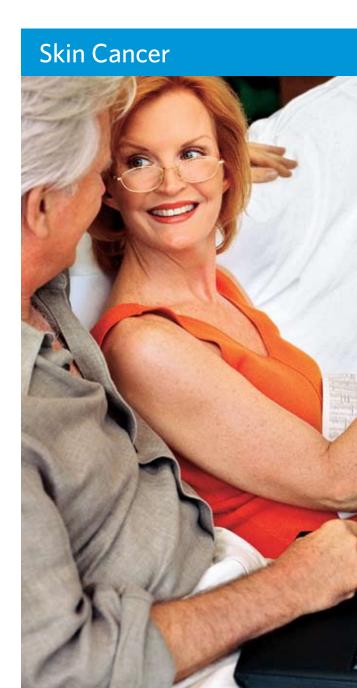




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Skin Cancer

City of Hope is a new model of cancer center. Here, medical research and clinical care are joined, speeding the application of scientific discoveries to newer, more effective patient treatments. As a Comprehensive Cancer Center — the highest designation given by the National Cancer Institute — City of Hope is widely regarded as a leader in cancer prevention, treatment and education.

From breakthroughs in basic biology to advanced technologies for diagnosis and therapy, progress at City of Hope is accelerated by the need to offer more positive outcomes to patients everywhere. Our research innovations become advances in clinical care as quickly as possible, because people battling cancer and other serious diseases need better options — now.

Overview

The skin is the body's largest organ. It forms a barrier against excess heat and light, and protects us against injuries and disease-causing organisms. The skin stores water, fat and vitamin D, helps the body regulate temperature, gathers sensory information and plays a role in the immune system.

Skin cancer is the most common type of cancer in the United States today, and the incidence of skin cancer is on the rise. In fact, 40 percent to 50 percent of light-skinned Americans who live to age 65 will have skin cancer at least once in their lives.

City of Hope specializes in research focused on improving outcomes for many different types of cancer. Our physicians recommend that all people take steps to protect themselves against skin cancer, and learn the risks and warning signs.

Basal Cell Carcinoma

The most common type of skin cancer, basal cell carcinoma, is also the most treatable, especially if found early. This slow-growing cancer rarely spreads (metastasizes) to other parts of the body. It tends to appear as a skin-colored or reddish bump on the head, neck or hands that bleeds and scabs over repeatedly.

Squamous Cell Carcinoma

The second most common skin cancer, squamous cell carcinoma, grows faster than basal cell carcinoma, although it is also highly treatable when detected early. Squamous cell carcinoma is typically found on the rim of the ear, face, lips and mouth. While unusual, it can also spread to other parts of the body. It also tends to be skin-colored or red, and bleeds and scabs over repeatedly.

Melanoma

The least common but most serious type of skin cancer, melanoma, begins in pigment-producing cells called melanocytes, which give the skin its color. It is also called malignant melanoma because it can spread to other organs. Melanoma may begin as a change in a mole or birthmark, or arise as a new mole-like growth. Rarely, melanomas can form in parts of the body not covered by skin such as the eyes, mouth, vagina, large intestine and other internal organs.

On Alert

Because melanoma can spread to other parts of the body, it is important for diagnosis and treatment to begin early, before the cancer can invade healthy tissue.



Rare Skin Cancers

The least common types of skin cancers include Merkel cell carcinoma, clear cell carcinomas and sebaceous carcinomas. These behave like melanoma but arise from other parts of the skin, such as the sensory corpuscles and oil glands.

Risk Factors

Several factors increase the risk of developing skin cancer, including:

- Light skin that freckles easily
- Red or blond hair
- Chronic exposure to natural sunlight
- History of three or more blistering sunburns before age 20
- Exposure to artificial ultraviolet light (tanning booth)
- Occupational exposure (working outside, exposure to coal tar pitch, creosote, arsenic compounds or radium)
- Having many moles
- Unusual moles
- Family or personal history of melanoma
- Blue eyes

Decrease Your Risk

Take steps to lower your chances of developing skin cancer:

- Avoid sun exposure between 10 a.m. and 4 p.m.
- Always apply sunscreen with a sun protection factor (SPF) of 15 or higher before going outdoors. When working outdoors, wear long sleeves, a hat and gloves. Reapply sunscreen throughout the day.
- Keep infants out of the sun and protect children at all times. Apply SPF 15 sunscreen or higher to infants over six months of age.
- Avoid tanning booths. There is no "safe" tan that involves ultraviolet light exposure.

