malignant Melanoma is a type of skin cancer that stems from melanocytes. These are the pigment producing cells that gives the skin its color. Mutated melanocytes grow to be malignant melanoma (Castellania et al., 2017). Although the exact cause of melanoma is unclear, an increased exposure to ultraviolet radiation has been linked to obtaining this type of cancer. It is possible that a genetic link may also be involved in some cases of melanoma. Factors that increase a person's risk of contracting melanoma include:

- ~ A family history of melanoma.
- ~ A history of one or more severe sun burns (especially blistering sun burns).
- ~ An excessive exposure to ultraviolet light (such as tanning beds or having a job that requires one to work out in the sun every day).
- ~ Having multiple moles or moles of irregular shapes or sizes (atypical moles).
- ~ Having fair or lighter pigmented skin, blue or green eyes, or those with blond or red hair.
- ~ Living at higher elevations or closer to the equator where there is more ultraviolet radiation and the light is more direct.
- ~ Having a suppressed immune system (including those with the HIV virus or AIDS, who have received an organ transplant, or who are receiving immunotherapy,

("Mayo Clinic," 2016, para 20)

Significance of Pathophysiology

Melanoma accounts for approximately 5% of skin cancers and is the most fatal type. It is the fastest growing of all malignancies in men and the second fastest growing malignancy in women (Castellania et al., 2017). Due to the high mortality rate of Melanoma, there has been an increase in interest and scientific studies in recent years. (Basi HR, Alicezaei, Ahovan, & Moradi, 2017). "Advanced melanoma is highly invasive and metastasizes quickly to the lymph nodes, lungs, liver, and brain ("We Are MacMillan. Cancer Support," 2018, para.1)." One study performed, "Does Proximity of the Primary Tumour to the Lymph Node Basin, in Patients with Malignant Melanoma, Influence the Chance of Sentinel Node Positivity?," showed a link between the proximity of a melanoma lesion to the lymph nodes and the increase chance of lymph node metastasis (Hunt et al, 2017). With this information in mind, it is especially important to assess moles and skin discolorations that are in hard-to-see (or often covered by clothes) places proximal to the trunk of the body. Doctors usually do not deem a patient cured once a melanoma has been removed because of the risk that it may return in the years following. Instead, doctors use time increments of five years to assess survival rates. Studies have shown that the earlier the stage of melanoma when a patient receives the diagnosis, the longer the survival rate. ("Bupa," 2018)

Signs & Symptoms

Melanoma usually presents in areas most often exposed to the sun, but may present anywhere on the body. "Thinking of "ABCDE" can help you remember what to look for. Assess moles or other pigmentations on the skin for:

- ~ "Asymmetry: The shape of one half does not match the other half.
- ~ "Border that is irregular: The edges are often ragged, notched, or blurred in outline. The pigment may spread into the surrounding skin.
- ~ "Color that is uneven: Shades of black, brown, and tan may be present. Areas of white, gray, red, pink, or blue may also be seen.
- ~ "Diameter: There is a change in size, usually an increase. Melanomas can be tiny, but most are larger than the size of a pea (larger than 6 millimeters or about 1/4 inch).
- ~ "Evolving: The mole has changed over the past few weeks or months"

("National Cancer Institute," 2011, para 1)

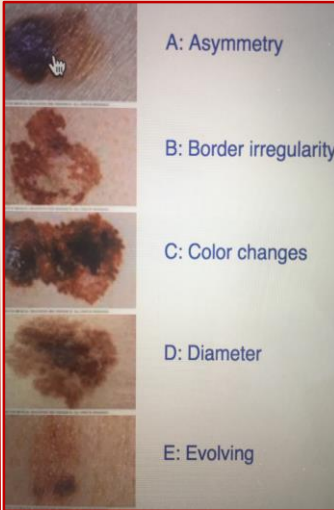


Image courtesy of Mayo Clinic

Hidden melanomas may be found in unexpected areas of the body such as under the nail beds of the fingers and toes, palms of hands and feet, mucous membranes and body openings, or within the eye ("Mayo Clinic," 2016).

"Although changes in a mole or pigmentation on an area of one's skin may be an early symptom of melanoma, late symptoms (or symptoms that the melanoma has metastasized) include:

- ~ Lymph nodes – may feel hard and swollen
- ~ Skin – hard lumps may appear
- ~ Lungs – one may be breathless or have a cough that doesn't get better
- ~ Liver – one may feel pain in the upper right side of the abdomen
- ~ Bones – one may have an ache in his/her bones
- ~ Brain – a headache that doesn't go away."

