



X-Plain[™]

Skin Cancer Non-Melanoma

Reference Summary

Each year, about 1 million people in the United States find out that they have skin cancer. Skin cancer is almost 100% curable if found early and treated right away. It is possible to prevent some types of skin cancer. This reference summary will help you understand skin cancer and how it is treated. It also includes tips for preventing skin cancer.

The Skin

The skin is the body's outer covering. Weighing about 6 pounds, the skin is the body's largest organ! Skin protects us against heat, light, injury, and infection. It regulates body temperature and stores water, fat, and is helpful in the making of vitamin D.

The skin is made of 2 main layers: the outer epidermis and the inner dermis. The epidermis is the outer layer of the skin and is mostly made of flat, scale-like cells called squamous cells.

Under the squamous cells are round cells called basal cells. The deepest part of the epidermis contains melanocytes. These cells produce *melanin*, which gives the skin its color.

The dermis is the inner layer of skin, containing blood and lymph vessels, hair follicles, and glands. The glands produce sweat and sebum. Sweat helps regulate body temperature.



Sebum is an oily substance that helps keep the skin from drying out. Sweat and sebum reach the skin's surface through tiny openings called pores.

Cancer

The body is made up of very small cells. Normal cells in the body grow and die in a controlled way. Sometimes cells keep dividing and growing without normal controls, causing an abnormal growth called a tumor.

If a tumor does not invade nearby tissues and body parts, it is called a benign tumor, or non-cancerous growth. Benign tumors are almost never life threatening.

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If the tumor invades and destroys nearby cells, it is called a malignant tumor, or cancer. Cancer can sometimes be life threatening. Cancerous cells sometimes spread to different parts of the body through blood vessels and lymph channels.

Lymph is a clear fluid produced by the body that drains waste from cells. It travels through special vessels and bean-shaped structures called lymph nodes.

Cancer treatments are used to kill or control abnormally growing cancerous cells.

Cancers in the body are given names, depending on where the cancer started. Cancer that begins in the pancreas will always be called pancreatic cancer, even if it spreads to other places in the body. Although doctors can locate where a cancer started, the cause of cancer in an individual patient cannot always be identified.

Cells contain hereditary, or genetic, materials called chromosomes. Chromosomes control the growth of cells. Cancer always arises from changes that occur in the chromosomes. When the chromosomes in a cell become abnormal, the cell can lose the ability to control its growth.

Sudden changes in genetic material can happen for a variety of reasons. These changes are sometimes inherited. Changes in chromosomes may also occur as a result of exposure to infections, drugs, tobacco, chemicals, or other factors. In the case of skin cancer, sunlight causes damage to the chromosomes leading to cancer.

Skin Cancer

The 2 most common kinds of skin cancer are *basal cell carcinoma* and *squamous cell carcinoma*. Carcinoma is cancer that begins in the cells that cover or line an organ. More than 90% of all skin cancers in the United States are basal cell carcinoma. It is a slow-growing cancer that seldom spreads to other parts of the body.

Squamous cell carcinoma also rarely spreads, but it does so more often than basal cell carcinoma. It is important to find and treat skin cancer as soon as possible because it can invade and destroy nearby tissue.

Basal cell carcinoma and squamous cell carcinoma are sometimes called *non-melanoma* skin cancer. Another type of cancer that occurs in the skin is melanoma, which begins in the melanocytes. More information about melanoma can be found in the X-Plain module called Melanoma. This summary focuses on squamous cell and basal cell carcinoma, not melanoma.

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Causes & Prevention

Skin cancer is the most common type of cancer in the United States. According to current estimates, 40-50% of Americans who live to age 65 have skin cancer at least once. Although anyone can get skin cancer, the people who have fair skin are at a greater risk. Skin that freckles easily and people with red or blond hair and blue or light-colored eyes are at a higher risk of skin cancer.

Ultraviolet, or UV, radiation from the sun is the main cause of skin cancer. Artificial sources of UV radiation, such as sunlamps and tanning booths, can also be dangerous.

Where a person lives affects his or her risk of developing skin cancer. People who live in areas that get high levels of UV radiation from the sun are more likely to get skin cancer. In the United States, for example, skin cancer is more common in Texas than it is in Minnesota, where the sun is not as strong. Worldwide, the highest rates of skin cancer are found in South Africa and Australia, areas that receive high amounts of UV radiation.



Most skin cancers appear after age 50, but the sun's damaging effects begin at an early age. Therefore, protection should start in childhood to prevent skin cancer later in life. Whenever possible, people should avoid exposure to the midday sun, from 10 a.m. to 3 p.m. Keep in mind that protective clothing, such as sun hats and long sleeves, can block out the sun's harmful rays.

Lotions that contain sunscreens protect the skin. Sunscreens are rated in strength according to a sun protection factor (SPF), which ranges between 2 and 30 or higher. Those rated 15-30 block most of the sun's harmful rays.