Don't Forget

When applying sunscreen, be sure to include your lips, tops of ears, head, back of neck, hands and feet.



Signs and Symptoms

Some of the most common signs of skin cancer include:

- A change on the skin, especially a new growth or sore that does not heal
- Any unusual skin condition, especially a change in the size or color of a mole or other dark-colored growth or spot
- Scaliness, oozing, bleeding or a change in the appearance of a bump or nodule
- The spread of skin color (pigmentation) beyond its border
- Pale-colored bumps

- Crusted, bleeding or ulcerated lesions
- Flat, widening dark patches
- A darkened area under a nail
- A change in sensation such as itchiness, tenderness or pain

Know Your Skin

It's wise to perform a simple skin self-exam regularly. After bathing, examine your skin using a full-length mirror in a well-lighted room. Get to know your birthmarks, moles and blemishes and look for anything new such as a change in size, texture or color of a mole, or a sore that does not heal. Examine the whole body, including the back, scalp, between the buttocks, around the genital area, the soles of the feet and spaces between the toes.

People at high risk (over 50 years of age and those with a previous history or family history of skin cancer) should do a self-exam monthly, and have a full skin survey by a skin cancer specialist annually or more often according to their doctor's advice.

Take the ABC Test for Melanoma

You can be the first line of defense in detecting potentially cancerous changes. When you examine a growth or mole, ask these questions:

Asymmetry: Are both sides of the growth different? Melanomas are often asymmetric.

Border irregularity: Are the edges notched or smooth? Cancerous moles have irregular borders that may be ragged, notched or blurred.

Color: Is the growth a mixture of colors such as tan, black, brown, blue, pink, red and/or white? Normal moles are uniform in color.

Diameter: Is it greater than six millimeters—about the width of a pencil eraser? Most melanomas are this size or larger.

Evolution: Is the mole growing in width or height?

Feeling: Has the sensation of the mole or spot changed?

These recommendations are only a guide. You should always alert your doctor to any suspicious area of skin, non-healing sore, or change in a mole or freckle. If an initial exam suggests the possibility of cancer, more extensive tests will be needed.

Informed Strategy

A proper diagnosis and staging of skin cancer will help your doctors decide on the most effective treatment plan.



Diagnosing and Staging Skin Cancer

Staging is the process by which doctors determine how advanced a skin cancer has become, and whether it had spread. A variety of different tests and procedures may be used, including:

Skin examination

A doctor or nurse examines the skin for moles, birthmarks or other pigmented areas that look abnormal in color, size, shape or texture.

- Laboratory tests
- Chest X-ray
- Biopsy

A biopsy is a test in which a tissue sample is examined under a microscope. For skin cancer, a local excision (removing tissue surgically) is done to take out as much of the suspicious mole or lesion as possible. A pathologist then examines the tissue under a microscope to check for cancer cells.

Wide local excision

In this surgical procedure, some of the normal tissue surrounding the area where melanoma was located is removed and checked for cancer cells. Lymph node mapping and sentinel lymph node biopsy

During surgery to remove a melanoma or related skin tumor, a radioactive substance and/or blue dye is injected and flows through lymph ducts to the sentinel node or nodes. Cancer cells are likely to spread to these nodes first. Nodes containing the radioactive substance or dye are removed and checked for cancer cells. If no cancer is detected, it may not be necessary to remove additional nodes.

CT or CAT (computerized axial tomography) scan

This procedure uses a computer connected to an X-ray machine to obtain detailed pictures of areas inside the body. A dye ("contrast material") may be used to help visualize organs or tissues more clearly.

MRI (magnetic resonance imaging)

This procedure creates a series of detailed pictures of areas inside the body, using the combination of a powerful magnet, radio waves and computer imaging.

