

Skin Health after Cancer Treatment

Very few people realize that the skin is the largest organ in the body. The skin is the body's first line of defense against outside invaders. It also keeps the body temperature normal and stores water, fat and vitamin D. Such an important organ requires care and monitoring. Treatment for childhood cancer sometimes causes damage to the skin.

Who is at risk?

- Survivors who received radiation to any part of the body, including total body irradiation (TBI).
- Survivors with chronic graft-versus-host disease (GVHD) following bone marrow or stem cell transplant.

What problems can occur?

The following are possible long-term skin effects that may be seen after cancer therapy.

Telangiectasias

These small blood vessels on the surface of the skin are commonly referred to as “spider veins,” and in the cancer survivor they can occur in the field of radiation. Telangiectasias are caused by changes to the lining of blood vessels resulting from radiation. These do not typically cause any health problems and require no specific care.

Fibrosis

Fibrosis is caused by scarring of the lining of blood vessels, resulting in a “woody” skin texture. The skin may not be as flexible in the fibrotic area and may be more easily injured. Care of fibrotic skin should include routine moisturizing and avoidance of trauma. Because the blood supply is not as good in fibrotic skin, healing may be slow after cuts and scrapes, so avoiding these when at all possible is important.

Scleroderma

People who have chronic GVHD following bone marrow or stem cell transplant sometimes develop scleroderma. In this condition, the donor white blood cells do not recognize the patient's skin cells as their own, and begin to attack them. This causes the skin to become stiff and inflexible. This may happen anywhere on the body, but if it happens to the skin around joints, it can make the joints less mobile. The therapy for scleroderma is treatment of the underlying GVHD. It is also important to avoid injury to this skin, since healing time will be prolonged.

Vitiligo

Vitiligo is loss of pigment on patches of the skin. This can occur after bone marrow or stem cell transplant from a person other than yourself (allogeneic transplant) and may be due to GVHD or other autoimmune reactions seen after transplant. In this situation, the white blood cells do not recognize certain normal skin cells (melanocytes) and so they attack and destroy them. Melanocytes are the cells in the body that control skin color. Without melanocytes, the skin has a milky white appearance. Vitiligo usually occurs only in patches. The therapy for vitiligo is treatment of the underlying GVHD or autoimmune process. Even if this therapy is successful, the color may not return to the skin because the damage to the melanocytes

may be permanent. While all skin should be protected from sun, skin that has lost its pigment is very vulnerable, and sunscreen should always be applied to these areas before going outdoors.

Hyperpigmentation

Hyperpigmentation is a darkening of the skin that may occur after radiation or some types of chemotherapy. The chemotherapy agents most commonly associated with hyperpigmentation include bleomycin, busulfan, cyclophosphamide, dactinomycin, 5-fluorouracil, hydroxyurea and methotrexate. The dark discoloration can occur on the skin or nails. There is no specific treatment for hyperpigmentation associated with cancer therapy, but it usually continues to fade over time without any treatment.

Skin Cancers

People who have received radiation are at risk for developing skin cancers, usually in the radiation field. Other risk factors include light skin color, chronic sun exposure, severe sunburn, atypical moles or a large number of moles on the body, and a family history of skin cancer. The good news about skin cancer is that if it is diagnosed early, it is usually very treatable. There are three major forms of skin cancer:

- **Basal cell carcinoma (BCC)** is the most frequent form of skin cancer. BCC usually appears as a rough, raised, area of skin. As the BCC progresses, it may become an ulcer or sore that does not heal. BCC can occur anywhere on the skin, but is seen most frequently in areas of sun and/or radiation exposure. Protecting your skin from the sun is the most important thing you can do to avoid developing BCC. Treatment for BCC is surgical removal of the affected skin. BCC can spread to surrounding tissues but does not usually spread throughout the body and is not usually life threatening.
- **Squamous cell carcinoma (SCC)** is another form of skin cancer that can develop from exposure to sun or radiation. Its appearance is similar to BCC, usually an ulcerated sore that does not heal. SCC can be more aggressive than BCC and can spread more readily to surrounding tissues and even to other parts of the body. With early surgical treatment SCC is usually curable, so it is important to report any suspicious sores to your healthcare provider right away.
- **Melanoma** is a much more serious form of skin cancer. Unlike BCC, left untreated it can spread to other organs and can be lethal. Melanoma often arises from moles. The key to successful treatment of melanoma is early diagnosis. Moles should be monitored for changes. Monitoring of moles can be remembered using the “ABCD” warning signs:

A is for Asymmetry (one half of the mole looks different than the other half)

B is for Border (moles that have an irregular, scalloped or poorly defined border)

C is for Color (variations in color from one area of the mole to another, such as different shades of tan and brown or black, or colors such as white, red or blue within a mole)

D is for Diameter (moles larger than 6 millimeters – about the diameter of a pencil eraser – should be evaluated).

If you notice any of the “ABCD” warning signs, have your healthcare provider check the mole. Moles that have any of these warning signs usually need to be removed.

