

Mohs Surgery

Introduction

You have been referred to Roswell Park Cancer Institute because Mohs micrographic surgery has been shown to be highly effective for your type of skin cancer. This brochure includes information about

- skin cancer and Mohs Surgery
- what you can expect during and after surgery
- preventive measures you can take to decrease your risk of future skin cancers

Please read it carefully. If you have questions, call the Dermatology Clinic at **716-845-3378**, to speak to a nurse.

About Skin Cancer

Skin cancer forms in the tissue of the skin. Cells differ in shape and function in various organs, but all cells reproduce by dividing. The process of normal tissue growth and repair is usually controlled. When uncontrolled, however, abnormal growth results in masses of tissue called tumors, which can be benign or malignant.

Benign (not cancer) tumors do not spread. Malignant (cancer) tumors invade and destroy normal tissue as they grow. Cancer cells also can break away from the tumor and spread (metastasize) through the blood or lymphatic vessels to form additional tumors in other locations.

Types of skin cancers

- **Basal cell carcinoma** begins in cells in the lowest part of the skin and is the most common. It grows slowly and rarely spreads to other parts of the body.
- **Squamous cell carcinoma** begins in cells in the surface layer of the skin and is the second most common. Some high risk squamous cell cancers can spread to lymph nodes and other locations, but this is uncommon.
- **Melanoma** may be life-threatening if not treated early. It usually begins as a brownish-black spot or bump that gets bigger and may bleed. Melanoma can arise in moles that you have had for years. It is usually treated with wide excision, and not necessarily Mohs surgery.

Causes of Skin Cancer

Sun exposure appears to be the leading cause of skin cancer. So many skin cancers are found on the face, neck, and arms - areas that usually get the most sun-exposure. Fair-skinned people develop skin cancer more often than dark-skinned people. Skin cancer tends to be hereditary and occurs very frequently in certain ethnic groups, particularly those with fair skin. X-rays, chronic trauma, and certain chemicals may also cause skin cancers.

Signs of Skin Cancer (What to Look For)

- Though most skin growths are benign, a doctor should examine any new growth or any sore that doesn't heal.
- Skin cancer usually begins as a small, waxy lump that eventually bleeds and crusts, or as a dry, scaly, red patch. It can grow to become very large.
- Skin cancer also can develop from actinic keratosis — a non-cancerous skin condition caused by sun damage. These red, rough patches are usually found on the face, neck or hands.

When your doctor thinks a skin growth may be cancerous, a biopsy is performed. The entire area or just a sample of the tissue is removed and sent for examination under a microscope. The testing will either confirm the presence of cancer and determine its type, or rule out cancer.

Treatment

The surface of the skin cancer you see with the naked eye is just the “tip of the iceberg.” More tumors cells may remain within the skin since they can form “fingers” or “roots” that grow downward and outward. These skin cancer cells can extend beyond the boundaries of a visible skin cancer. If all the skin cancer cells are not completely removed, it will re-grow and may require a more extensive surgery.

Effective treatments for skin cancer include:

- excision (surgical removal and stitching)
- curettage and electrodesiccation (scraping and burning with an electric needle)
- radiotherapy (x-ray treatments)
- cryosurgery (freezing)
- photodynamic therapy (putting a photosensitizer in the tumor and exposing it to a high intensity light)
- Mohs surgery

Many of these have high cure rates, but Mohs surgery uniformly produces the highest success rate, up to 99% for basal and squamous cell cancer. Treatment selection depends on the location and size of the cancer, previous therapies, and other factors.

About Mohs Surgery

Mohs surgery is a specialized outpatient procedure to remove skin cancers. Developed by Dr. Frederic Mohs in the 1930s at the University of Wisconsin, it has a high cure rate and saves as much healthy skin as possible.

Mohs surgery is suitable for skin cancers that:

- are located in areas where it is important to preserve as much normal, healthy tissue as possible for the best functional and cosmetic result
- have come back after previous treatment
- are large, aggressive, or growing rapidly or that do not have clearly defined edges
- develop in immunosuppressed patients

Look for a fellowship-trained Mohs surgeon who is a member of the American College of Mohs Surgery (ACMS). The ACMS requires its physicians:

- have at least 1 year of training/experience after dermatology residency
- must complete at least 500 cases of Mohs surgery and reconstruction