("We Are MacMillan. Cancer Support," 2018, para. 1)

Implications for Nursing Care

A thorough, yearly skin assessment for all patients, but especially those with a history of melanoma or at high risk of obtaining melanoma, is imperative to catch melanoma in its earliest stages. Inquire about any ulcerated or open areas of skin, areas that itch or burn, or any irregular pigmentations of the skin. Obtaining the patients family history of melanoma and history of ultraviolet light exposure is vital as well.

Nursing care is dependent upon the staging of the melanoma. Staging of a melanoma is a way to categorize the severity of the disease. Staging identifies the depth of penetration that is involved with the melanoma and if any metastasis involved. Stage 0 tumors are in situ, stage 1 are localized to the epidermis and dermis, stage 2 are usually over 1mm thick and may have ulceration or risk of spreading to nearby lymph nodes, stage 3 is localized metastasis and lymph node involvement, stage 4 is metastasis to other areas of the body, stage 5 is brain metastasis ("Skin Cancer Foundation," 2018).

In early stages of melanoma, nursing care involves wound care and healing of the area of skin that has been excised as well as measures to prevent the return of future melanomas. Nursing care for later stages of melanoma may include wound care as well as managing treatments specific for the type and depth of melanoma involved. (Pullen, Whitehead, & Pastwa, 2011)

Treatments

Early stages of melanoma are best treated by surgical removal of the malignant areas of skin. If one is unable to undergo surgical removal of the melanoma, therapies such as radiotherapy, scraping or freezing off the melanoma, or treatment with a cream called imiquimod ("Bupa," 2018, para.21) have shown effectiveness in removal of the melanoma. Radiotherapy, Immunotherapy, Chemotherapy, and targeted therapies are used to treat advanced melanomas ("Bupa," 2018). Late stages of melanoma are more difficult to treat, resistant to apoptosis, and often deadly due to resistance to chemotherapy drugs or other treatments (Cox, 2015).

Specific treatments for advanced melanoma are as follows:

- ~ Twenty different genes are linked to inhibiting malignant metastasis. Studies involving metastasis inhibitors are being performed, but not yet available for clinical use. Metastasis is inhibited and apoptosis is encouraged in melanoma cells by a cysteine protease inhibitor called Cystatin C .
- ~ Apoptosis of melanoma cells are also encouraged by prompting the MAPK and PI3K signaling pathway, which are two pathways that melanoma cells proliferate.
- ~ The chemotherapy agent Dacarbazine has shown to provide some effectiveness to prevent melanoma DNA replication.
- ~ Vemurafenib, also a chemotherapeutic agent and BRAF V600E antagonist, is effective in treating BRAF V600E mutant melanoma, but a resistance to this drug is often quickly acquired.
- ~ A Biologic response modifier, IL-2, has also produced long term remission for some melanoma patients, but have side effects such as nausea, vomiting, and fatigue
- ~ Immunotherapy has been shown successful in a small percentage of patients using checkpoint inhibitors, such as Ipilimumab,
- ~ Therapeutic, cell-killing viruses (such as T-vec) are being tested and have proven to have dual benefits by eradicating melanoma cells and encouraging a patient's immune response to the cancer cells.
- ~ Since melanoma is a type of angiogenic cancer, Angiogenesis inhibitors such as bevacizumab, are being tested in clinical trials and used as an adjunct to chemotherapy.

(Cox, 2015).

Conclusions

The most frequently occurring malignancy in the United States is skin cancer (when taking into account all types of skin cancer). Skin cancer occurs more often than colon, breast, prostate, and lung cancers combined. 1/5 Americans will have some form of skin cancer at some point in his or her lifetime. It is important for a health care professional to distinguish melanoma from other types of skin cancer due to its invasiveness.

Prevention from acquiring melanoma is the first line of defense. Ways a person can avoid melanoma include:

- ~ Avoiding direct sunlight, (stay in the shade) between 11am and 3pm when ultraviolet rays are strongest.
- ~ Wearing clothing such as hats, sunglasses, and long sleeves to cover sun-exposed skin.
- ~ Cover any sun-exposed skin with a high sun protection factor (SPF) sun screen of at least 30 or higher. (Pullen, Whitehead, & Pastwa, 2011)

Melanoma begins as a small change in an area of the skin and is very treatable if detected early.

Early detection and removal of melanoma are the second line of defense. Scraping, freezing or surgical removal at the earliest opportunity is crucial to prevent the melanoma from growing thicker, wider, or metastasizing. In biopsies of melanoma of the skin, studies have shown that an increase in mitotic activity correlates with an increase in depth of the malignant cells. An increase in mitotic activity could also mean an increase in tumor growth and metastasis. This information is useful to determine the appropriate treatment and depth of excision of the malignancy (Basi HR, Alicezaei, Ahovan, & Moradi, 2017).

