

Mohs Micrographic Surgery
Patient Guide

What is skin cancer?

Cancer is the uncontrolled growth of cells at an unpredictable rate due to genetic mutations acquired by those cells. As cancerous cells grow, normal surrounding healthy tissues are destroyed. The most common cause of skin cancer is long-term exposure to sunlight, often starting as a young adult. Skin cancers are therefore most common on sun-exposed areas on the body, especially the head and neck. Skin cancer can occur more commonly in people with fair complexion or people who are immunosuppressed.

The most common types of skin cancer are basal cell carcinoma and squamous cell carcinoma. Melanoma is a less common, but often more serious, type of skin cancer.

What are basal cell carcinoma and squamous cell carcinoma?

Millions of basal cell carcinomas (BCC) and squamous cell carcinomas (SCC) are diagnosed every year in the United States. These tumors often start as a small red bump that looks like a pimple but does not go away and sometimes bleeds. Basal cell carcinomas grow slowly while squamous cell carcinomas can grow at different rates.

BCCs almost never spread to other parts of the body, but they can grow slowly and continue to enlarge locally. BCCs may become bleeding ulcers if left untreated.

SCCs have a slightly higher risk of spread (metastasis) compared to BCCs. This risk of metastasis is increased for larger, deeper tumors and tumors that grow into nerves.

There are several subtypes of BCCs and SCCs. Some grow downward, forming “roots” underneath the surface of the skin while others grow outward. Therefore, what you see on the skin might only be a small portion of the whole tumor. It is important to diagnose the different cancer subtypes with a skin biopsy before treatment, as different therapies may be required.

What can you do to prevent skin cancers?

Long-term exposure to UV rays from natural sunlight is the main cause of skin cancers. While you cannot reverse sun exposure from the past, lifestyle changes can prevent further accumulation of UV damage. These lifestyle changes include wearing wide-brimmed hats, applying sunscreen (SPF 50 or above), and avoiding prolonged sun exposure between 10am-2pm.

How is skin cancer treated?

Methods commonly used to treat skin cancer include surgery, electrodesiccation and curettage (“scrape and burn” with an electric needle), chemotherapy creams, or radiation therapy. Initial treatment of most skin cancers has a success rate of over 90%. The method chosen depends on the location and subtype of the skin cancer.

What is Mohs micrographic surgery?

Mohs micrographic surgery is a specialized skin cancer removal technique first developed in the 1930s by Dr. Frederick Mohs.

During Mohs surgery, the skin cancer is surgically removed and carefully mapped, inked, and processed on microscope slides. The Mohs surgeon then evaluates 100% of the deep and peripheral margins under the microscope. This process is repeated if skin cancer cells are seen under the microscope. Each time tissue is removed is called a “stage”. The Mohs surgery technique removes the least amount of skin to clear the skin cancer and ensures that the tumor is completely removed before repairing the skin defect (unlike a standard surgical excision).

Why does having a board-certified Mohs micrographic surgeon matter?

A board-certified Mohs surgeon must have:

1. Graduated from medical school, finished a medical internship and a three year dermatology residency and then passed a board certification examination. They are then board-certified by the American Board of Dermatology. Once this is complete, your surgeon then needs to complete an additional one to two year fellowship training program specifically in Mohs surgery. This fellowship is a rigorous program that focuses on mastering Mohs micrographic surgical technique, dermatopathology (processing and then evaluating skin cancer cells under the microscope), and advanced surgical and cosmetic reconstruction of the head, neck, and other cosmetically sensitive areas.
2. After completing this fellowship, your Mohs surgeon must then pass another comprehensive board examination to become board-certified by the American College of Mohs Surgery. This is a very challenging exam that tests their proficiency and skills in Mohs surgery, dermatopathology as well as surgical reconstruction.

What happens on the day of Mohs surgery?

Mohs surgery typically takes at least several hours; however, due to the nature of this technique, ie, checking each stage under the microscope in real-time, we cannot predict the exact duration of surgery. Please plan to spend the day with us and do not make other appointments or meetings on the day of surgery. As a general rule-of-thumb, about half of skin cancers are cleared after 1 or 2 stages.

Before surgery, please eat normally and take all your regular medications. There is no need to fast. If you take medications during the day, please bring them with you. Please shower/bathe the morning of surgery to ensure a clean site and as you will not be able to for 24 hours after surgery (48 hours if you take a blood thinner).

On the day of surgery, you will meet the nurses and surgeon who will verify the surgical site with you and discuss any questions and concerns.

