

CHAPTER 8

Treating Skin Cancer

Types of Skin Cancers

Mohs Micrographic Surgery

Definitions

Methods of Removal and Destruction of
Skin Cancer

Reconstruction of Tissue Defects

Types of Skin Cancers

Repeated and prolonged exposure to ultraviolet light can be damaging to our skin. This can come from either sun exposure or tanning beds. The effects of these damaging rays are cumulative over our lifetimes. The more exposure we get, the higher are our chances of eventually getting some form of skin cancer. The fairer the complexion, the greater the risk, whereas dark skinned or black individuals have a much lower risk. Suntan lotions with a sun protection factor greater than 15 can help protect the skin and should always be used prior to any sun exposure...and reapplied frequently (see p. 157).

There are three major types of skin cancer: **basal cell**, **squamous cell** and **melanoma**.

The most common form is **basal cell carcinoma**. It is primarily found on the face or other exposed areas of the body. It is usually raised, translucent and pink, with pearly borders, and may crust or bleed as it enlarges. It has a tendency to grow very slowly and invade local structures such as the nose, lips or eyes. It almost never spreads (metastasizes) to any distant areas of the body but can cause significant local damage if

not treated early. Early surgical cure is almost 99% effective.

Squamous cell carcinoma is usually found on exposed areas of the body, such as the scalp, ears and lips, but can occur elsewhere. It is usually raised, pink, has opaque patches that commonly ulcerate, or becomes crusty in the center. It has a greater tendency to metastasize than basal cell carcinoma, but again, if treated early, it has an excellent chance for complete cure.

Melanoma may arise on any area of the body. It is usually a brown-black or multi-colored patch or plaque with an irregular border. It may originate in a preexisting mole but may occur as an isolated lesion. *Any change in the appearance of a mole is highly suspicious.* Melanoma has a high rate of metastasis if not treated early and is perhaps the most dangerous form of skin cancer.

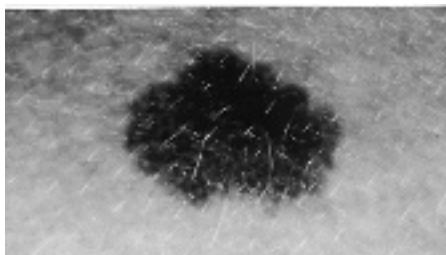
If you have any moles or skin growths that you are concerned about, it is best to have your doctor examine these. Any growth that is suspicious should be biopsied to rule out the possibility of a cancer. Remember, if treated early, almost all skin cancers are *curable*.



Basal Cell Carcinoma



Squamous Cell Carcinoma



Melanoma

Removal and Destruction of Skin Cancer

An Overview

Mohs Micrographic Surgery

Mohs surgery is a modified form of surgical excision that provides for an accurate assessment of the completeness of tumor removal and as a result has a very high cure rate and may be more tissue-sparing than conventional surgery. The modification is a combination of surgical technique, a different form of tissue processing and special training by the surgeon to enable him to microscopically evaluate the excised tissue himself. As a result, this type of surgery requires special equipment and training and can be more expensive and time-consuming than conventional surgery. Thus, Mohs surgery is usually reserved for those instances where it is very important to preserve normal skin (i.e., eyes, nose, lips, ears, etc.) or where other types of treatments have either failed or would not be as successful.

Electrodesiccation and Curettage (ED&C)

A form of destruction of the cancer essentially consisting of scraping (curettage) and burning with electrical current (electrodesiccating) the visible and palpable tumor and some surrounding skin. This procedure does not provide a method of assessing whether the tumor is completely destroyed. It usually results in a circular wound that heals with a circular scar in 3-8 weeks. It should be used only to treat primary (never treated) skin cancer and not on certain body sites.