Symptoms

Both basal and squamous cell cancers are found mainly on areas of the skin that are exposed to the sun: the head, face, neck, hands, and arms. However, skin cancer can occur anywhere. Skin cancers seldom cause pain. The most common warning sign of skin cancer is a change on the skin, especially a new growth or a sore that does not heal. Skin cancers do not all look the same. For example, the cancer may start as a small, smooth, shiny, pale, or waxy lump. It could also appear as a firm red lump. Sometimes, the lump bleeds or develops a crust. Skin cancer can also start as a flat, red spot that is rough, dry, or scaly.

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One type of skin cancer, called *actinic keratosis*, appears as rough, red or brown, scaly patches on the skin. It is called a precancerous condition because it sometimes develops into squamous cell cancer. Changes in the skin are not sure signs of cancer; however, it is important to see a doctor if any symptom lasts longer than 2 weeks. Do not wait for the area to hurt, skin cancer seldom causes pain.

Detection & Diagnosis

The cure rate for skin cancer could be 100% if all skin cancers were brought to a doctor's attention before they had a chance to spread. People should check themselves regularly for new growths or other skin changes. They should also ask their spouse, family members or friends to help them check areas difficult for a person to see, such as the back and the back of the neck. Any new, colored growths on the skin or changes in growths that were already there should be reported to a doctor right away. Doctors should also look at the skin during routine physical exams. People who have had skin cancer should be sure to have regular exams to check ALL of their skin. When an area of skin does not look normal, the doctor may remove all or part of the growth. This is called a biopsy. To check for cancer cells, biopsy tissue is examined under a microscope. A biopsy is the only sure way to find out if cancer is present.

Doctors generally divide skin cancer into two stages:

- Local. During this stage, the cancer affects only the skin.
- Metastatic. During this stage the cancer spreads beyond the skin.

Since non-melanoma skin cancer rarely spreads, a biopsy is often the only test needed to determine the stage. Knowing the stage of a skin cancer helps the doctor plan the best treatment.

In cases where a growth is very large or has been present for a long time, the doctor will carefully check the lymph nodes in the area through surgery. Special x-rays can be done to find out whether skin cancer has spread to other parts of the body.

Treatment

Basal cell carcinoma and squamous cell carcinoma are usually diagnosed and treated the same way. Treatment for skin cancer usually involves some type of surgery. In some cases, the doctor suggests radiation therapy or chemotherapy. Sometimes a combination of these is used, if the cancer is in an advanced stage.

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Surgery

Many skin cancers can be cut from the skin quickly and easily. In fact, skin cancer can sometimes be completely removed during a biopsy, with no further treatment needed.

Curettage & Electrodesiccation

Doctors frequently use a type of surgery called curettage to remove skin cancer. After numbing the area, the cancer is scooped out with a *curette*, an instrument with a sharp, spoon-shaped end.

The area is also treated by *electrodesiccation*. An electric current from a special machine is used to control bleeding and kill any cancer cells remaining around the edge of the wound. Most patients develop a flat, white scar.

Mohs' Surgery

Mohs' technique is a special type of surgery used for skin cancer. The patient is given anesthetic, and the cancer is shaved off one layer at a time. For Mohs' surgery, each layer is checked under a microscope until the entire tumor is removed. The degree of scarring depends on the location and size of the treated area.

Cryosurgery

Extreme cold can be used to treat precancerous skin conditions, such as actinic keratosis. In cryosurgery, liquid nitrogen is applied to the growth to freeze and kill the abnormal cells. After the cryosurgery area thaws, the dead skin falls off. More than one freezing may be needed. Cryosurgery usually does not hurt, but patients may have pain and swelling after the area thaws. A white scar may form in the treated area.



Laser Therapy

Laser therapy uses a narrow beam of light to remove or destroy cancer cells. This approach is sometimes used for cancers that involve only the outer layer of skin.

Grafting

Sometimes, especially when skin cancer is large, a skin graft is needed to cover the area from where the cancer was taken out. This procedure also reduces scarring. For this procedure, the doctor takes a piece of healthy skin from another part of the body to replace skin that is removed.

Radiation

Skin cancer responds well to radiation therapy, also called radiotherapy. Radiation uses high-energy rays to damage cancer cells and stop them from growing. Doctors

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often use radiation treatment for cancers that occur in areas that are hard to treat with surgery. For example, radiation therapy might be used for cancers of the eyelid, tip of the nose, or ear. Several radiation treatments may be needed to destroy all the cancer cells. Radiation therapy may cause a rash or make the skin dry or red. Changes in skin color and/or texture may develop after the treatment is over and may become more noticeable many years later.

Topical Chemotherapy

Topical chemotherapy is the use of anticancer drugs in a cream or lotion applied to the skin. Actinic keratosis can be treated effectively with topical chemotherapy. Topical chemotherapy is also useful for cancers limited to the top layer of the skin. The lotion is applied daily for several weeks. Intense inflammation is common during treatment, but scars usually do not develop.



Summary

Skin cancer is very common and is 100% curable if discovered early. Frequent self-skin exams and learning to recognize skin cancer are very essential for early detection and treatment. It is much better to prevent than to treat skin cancer! Prevention involves avoiding long exposure to the sun and the use of 15-30 SPF sunscreen lotion.

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