After removal of the melanoma, radiotherapy, immunotherapy, chemotherapy, and targeted therapies used to treat advanced melanomas and are specific to the type and distance of metastasis of the melanomas. It is important for studies (such as angiogenesis inhibitors and proteomics) to continue to lower the mortality rate of melanoma (Deepanwita & Tackett, 2016).

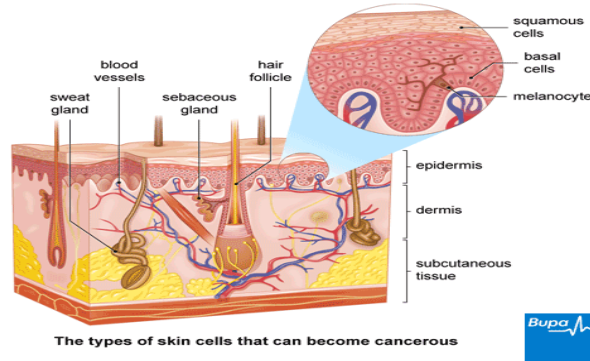
Those with a history of any type of melanoma will always be at risk of re-emerging melanomas and should continue with yearly head-to-toe skin examinations by a Dermatologist.

References

- Basi HR, G., Alicezaei, P., Ahovan, S., & Moradi, A. (2017, November 30). The relationship between mitotic rate and depth of invasion in biopsies of malignant melanoma. *Dovepress Open Access to Scientific and Medical Research*, 11, 125-130. <http://dx.doi.org/https://doi.org/10.2147/CCID.S158043>
- Castellania, E., Tomassanib, G., De Giorgic, V., D., C., M., B., A. G., ... P. C. (2017, August 1). Survival and Prognostic Factors in Patients with Malignant Melanoma: Statistical Analysis of 466 Cases Treated between 1998 and 2014. *Archives of Surgical Oncology*, 3(4), 1-9. <http://dx.doi.org/DOI:10.4172/2471-2671.1000127>
- Cox, J. L. (2015, October 24). Therapy for Late Stage Melanoma. *Journal of Carcinogenesis & Mutagenesis*. <http://dx.doi.org/doi:10.4172/2157-2518.1000241>
- Deepanwita, S., & Tackett, A. J. (2016, April 27). Proteomic Findings in Melanoma. *Journal of Proteomics & Bioinformatics*, 9. <http://dx.doi.org/doi.org/10.4172/jpb.1000e29>
- Hunt, D., Laitung, G., & Haw, R. (2017, September). Abstract: Does Proximity of the Primary Tumour to the Lymph Node Basin, in Patients with Malignant Melanoma, Influence the Chance of Sentinel Node Positivity? *Plastic and Reconstructive Surgery - Global Open*, 5, 78-79. <http://dx.doi.org/10.1097/JG1.G0X.0000526276.42537.69>
- Melanoma. (2018). Retrieved July 21, from <https://www.bupa.co.uk/health-information/directory/ml/melanoma>
- Melanoma. (2016). Retrieved July 21, from <https://www.mayoclinic.org/diseases-conditions/melanoma/symptoms-causes/syc-20374884>
- Melanoma Skin Cancer. (2018). Retrieved May 28, 2018, from <https://www.cancer.org/cancer/melanoma-skin-cancer.html>
- Melanoma. (2016). Retrieved 5/28/2018, from <https://www.mayoclinic.org/diseases-conditions/melanoma/symptoms-causes/syc-20374884>
- Pullen, R. L., Whitehead, R. O., & Pastwa, P. L. (2011, January-February). Caring for a patient with malignant melanoma. *Nursing Made Incredibly Easy*, 9, 32-42. <http://dx.doi.org/10.1097/J1.NME.0000390926.78577.24>
- Signs and symptom. (2018). Retrieved June 23, 2018, from <https://www.macmillan.org.uk/information-and-support/melanoma/advanced-melanoma/understanding-cancer/signs-symptoms-advanced-melanoma.html#234966>
- Slide Show: Melanoma pictures to help identify skin cancer. (2016). Retrieved from <https://www.mayoclinic.org/diseases-conditions/skin-cancer/multimedia/melanoma/slide-show>
- The Stages of Melanoma. (2018). Retrieved from <https://www.skincancer.org/skin-cancer-information/melanoma/the-stages-of-melanoma>
- Types of Melanomas. (2018). Retrieved July 22, from <https://www.skincancer.org/skin-cancer-information/melanoma/types-of-melanoma>
- What Does Melanoma Look Like? (2011). Retrieved from <https://www.cancer.gov/types/skin/melanomaphotos20374884>



OTTERBEIN
UNIVERSITY



The types of skin cells that can become cancerous

Image courtesy of Bupa