Surgical Excision

This method provides for the removal of a skin cancer and subsequent repair of the wound thus created. It provides tissue for microscopic assessment of the completeness of tumor removal. However, using the usual laboratory tissue processing techniques this assessment of tumor removal, although good, is not complete, but is adequate for the majority of tumors. Surgical

excision usually heals in 1-2 weeks with a linear or geometric scar depending on the extent of surgery required. However, some patients, depending on the nature of their tumor, could require extensive reconstruction. After the scars are mature (usually 12-18 months) additional plastic surgical techniques may be used to improve and/or camouflage them. (See Scar Revision, page 161.) Surgery for skin cancers is usually performed under local anesthesia as an outpatient.

Cryosurgery

A form of destruction of the skin cancer utilizing intense cold in the form of liquid nitrogen. Like ED&C, this method does not provide for assessment of complete tumor destruction. Ideally, it should be performed with the use of cryoprobes (needles in the skin used to measure temperature changes) in order to obtain optimal destruction of the tumor. It usually heals similar to electrodesiccation and curettage.

Radiation Therapy

A form of destruction of the skin cancer utilizing specifically controlled radiation energy. It is useful in those patients that would not tolerate surgical procedures either because of medical problems or because of fear of surgery. It is also useful in those anatomic locations that would necessitate extensive reconstruction with other modalities. It can be used to treat primary tumors, however, it does not provide assessment of the completeness of tumor destruction. Healing takes place over 4-8 weeks, usually with a good cosmetic response. However, some patients can develop significant scarring and radiation damage of the skin. Occasionally the radiation can result many years later in the development of a new skin cancer in the area of previous treatment. Radiation therapy is usually performed over a period of 3-5 weeks.

Mohs Micrographic Surgery

A Better Method of Treating Skin Cancer

Experience confirms that the most accurate method of removing skin cancers *and* preserving the most adjacent tissue is a technique known as “Mohs Micrographic Surgery.”

Approximately 40 years ago Dr. Frederic Mohs, at the University of Wisconsin, developed this technique for the removal of skin cancers. This technique offers patients the highest chance of cure with maximal preservation of normal tissue, thereby reducing the difficulty of reconstruction of defects which result from tumor removal. However, because this method is time consuming, requires highly specialized training, and is not always necessary for treating skin cancer, few dermatologists in the United States are equipped to offer such treatment.

There are three surgical steps to treating skin cancer with Mohs micrographic surgery:

- 1) Surgical removal (debulking) of the visible portion of the skin cancer with curettage (scraping) or excision

- 2) The surgical removal of a thin layer of tissue at the bed and periphery of the cancer with meticulous mapping and color coding of the tissue

- 3) The examination of this excised tissue immediately under the microscope, using the mapping to determine the extent of the tumor and the need for surgery further.

If residual cancer is detected, we are able to locate the remaining cancer and steps 2 through 3 are repeated until the tumor is completely removed.

This surgery is usually performed under local anesthesia as an outpatient. The actual surgery usually takes 15-30 minutes per stage of tissue removal, after which a temporary bandage is placed on the wound. The excised tissue is then prepared for microscopic evaluation in a

process that may take up to 1¹/₂ hours. During this time you may wait in the waiting room. If examination of the tissue removed reveals that your tissue still contains cancer cells, the procedure will be repeated as soon as possible. Several excisions and microscopic exams may need to be done in one day and rarely may require two days. However, the average number of surgical stages for most skin cancers is two or three so that most patients have their entire skin cancer removed by midday on the day of surgery. Plan on spending the entire day and bring something to do or read.

Will the Surgery Leave a Scar?

Yes, any form of therapy will leave a scar. We make every effort to obtain the optimal cosmetic result for you. However, the primary emphasis is on removal or destruction of your skin cancer and because of the variability of individual healing, the final scar cannot be accurately predicted or controlled. And, in many cases, additional plastic surgery can improve the scars which remain. In more complicated cases, the plastic surgeon may be requested to repair the defect at the time of cancer removal.

What are the Risks of Surgery?