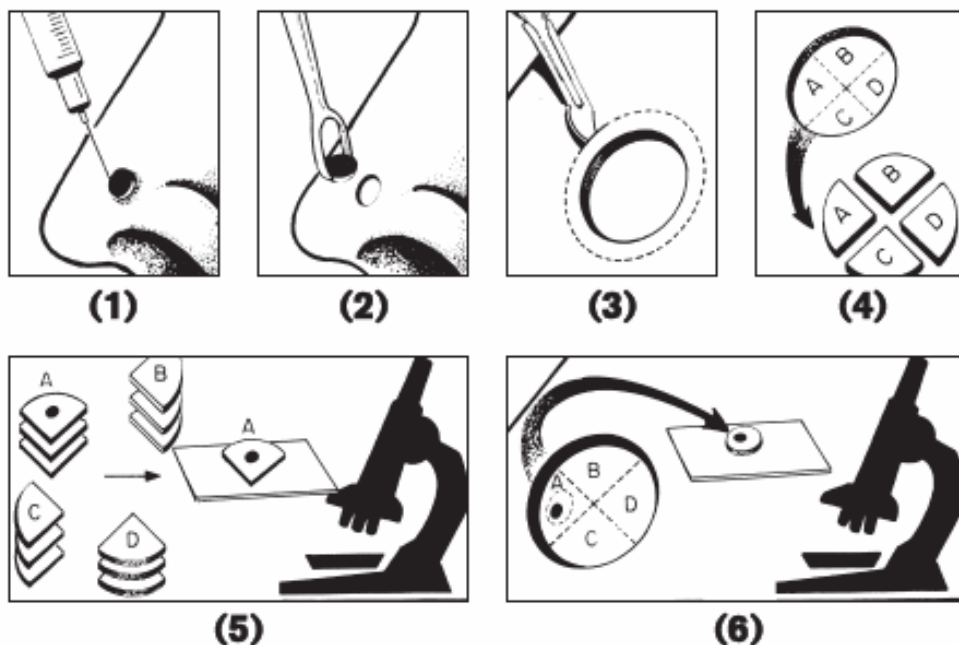
The Team

Mohs surgery requires a team approach. The Mohs surgeon serves as both a surgeon (removing the tissue) and a pathologist (studying the cells and tissue under a microscope). In addition, there will be a:

- nurse practitioner (NP) or physician assistant (PA), who will assist at the surgery
- specially-trained nurse or medical assistant
- histotechnologist, who prepares the microscope slides

What Happens During Mohs Surgery

- Local anesthetic is injected to numb the area (1)
- The area of the cancer is removed so that the entire undersurface and skin edges can be examined microscopically. (2 & 3)
- Tissue is dyed and a map is drawn so that the tumor can be found on the patient. Tissue is processed onto microscopic slides. (4)
- The surgeon examines the slides under the microscope. If cancer cells are found, they are marked on the map and used to guide the surgeon in removing additional tissue. (5 & 6)
- Layers of tissue in that area will be removed until no cancer cells are found.



Preparing for Surgery

Medications: If you need to stop any medications before surgery, we will give you instructions. Otherwise, continue to take all your medications as usual. If you need to take medications during the day, bring them with you.

Additional Instructions

- **Do not drink alcohol for 24 hours before surgery.**
- Get a good night sleep.
- Shower and wash your hair and face on the day of the surgery.
- Eat a normal breakfast. Bring a lunch or snack.
- Wear clothing that buttons in the front.
- Do not wear jewelry or makeup if surgery is to be performed on the face.
- Bring a friend or relative to keep you company and to assist you in getting home. A good book or magazine would also be helpful.

The Day of Surgery

- Shortly after you arrive, you will be taken to a treatment room where the doctor will review the risks and benefits of Mohs surgery with you and ask you to sign an informed consent form.
- The area of the skin cancer will be cleaned and a local anesthetic will be injected. The doctor will remove a thin layer of skin surrounding the cancer. Any bleeding will be stopped with an electric machine called a cautery. A bandage will be applied and you will be able to relax while the tissue is processed. Preparing the tissue for microscopic examination can take about 1 hour.
- If microscopic examination reveals that tissue still contains cancer cells, the procedure is repeated in the areas where cancer cells were found. The goal is to remove all of the skin cancer and preserve the greatest amount of healthy tissue.
- Skin cancers can grow deeply and develop roots that extend beyond the area you can see. As a result, the size of the surgical incision depends on the extent of the tumor. Two or three surgical layers are common, but you may require more. These are performed on the same day.