What monitoring is needed?

If you have any of the following risk factors, you should check your skin monthly for changes, and have a thorough skin examination by a healthcare provider at least once a year:

- You received radiation to any area, including total body irradiation (TBI)
- You underwent a hematopoietic cell transplant (HCT)
- You have ever had skin cancer or melanoma, or you have a family history of skin cancer or melanoma
- You have “dysplastic” (atypical) moles
- You had a severe sunburn at a young age

What can I do to keep my skin healthy?

The most important thing to remember in caring for your skin is to protect it from the sun. Here are some things you can do:

- Wear protective clothing or sunscreen at all times when your skin is exposed to the sun, even on cloudy or hazy days. The American Cancer Society recommends a sunscreen with an SPF (sun protection factor) of 15 or higher.
- Sand, snow, concrete, water and high altitudes all increase the risk of sun damage—take extra caution to protect your skin in these environments.
- Do not attempt to tan your skin—avoid tanning booths.
- Avoid outdoor activities from 10 am to 2 pm when the sun’s rays are most intense (11 am to 3 pm during daylight savings time). Plan outdoor activities in the early morning or late afternoon hours.
- Reapply sunscreen frequently or use a water resistant sunscreen when swimming or perspiring heavily. This will not only help to protect you from developing skin problems, but will also help you to maintain a youthful appearance.

If you have any questions or concerns about your skin, contact your healthcare provider. Take good care of your skin and it will take care of you!

Written by Kathy J. Ruble, RN, MSN, CPNP, AOCN®, Johns Hopkins University/Sidney Kimmel Cancer Center, Baltimore, MD.

Reviewed by Julie Blatt, MD; Louis S. Constine, MD; Rebecca D. Pentz, PhD; Wendy Landier, PhD, CPNP; and Debra L. Friedman MD.

Additional health information for childhood cancer survivors is available at www.survivorshipguidelines.org

Note: Throughout this *Health Links* series, the term “childhood cancer” is used to designate pediatric cancers that may occur during childhood, adolescence, or young adulthood. Health Links are designed to provide health information for survivors of pediatric cancer, regardless of whether the cancer occurred during childhood, adolescence, or young adulthood.

Disclaimer and Notice of Proprietary Rights

Introduction to Late Effects Guidelines and Health Links: *The Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers* and accompanying *Health Links* were developed by the Children's Oncology Group as a collaborative effort of the Late Effects Committee and Nursing Discipline and are

maintained and updated by the Children's Oncology Group's Long-Term Follow-Up Guidelines Core Committee and its associated Task Forces.

To cancer patients (if children, their parents or legal guardians): Please seek the advice of a physician or other qualified health provider with any questions you may have regarding a medical condition and do not rely on the Informational Content. The Children's Oncology Group is a research organization and does not provide individualized medical care or treatment.

To physicians and other healthcare providers: The Informational Content is not intended to replace your independent clinical judgment, medical advice, or to exclude other legitimate criteria for screening, health counseling, or intervention for specific complications of childhood cancer treatment. Neither is the Informational Content intended to exclude other reasonable alternative follow-up procedures. The Informational Content is provided as a courtesy, but not intended as a sole source of guidance in the evaluation of childhood cancer survivors. The Children's Oncology Group recognizes that specific patient care decisions are the prerogative of the patient, family, and healthcare provider.

No endorsement of any specific tests, products, or procedures is made by Informational Content, the Children's Oncology Group, or affiliated party or member of the Children's Oncology Group.

No Claim to Accuracy or Completeness: While the Children's Oncology Group has made every attempt to assure that the Informational Content is accurate and complete as of the date of publication, no warranty or representation, express or implied, is made as to the accuracy, reliability, completeness, relevance, or timeliness of such Informational Content.

No Liability on Part of Children's Oncology Group and Related Parties/Agreement to Indemnify and Hold Harmless the Children's Oncology Group and Related Parties: No liability is assumed by the Children's Oncology Group or any affiliated party or member thereof for damage resulting from the use, review, or access of the Informational Content. You agree to the following terms of indemnification: (i) "Indemnified Parties" include authors and contributors to the Informational Content, all officers, directors, representatives, employees, agents, and members of the Children's Oncology Group and affiliated organizations; (ii) by using, reviewing, or accessing the Informational Content, you agree, at your own expense, to indemnify, defend and hold harmless Indemnified Parties from any and all losses, liabilities, or damages (including attorneys' fees and costs) resulting from any and all claims, causes of action, suits, proceedings, or demands related to or arising out of use, review or access of the Informational Content.

Proprietary Rights: The Informational Content is subject to protection under the copyright law and other intellectual property law in the United States and worldwide. The Children's Oncology Group retains exclusive copyright and other right, title, and interest to the Informational Content and claims all intellectual property rights available under law. You hereby agree to help the Children's Oncology Group secure all copyright and intellectual property rights for the benefit of the Children's Oncology Group by taking additional action at a later time, action which could include signing consents and legal documents and limiting dissemination or reproduction of Informational Content.