The risks associated with surgery are the same as with other surgeries of similar nature. They include allergic reactions to anesthesia, bleeding, infection, scarring and an unsatisfactory response. In addition, there may be certain risks associated with your own unique situation influenced by the location of the tumor and any medical problems you may have. And, there is always a possibility additional treatment(s) might be necessary. (See Risks of Surgery, page 31.)

What is the Purpose of the Pre-Operative or Initial Visit?

The initial visit allows the doctor the opportunity to examine your skin lesion, obtain your medical history and biopsy the lesion if necessary, in order to determine the best way of treating your lesion. At that time, the method of treatment, preoperative instructions, the need for possible hospitalization and the need for adjustments in any of your medications will be determined. When patients are referred to us by other physicians, a biopsy and pathology report stating the type of skin cancer is usually available. If this is not available, a biopsy will be necessary since all skin cancers are not alike and it is necessary to know the type of skin cancer you have, before we can choose the best method of treatment.

Getting Ready for Surgery

It is advisable that you get a good night's sleep and eat a good breakfast. Please do not take aspirin or aspirin-containing or related products such as **Anacin, Bufferin, Motrin, Advil, Nuprin, or Aleve** for two weeks prior to the surgery, since these medications cause more bleeding. Also, please do not drink alcoholic beverages prior to your surgery since alcohol dilates blood vessels and aggravates bleeding problems. Smoking may impair your healing and should be stopped at least several days before and after surgery. Continue all your regular medicines unless you are instructed otherwise by the doctor.

If you will undergo Mohs surgery it is a good idea to bring a book or magazine with you on the day of surgery, since the procedure may take a full day, much of which, you will spend in the waiting room. Also it is recommended that you bring a person with you that can provide company in the waiting room and drive you home, as well as assist you at home after the surgery. If you live far away, you should plan on staying nearby overnight. Suggestions for lodging accommodations can be provided on request.

The Day of Surgery

When you arrive for surgery you will be asked to sign a consent form. Then we will obtain pictures (when appropriate) for the medical record and teaching purposes, and the surgical site will be prepared. The doctor will then answer any questions that may remain and proceed with the surgery as planned. Afterwards the doctor and/or nurse will bandage the surgical area and review post-operative wound instructions.

Mohs surgery cases are usually scheduled early in the day. The surgery is usually performed in stages and, in some cases, can last the entire day.

The Surgical Wound

When the skin cancer is completely removed a decision is then made with regard to the appropriate method for treating the wound which has been created. The usual choices include:

1. Letting the wound heal by itself (granulation)
2. Closing the wound with stitches (primary repair)
3. Closing the wound with a flap (moving skin around) or a graft (transplanting skin from one body site to another)
4. Delayed closure of the wound with the above choices.

The method used will be determined by the nature, extent and location of the tumor and the resultant wound. We will recommend which of these methods is best suited in your case. This most appropriate method of repair is usually apparent before performing Mohs surgery, but on occasion the exact nature and extent of the tumor and the resultant wound is not apparent until after surgery. Thus, occasionally the decision as to how to repair the wound may not be possible until after the surgery is performed and sometimes the initial treatment plan may have to be altered. However, the treatment plan is always discussed with the patient before proceeding with it. Surgical repair is usually performed in the afternoon after the Mohs surgery is completed.

If the wound is allowed to heal by itself (granulation) it usually heals over 4-8 weeks. If the other methods, except delayed closure, are used, it usually heals in 1-2 weeks. The wound should be cleaned once to twice a day with tap water and Polysporin ointment applied as instructed by the doctor and/or nurse. All wounds normally drain and dressings need to be changed with each cleansing to prevent crust formation. The wound should be kept absolutely clean and dry (excluding the tap water and ointment) for the first 24 hours. Under no circumstances should the wound be immersed under water, as in a bathtub, pool or spa. If you insist on taking a shower, apply a generous coating of the Polysporin ointment over the wound beforehand to serve as a water barrier. Reapply it after the shower. However, no shower is allowed until at least 24 hours after surgery. Suture removal will usually be in 1 to 2 weeks as directed by your doctor.

