

Mohs Micrographic Surgery

Patient Handbook



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Introduction

Mohs surgery (also called Mohs micrographic surgery) is a type of specialized surgical treatment for skin cancer. It is named after Dr. Mohs who created the technique.

Before you have Mohs surgery, your dermatologist performs a biopsy. A biopsy is a sample of tissue that is removed so it can be examined and evaluated. If your biopsy shows cancer, then this usually needs further treatment. After a biopsy site heals, there are usually microscopic amounts of cancer cells or “tumor roots” not visible to your naked eye. Mohs surgery is a precise method for removing cancer cells. This method minimizes the amount of healthy skin that needs to be removed (tissue sparing), while also removing the tumor from all edges (tumor eradication at all margins).

Mohs surgery may not be recommended for all skin cancers.

Mohs surgery tends to be recommended for skin cancers that:

- Have more aggressive features under the microscope
- Are large in size
- Have a history of recurrence (coming back after prior treatments) or high risk for recurrence
- Occur in a high risk patient (lymphoma or transplant patients)
- Occur in cosmetically or functionally important area (eyes, lips, ears, nose, hands, genitals)

Please read all of the contents in this packet before your appointment. (see surgery checklist for day-of surgery on the last page).

About Skin Cancer

Skin cancer is common. According to the AAD (American Academy of Dermatology), there are 3 to 5 million cases of non-melanoma skin cancers each year. Roughly 9,500 people are diagnosed with skin cancer daily in the United States. It is important to know that not all skin cancers are the same. The most common types of skin cancer are:

- Basal cell carcinoma (BCC)
- Squamous cell carcinoma (SCC)
- Melanoma

Basal cell and squamous cell skin cancers are the most common but also the most curable types of skin cancer. Treatments vary depending on the specifics of the biopsy findings and location of tumor, among other factors.

Basal cell carcinoma:

These range in appearance but are generally slow-growing tumors that start off looking like a “pimple” that doesn’t quite heal over months or more. The tumor may bleed easily or may have no symptoms at all.

Squamous cell carcinoma:

These often start as a rough, dry patch of skin or a rough growth that does not get better with moisturizers. These can be tender to touch or grow more quickly. This type of skin cancer may very rarely spread (metastasize) to other parts of the body if neglected or left untreated, or if the tumor has aggressive features. If neglected, an aggressive squamous cell skin cancer can invade deeper to destroy nerves and muscles, and it can spread to lymph nodes or other areas.

Melanoma:

Melanomas are less common but more serious. Early detection and treatment of this cancer is critical. The evaluation, diagnosis, and management of this type of skin cancer can be more complex and is not included in this pamphlet.

Why treat?

Often times after a biopsy, the skin usually heals very well such that the skin cancer appears gone. Thus, a frequent question is “Why do I need Mohs if my skin healed so well after my biopsy and I can’t see the cancer anymore?”

While basal cell and squamous cell carcinomas are usually not life-threatening, getting treatment is very important. This is because there are usually microscopic amounts of tumor still left behind after the biopsy, and the tumor can continue to grow “roots” under the healed skin. Neglected skin cancer can locally destroy your tissues such as cartilage, nerves, and muscles. An untreated tumor has the potential to cause deformity.

Preparing for Surgery

Tobacco:

Do not use tobacco products for at least three weeks before and after surgery. If you are unable to stop use of snuff, chew, cigars, or cigarettes, please talk to your doctor about a prescription, patch or gum to help you quit or at least decrease your usage. Smoking interferes with skin healing, can lead to surgical complications, and ultimately may affect the appearance of your scar. It is also important to avoid other types of smoking such as vapors and cannabis.

Time off

How much surgery you will need, and how you will look after surgery depends on many factors, such as the location and size of your skin cancer and the type of reconstruction performed.

You will not know before your surgery how large of a wound you will have, but you may want to talk to your employer about the possibility of change in schedule or duties after surgery.

The larger your wound, the more healing time you will need. This may impact your return to daily activities and return to work. For most desk jobs, you may return within 1-2 days after surgery. For other jobs, especially those requiring heavy lifting, you may wish to consider additional time off work.

Day of Surgery Information

Be prepared for significant “down time” during surgery when your surgeon is in the nearby laboratory (lab) examining the tissue (cells from your skin) under the microscope. You will be expected to stay in the immediate surgical area/waiting room for safety reasons.

Bring something to do.

Bring a companion. The process of Mohs micrographic surgery can last most of the day, or all day. Rarely, it may be recommended to continue surgery on a separate day if the tumor is extensive. You are likely to be physically and emotionally tired. A companion may help you with needs throughout the day (get you snacks, food, drive you home), and can also help listen along with you regarding after care instructions. The bandaging on your face may sometimes be

bulky and interfere with vision, so we require that if you do not have a companion, you have someone be available to drive you home after your appointment. If you have specific questions about whether a driver is required, please call ahead.

If you have a diagnosis of anxiety and regularly take a prescription for this, please bring your medication and plan to take your medication after you sign your consent form. If you do not have a prescription for anxiety but are feeling very anxious about having surgery, please call us so we may discuss options for giving you a relaxant medication. Medications to help you relax may or may not be available on the day of surgery.

The night before your surgery

- Bathe. You may be asked not to get your incision wet for 24 to 48 hours after surgery.
- Get a good night's sleep.