Step 1: Anesthesia

The tumor site is numbed with local infiltration of anesthesia. This anesthesia lasts for 1-4 hours and will be added throughout the day as needed. You will remain awake for the entire duration of surgery.

Step 2: Removal of tumor

Once the skin is numbed, the first stage or “layer” of tissue is removed. This step takes 10-20 minutes.

Step 3: Evaluating the tissue

The removed tissue is then inked and a color-coded map is created to precisely guide the location of the tumor. A laboratory technician processes the tissue and embeds it onto a microscope slide. The surgeon then examines the entire tissue layer for evidence of microscopic tumor. This step takes approximately 1 hour.

Step 4: Additional stages

If tumor is seen under the microscope in step 3, the surgeon will remove more tissue at that specific area and repeat the process of embedding the tumor and examining under the microscope. Each additional stage will take approximately 1 hour.

Step 5: Reconstruction

Once the skin cancer is completely removed, reconstruction options will be customized to preserve function and maximize cosmetic outcome.

The best method of repairing the wound cannot be determined until the skin cancer is removed, but possible options include:

- Healing by spontaneous granulation (natural healing)
- Closing the wound with stitches

- Skin grafts
- Skin flaps

In rare cases, we may recommend consultation and coordination with another surgical specialty for reconstruction.

Risks of Mohs surgery:

As with any surgical procedure, Mohs surgery carries the risk of:

- Bleeding from the wound
- Blood collecting under the wound (hematoma)
- Pain or tenderness around the surgical site
- Infection
- Temporary or permanent numbness, decreased sensation, or decreased movement due to nerve damage

You should anticipate that you will have a surgical scar after Mohs surgery and be aware that the scar may be red, long, in a series of lines or take other forms. The appearance of your surgical scar will gradually improve over time as scars take months to mature. Your surgeon will optimize your repair to give you the best result possible. In some cases you may be recommended to allow the site to heal without stitches if this is felt to be appropriate for your case.

Preparing for Mohs surgery:

- Stop taking supplements that can thin the blood 2 weeks prior to surgery (such as fish oil, omega 3, vitamin E, or baby aspirin that is not prescribed by your doctor).
- Do not fast—eat your normal dinner and have a good breakfast on the day of the procedure.
- Take all your normal medications. If you take medicines during the day, please bring them with you. If you take blood pressure medications, do not skip them.
- Let our office know if you are on **coumadin or warfarin**. You will need to have your INR checked within 1 week before Mohs surgery.
- If you are on any other blood thinners, continue taking them as usual.
- Take a shower the morning of surgery as you will not be able to get the surgical site wet for 24-48 hours after surgery. Do not apply moisturizers to the surgical area.
- If you have been prescribed an antibiotic prior to surgery, please take it 1 hour before your appointment.
- **Smoking interferes with wound healing.** Please make every effort to minimize smoking for 2 weeks before and 2 weeks after surgery.
- Clear your schedule for the day. Mohs surgery usually takes 4-6 hours but due to the nature of the procedure, the number of stages and hence length of time, can be unpredictable.
- **Do not plan long-distance travel for 2 weeks after surgery.**

What to bring on the day of surgery:

Mohs surgery is an outpatient procedure, but because of the tissue processing time, you may be spending most of the day with us. You will be awake throughout the day, so please bring a book/magazine/electronic device to pass the time while you wait. Most patients are surprised at how tired they are by the end of the day, so please have someone available to drive you home if needed.

- Snacks / lunch and drinks
- Any medications you usually take during the day, glucose monitor if applicable
- Book/magazine/iPad

What to expect after surgery:

The local anesthesia used during surgery will wear off after a few hours. Once it does, you may have mild to moderate discomfort. Tylenol is usually enough to relieve any discomfort; please take as directed by your surgeon and call the office if Tylenol is not sufficient.

Swelling/bruising are common after surgery and peaks 1-2 days after surgery. Ice can help keep the swelling down and is most helpful for the first 48 hours after surgery. Apply an ice pack for 10-15 minutes every hour while awake. Apply the ice pack directly over the pressure dressing, do not remove it until the instructed time.

Most patients are more tired than usual after surgery and you may want to take a nap or go to bed early after surgery.

Take it easy for 1 week after surgery and do not perform exercises or activities that increase your heart rate and blood pressure, as this can cause the wound to open up or bleed.

You will have a follow up appointment if suture/staple removal or wound check is needed.

Additional information on Mohs surgery

<https://online.flippingbook.com/view/502707499/34/>