All wounds can initially be faintly red, slightly tender, itch, drain clear fluid and show some swelling that disappears gradually. However, persistence or an increase in these signs and symptoms may indicate a problem such as infection and should be brought to the doctor's attention.

Most patients do not complain of pain. However, if you are uncomfortable, we recommend taking the prescribed pain medication or 2 tablets of extra strength Tylenol every 4-6 hours. If this does not provide relief please contact the doctor. Uncommonly, there may be continued bleeding following surgery. If this occurs, lie down, remove all bandages and with a sterile gauze apply firm pressure continuously for 20-30 minutes. If bleeding stops, do not remove the bandages as this may dislodge a clot and restart the bleeding. Secure the bandage with tape and see us in the office as soon as possible. If the bleeding persists after 20-30 minutes notify our office or call 251-967-7600 to page the doctor. If you cannot reach

the doctor, go to the nearest hospital or Emergency Room.

After the wound heals, you may notice a red scar that gradually fades. The scar can be elevated or depressed initially, but usually flattens. Sometimes the scar can be sensitive to touch or temperature or can have altered sensations such as itching or numbness, which usually improve with time. However, some of these changes outlined above can be permanent.

What if I Don't Like the Scar?

If you find the final scar to be unsatisfactory, there are various treatments that can be attempted in order to modify the scar. In any event, we recommend that you wait 5 weeks before seeking modification of a scar, since scars undergo their own biological modification. Dermabrasion can be performed to modify the scar and is ideally performed 6 weeks after surgery. It may take 12-18 months for scars to mature, so be patient. (See page 161.)

Follow-Up Surgery?

A follow-up period of at least five years is necessary after the wound has healed. Experience has shown that recurrence usually occurs within the first year of surgery and that once you develop a skin cancer there is a possibility you will develop others. Thus, you will be asked to return for follow-up of the surgical site and for a skin exam in six months, one year, and annually for at least five years. If you were referred by another physician this follow-up can be performed by them. *Any suspicious area should be evaluated at once.*

What About Exposure to the Sun?

Sunshine is probably not harmful as long as you use adequate protection,

avoid burning and use discretion. We recommend that when you go into the sun you liberally apply a sunscreen with a sun protection factor (SPF) of 15 to all exposed areas 30 minutes before venturing outside. If you perspire or swim, you should reapply it liberally. In addition, avoiding the hours of sun between 10:00 A.M. and 4:00 P.M. and using a hat and opaque clothing can further help protect you.

What If I Miss My Surgical Appointment?

Skin cancer should always be treated since most will cause future problems and some are life threatening. Thus, you should contact us as soon as possible after a missed appointment so that we can reschedule you. Therefore, if you think beforehand that you might miss an appointment, please contact us so that we can reschedule you. The latter will allow other patients on a waiting list to be scheduled and prevent a long delay in your future scheduling.

How Long Will I Have to Wait in the Waiting Area?

All efforts will be made to perform your surgery and discharge you promptly. However, surgical complications, in your case or in the case of the patient before you, are not always predictable and can lead to a delay. Therefore, we recommend that you allow several hours leeway in your time when scheduling for a surgical procedure. In the case of Mohs surgery, you should plan on being at the office for the entire day.

IF YOU HAVE ANY COMMENTS OR QUESTIONS REGARDING THIS INFORMATIONAL MATERIAL OR WITH REGARD TO YOUR CARE, PLEASE DO NOT HESITATE TO ASK YOUR DOCTOR OR NURSE WHO WILL MAKE EVERY EFFORT TO ANSWER YOUR QUESTIONS.

Overview of the Mohs Micrographic Surgery Procedure

The Mohs process includes a specific sequence of surgical and pathological investigation in which tissue is removed and examined for evidence of extended cancer roots. Once the visible tumor is removed, Mohs surgeons trace the paths of the tumor using two key tools:

- a map of the surgical site
- a microscope.