• PET (positron emission tomography) scan

This scan is used to identify malignant cells even before an actual "lump or bump" can be detected in a physical exam, or on CAT or MRI scans. First, a small amount of radionuclide glucose (sugar) is injected into a vein, and then the scan begins. Because cancer cells divide more rapidly than normal cells, they take up more glucose than normal cells and therefore appear brighter in the scan.

Treating Skin Cancer

Basal Cell and Squamous Cell Carcinomas

Treatment of basal cell carcinoma and squamous cell carcinoma may include:

 Electrodesiccation and curettage (first the tumor is removed using a sharp tool, then an electric current is applied to stop the bleeding and destroy cancer cells that remain around the edges)

- Simple excision
- Mohs micrographic surgery (the skin cancer is removed one layer at a time, with immediate examination of each layer by a pathologist until no more cancer is detected)
- Radiation therapy
- Laser surgery, immune response modifiers, photodynamic therapy or topical chemotherapy
- Cryosurgery (using freezing temperatures to destroy cancer cells)
- Lymph node dissection
- Systemic chemotherapy

Melanoma

Like basal cell and squamous cell carcinomas, treating melanoma begins during the staging process, with surgical excision. However, because melanoma is a malignancy and spreads to other parts of the body, additional treatments are often necessary.

City of Hope takes a multidisciplinary approach to the treatment of melanoma. The departments of General and Oncologic Surgery, and Plastic and Reconstructive Surgery, provide primary surgical management and sentinel node biopsy procedures for melanoma patients. A medical oncologist works as part of the team from the earliest stages to ensure comprehensive care.

Radiation Therapy for Melanoma

Radiation therapy uses high-energy X-rays or other types of radiation to destroy cancer cells, or keep them from growing.

City of Hope was the first in the western U.S. to provide treatment for melanoma using the helical TomoTherapy System®. This system combines radiation delivery with real-time imaging, allowing doctors to create a higher dose of energy that more precisely targets the cancer. TomoTherapy not only

provides more effective treatment, it reduces the unwanted exposure of normal tissues and reduces potential complications.

Chemotherapy for Melanoma

Chemotherapy drugs destroy cancer cells by interfering with their growth and multiplication. There are several methods by which these cancerfighting medicines are delivered. Some involve an infusion of drugs through an IV.

Immunotherapy for Melanoma

City of Hope is a leader in the use of immunotherapy, which employs the body's own defense system to destroy cancer cells.

Research and Clinical Trials

As a Comprehensive Cancer Center, City of Hope actively conducts research into finding more effective drug treatments for melanoma, including additional therapies given after initial treatment to reduce the chance of cancer recurrence.

With our extensive program of clinical trials, including collaborative efforts with the Southwest Oncology Group and other organizations, City of Hope provides melanoma patients access to promising new therapies that are not yet available elsewhere.

Genetic Risk Assessment

For patients with a family history of melanoma or related skin disorders, a comprehensive genetic risk assessment can be provided by the *Cancer Screening & Prevention Program*^{5M} in the Department of Clinical Cancer Genetics.

Supportive Care

All of our patients also have access to the Sheri & Les Biller Patient and Family Resource Center, which offers a wide array of support and educational services. Patients and loved ones may work with a coordinated group of social workers, psychiatrists, psychologists, patient navigators,

pain management specialists and spiritual care providers at the center, as well as participate in programs such as music therapy, meditation and many others.

Providing New Hope

City of Hope works to move scientific discoveries rapidly from the laboratory to the clinic, benefiting patients everywhere.



To Become a Patient

For more information, or to become a patient at City of Hope, please call 800-826-HOPE or visit us at www.cityofhope.org.

Support the Search

City of Hope's breakthroughs are made possible by the generous donations of compassionate, committed people like you: Individuals who value the way we speed the translation of laboratory research into practical results. We are proud of the support that enables us to innovate and inspire.

Help accelerate the pace of progress against cancer at City of Hope. Join our worldwide network of donors who fuel new discoveries leading to treatments that save lives everywhere. To arrange a donation, please call 800-544-3541.

Notes