Reconstruction Following Mohs Surgery

When it has been determined your skin cancer has been completely removed, your doctor will decide how best to manage your wound. In some cases, the wound is allowed to heal by itself (granulation). In other cases, the wound is repaired with side-to-side stitches, a skin graft, or a flap. The decision depends on the size and location of the wound.

- This is performed by the Mohs surgeon on the same day.
- If your wound will heal by granulation, you will receive written instructions on changing the bandage. This must be done every day for 3-6 weeks.
- While it is impossible to predict how long the procedure will take, Mohs surgery and reconstruction usually lasts several hours.
- Please plan on spending the day at our office, and do not make plans for later in the day.

After Your Surgery

Pain	Most patients have only slight discomfort. Extra-Strength Tylenol® and ibuprofen are usually adequate for relief. You can take 2 Extra-Strength Tylenol® tablets every 6 hours – maximum 6 caplets in 24 hours. Avoid medicines that contain aspirin because they may cause bleeding.
Bleeding	Occasionally, bleeding occurs after surgery. If this happens, stay calm. Lie down and apply steady, firm pressure over the wound as close as possible to the area that is bleeding. Keep the pressure on for 20 minutes (timed) continuously. Do not lift the bandage to check on the bleeding. If still bleeding after 20 minutes, apply the pressure for another 20 minutes. If still bleeding after 40 minutes, call us .
Drainage	All wounds drain during the first week or two and frequent dressing changes are needed.
Swelling and Bruising	Swelling and bruising are common, particularly if the surgery site was near the eye. Usually this is not a problem, and both will decrease as the wound heals.
Infection	Wound infections are unusual. If you see thick, foul smelling fluid coming from the wound, call us . An antibiotic may be necessary.
Redness	All wounds develop a circle of redness around them that disappears gradually. If the area becomes very red and itchy, you may be allergic to the antibiotic ointment or to the tape. If this develops, call us at the number below .
Scarring	Most surgeries leave a scar. The scar will become less noticeable over time.
Stitches and Skin Grafts	If your wound is closed with stitches or a skin graft, keep the area clean, bandaged as directed, and dry until your next clinic visit. If you see foul-smelling fluid coming from the wound, call us immediately. If it is an infection, you may need an antibiotic.
General Instructions	For 48 hours after surgery: <ul style="list-style-type: none"> • DO NOT drink alcohol, wine, or beer • No bending, heavy lifting, or strenuous activity (Wait until your stitches are removed before resuming normal exercise) Wait 2 weeks before doing aerobic exercise or weightlifting

Important Phone Numbers

- Dermatology Center: Monday – Friday, 8 a.m. to 5 p.m., **call 716-845-3378**, and choose option 4.
- After hours and weekends: Contact our Call Center at **716-845-2300** for assistance.

After the Wound Has Healed

As the wound heals, some tightness and itching are common and it usually lessens with time. Itching is often relieved by applying a small amount of plain petroleum jelly on the scar. Tumors often involve nerves, and it may be two years before normal feeling returns. The area may remain numb permanently. Only time will tell.

Scar tissue that grows over the wound has many more blood vessels than the surrounding skin. The result is a red scar that may be sensitive to temperature changes. This sensitivity improves with time and the redness gradually fades. If the scar is unacceptable to you, you may want to consider surgical scar revision. We advise you to wait 12 months because the appearance of the scar will continue to improve for up to 1 year after surgery.

Follow-up Visits

Follow-up exams by your referring physician are important to help with early detection and treatment of any new skin cancer or the unlikely recurrence of the skin cancer already treated.

As a person who has had a skin cancer, you are at risk of developing others in the years ahead. You should be examined by your physician at least once each year. If you notice suspicious areas on your skin between visits, check with your physician to see if a biopsy is needed.

Defending Against Future Skin Cancer

The most important thing you can do to reduce your risk of future skin cancers is to protect your skin from further sun damage. Apply sunscreen to all exposed skin, including the tops of the ears, 15 minutes before you go outdoors. Wear a broad-brimmed hat and protective clothing, such as a long-sleeved shirt.

There are a number of excellent sunscreens available without a prescription. Whichever you choose, the sun protection factor (SPF) should be 30 or higher. These colorless creams or lotions absorb or block the damaging rays of the sun that cause sunburn and other skin damage. They may wash off with water or heavy perspiration, so be sure to reapply sunscreen after swimming or exercise. Use a sunscreen labeled as water resistant.

How can I Learn if I am a Candidate for Mohs Surgery?

To schedule a consultation, please call our referral office at **716-845-3516**.