Once the obvious tumor is removed, Mohs surgeons

- remove an additional, thin layer of tissue from the tumor site
- create a “map” or drawing of the removed tissue to be used as a guide to the precise location of any remaining cancer cells
- microscopically examine the removed tissue thoroughly to check for evidence of remaining cancer cells.

If any of the sections contain cancer cells, Mohs surgeons

- return to the specific area of the tumor site as indicated by the map
- remove another thin layer of tissue only from the specific area within each section where cancer cells were detected
- microscopically examine the newly removed tissue for additional cancer cells.

If microscopic analysis still shows evidence of disease, the process continues layer-by-layer until the cancer is completely gone. This selective removal of *only* diseased tissue allows preservation of much of the surrounding normal tissue. Because this systematic microscopic search reveals the complete roots of the skin cancer, Mohs surgery offers the highest chance for complete removal of the cancer while sparing the normal tissue.

What to Expect if you have Mohs Surgery

Two weeks prior to surgery, you will need to discontinue all aspirin or aspirin-related products to avoid the risk of bleeding during and after surgery. The day before, avoid alcohol which is also a mild blood thinner. The day of surgery, you may eat a light breakfast and take other normal medications except for aspirin-containing products, and non-steroidal anti-inflammatories such as ibuprofen.

Surgery is performed under local anesthesia usually within a single visit. Most tumors require two to four stages for complete removal. There will be a one to two hour wait between each stage during

which each small layer is meticulously examined for remaining cancer cells. In most cases, the Mohs surgeon will reconstruct the area of the wound on-site to achieve the best cosmetic results and to preserve functional capabilities. *On occasion, another surgeon may be asked to assist in the reconstruction.*

Most patients have only minimal pain after surgery. A normal dose of extra strength Tylenol can relieve any discomfort. Some redness or swelling is normal, and it gradually decreases in less than a week. Bruising goes away in one to two weeks. However, should you experience extreme pain or sudden swelling, you should call your physician.

Skin Cancer

The following information is provided to our patients and their families who are considering skin cancer surgery. If you have any additional questions or concerns, please contact our staff.

DEFINITIONS

Solar (Actinic) Keratosis

A non-malignant skin lesion which is red and scaly. This can be a precursor to skin cancer.

Benign/Malignant

A “benign” tumor invades nearby tissue but will not spread throughout the body, whereas a “malignant” tumor may.

Cancer

A general term for many different diseases characterized by an abnormal and uncontrolled growth of cells that can invade and destroy surrounding normal tissues. Certain types of cancer also have the ability to spread (metastasize) through the blood or lymph nodes to start new cancers in other body parts.

Tumor

A growth of cells. A tumor can be benign (a non-cancerous growth that does not destroy and spread) or malignant (a growth of cancer cells).

Nevus or Mole

A benign tumor of the skin that can be present at birth or appear after birth. There is a possibility that some moles can go on to become a type of skin cancer.

Lymph Nodes

Small round “peanut-like” structures in the body that act as “filters” to stop the spread of disease.

Anesthesia

Anesthesia represents the use of a chemical substance to abolish or modify the sensation of pain. It can be of a local form (i.e., the patient is conscious and only the area to be treated is injected) or general form (i.e., the patient is unconscious and needs special monitoring and support).

Pathology (Micrographic Assessment)

The evaluation of tissue under the microscope in order to assess the type of disease process (cancer) and/or the extent of disease involvement.

Biopsy

The removal of tissue from the living body for the purpose of evaluating the tissue microscopically for the nature and extent of a disease process (pathology). Usually a biopsy only consists of a part of the disease process (i.e., part of the tumor).

What is Skin Cancer?

In skin, there are three main forms of cancer known as basal cell carcinoma, squamous cell carcinoma, and malignant melanoma.

The most common types are basal cell carcinoma and squamous cell carcinoma. Both types enlarge from the point where they first occur, usually growing slowly over weeks to years and invading and destroying structures in their paths. As a result of their slow growth they are generally recognized in their early stages and are more easily cured. They usually do not spread (metastasize) to other

parts of the body but can spread (metastasize) under certain circumstances. If not completely removed they are not normally life threatening, but can cause significant functional impairment and deformity.

Malignant melanoma differs from basal cell and squamous cell carcinoma in that it is likely to be life threatening if not treated early. Sometimes melanomas may arise in pre-existing moles but more commonly they arise as a spontaneous brownish-black spot or lump on the skin which enlarges and may bleed.

What Are the Causes of Skin Cancer?

Like other types of cancer, the cause of skin cancer is not completely known. Excessive exposure to sunlight is the single most important factor associated with development of skin cancers. Fair-skinned individuals develop skin cancer more frequently than dark-skinned individuals. Skin cancer also tends to be hereditary and occurs very frequently in certain ethnic groups, especially those with fair complexions such as people from Northern Europe. Other possible causes of skin cancer include x-rays, trauma, and certain chemicals.

The McCollough Institute offers both medical and surgical treatments for skin conditions. If you are having difficulty getting an appointment with a dermatologist, one of our facial surgeons and/or skin care specialists will be happy to see you. And, if we feel it necessary, we will assist you in obtaining a referral.

Reconstruction of Tissue Defects

After the removal of skin cancers, or in some instances of traumatic injury, there is insufficient tissue to close the wound or fill the defect. In these cases, it may be necessary to borrow some skin, bone or cartilage from another area of the body in order to reconstruct the missing tissues. This is commonly done by either using a graft or a flap.

A graft is a portion of tissue that is completely removed from the body and transferred to a different area. It has been separated from its blood supply and therefore, once transferred, it is necessary for new capillaries to grow into the graft, feeding the nutrients required for its survival. Grafts are limited by their size, since the new blood vessels can only carry these nutrients a very short distance.

On the other hand, a flap is a portion of tissue that remains attached to the body at some location and is “hinged” at this attachment and moved into the defect area. Since the flap is never separated from its blood supply larger amounts of tissue can be transferred more reliably. In some instances, it is possible to disconnect a large flap from its blood supply, move it to another place on the body, and microscopically reattach it to another set of blood vessels.

This is known as a free flap and is understandably more complex and less

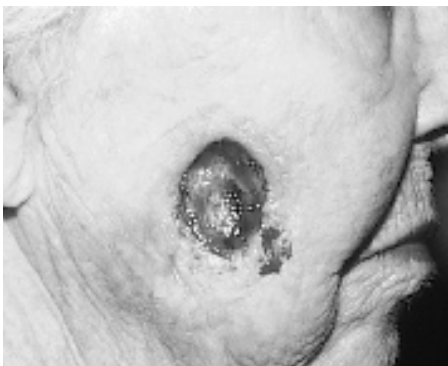
reliable than a simple flap. Sometimes, however, these flaps present the best method of reconstruction.

If a patient does not have sufficient tissue to transfer, occasionally it may be necessary to use a graft of tissue (usually cartilage or bone) from another person to correct a defect. This tissue can be obtained from a “tissue bank.” Due to the body’s immune system, it is not possible to take living skin from one person and transplant it to another person; however, cartilage and bone, if properly prepared, can be transferred.

Sometimes, it may be possible to stretch the available skin by placing a medical grade balloon or “expander” under the skin and gradually inflate it to stretch the overlying skin. This is usually done in two operations about 6-8 weeks apart. During the 6-8 week interval, the expander is incrementally inflated every 2-3 days until there is sufficient skin to reconstruct the defect.

During the second operation, the inflated expander is removed and reconstruction carried out. In order to correct a complicated defect, it may be necessary to use many of these techniques. Your surgeon will discuss the particular technique(s) that he feels best suits your problem, prior to surgery.

Before



This defect resulted in removal of a skin cancer by the Mohs technique.

After



Reconstruction of the defect, in the cheek was performed. The resulting scar is difficult to find.