The morning of your surgery

- Wash the area where you will have surgery thoroughly.
- Do not apply any make-up, lip stick, topicals, creams, or lotions.
- Wear comfortable loose clothing that does not have to be pulled over your head to remove (such as a button down shirt).
- Wear inexpensive clothing that you don't mind getting soiled.
- Depending on what clothing you wear to your appointment, or what part of your body that will have surgery, you may be asked to get into a gown instead.

- Make sure to eat your normal meal(s) on the day of surgery, especially prior to the appointment. You do not need to fast for this procedure.
- Pack some items to help pass time during your wait, along with snacks or lunch.
- Bring your medications that you would normally need to take during the day.

Surgery Day Details

Mohs surgery is an outpatient surgery. This means you do not have to stay overnight in the hospital.

The time it takes to complete your surgery varies from person to person. It may take 2 to 10 (or more) hours depending on the type of tumor, size, number of sites treated, and the method of reconstruction. Most surgeries are finished in approximately 4 hours. You can expect that you will spend most of your time waiting for results to come back from the lab. Mohs surgery is performed under local anesthesia for your safety – “laughing gas,” or “being knocked out” is not typically an option.

Do not make any plans for that evening (dinner reservations, travel, physical activities).

Do not make other doctors’ appointments for the day of your surgery.

Process of Mohs micrographic surgery:

Your surgeon has many roles and is trained to provide services of surgery, pathology, and reconstructive surgery.

- First, your doctor will examine the skin to be treated, and

will review the risks and benefits of Mohs, reconstruction options, along with possible alternatives if applicable.

- The surgical site will be injected with local anesthetic. This medicine may burn or sting for 10 to 15 seconds during injection as it numbs the skin. This surgical step may take up to 15 minutes or more. Sedation is not used.
- Next, the surgeon removes the visible tumor and a thin layer of skin around and beneath the tumor site. This step is called taking a level, taking a stage, or taking a layer. Bleeding is stopped with cautery (burning). A bandage is then applied while you wait for lab results. This surgical step takes 5 to 15 minutes.
- As a pathologist, your surgeon will step into a nearby lab to examine your tumor cells under the microscope. A “map” is made that allows the surgeon to precisely identify the specific location of any cancer found. This step can take 60 to 90 minutes.
- If cancer is found at any of the skin edges under the microscope, more tissue is taken and it again goes to the lab. This back and forth process continues until you are “clear” of microscopic tumor. Most patients have their tumor removed in 2 or fewer stages.
- Once you are clear, the next step is to discuss reconstructive options. This may include a few simple stitches, or more complex way of getting the wound closed. You may be referred to plastic surgery or another specialist if more complex reconstruction is needed. Your surgeon will close your wound making every effort to restore function and acceptable appearance (but some scarring will always be visible).

Wound closure options

Most wounds are closed with side-to-side stitches, but this depends on the size of wound, location and how loose the skin is around the wound.

If side-to-side stitches cannot be performed, sometimes a skin graft is used (borrowing skin from another part of the body and sewing this into place over your wound).

Sometimes wounds are left open without stitches as some wounds heal better without stitching. The wound would be left open to heal on its own. This is common on the scalp, ear, hands, and legs.

Skin flap – when a wound cannot be stitched side to side, and when a graft is not appropriate, a skin flap is used to move or rearrange nearby skin to cover the wound and stitch into place.

Rarely, you may need imaging (such as CT scans), or you may be referred to another specialist for more aggressive cancers.

Discharge from the Clinic

You will receive instructions verbally and in writing in your “after visit summary” about how to care for your wound.

Your companion should drive you home unless you have already discussed driving yourself home with your physician. Most wounds on the forehead, temples, upper cheeks, eyelids, and the high nose can lead to eyelid swelling and “black eyes” that can make driving yourself home difficult and unsafe. If you do drive yourself to your surgery, please make sure you have a companion on standby who can pick you up if needed.

Plan to rest for the remainder of the day.

Risks and Complications from Mohs surgery

- Mild pain. This is almost always managed with over the counter acetaminophen (such as Tylenol). Most patients do not require pain medication after the first 48 hours.
- Bleeding. If you see any bleeding, apply very firm pressure to your bandage/wound for about 15 to 20 minutes (without peeking to check if it has stopped). If you have tried this two to three times, and the wound continues to bleed, please call us.
- Infection. This is uncommon but would require antibiotics. If you think the site is infected, please call us.
- Loss of nerve or muscle function. This is a rare complication and may be permanent or temporary. It is common, however, to have a change in sensation or decreased sensation of your surgical site after surgery.
- Poor healing. In some cases the surgery wound may heal slowly.
- Swelling and bruising– this is to be expected and can occur on any part of your face. If surgery has been performed on or near the eye area (cheek, eyebrow, top of nose, temples, forehead), you may have dramatic eyelid swelling or a “black eyes.” This will get better with time. Surgery of the lip also tends to lead to dramatic swelling. This usually improves in one to two weeks for most wounds.

- Scarring – you can expect to have a scar after Mohs surgery. While there is no such thing as scar-less surgery, we use special techniques and fine sutures to ensure the best appearance possible. We make every effort to hide your scar into the natural lines of your skin.

Scars are initially red, swollen, and “rubbery” to touch for the first few weeks, even after stitches are removed, because the body is trying to heal. Usually, by 1 month, the scar is much less noticeable. By 6 months, the scar is usually very subtle. Scars continue to heal and fade for up to 2 years.

Smoking will affect your scar! We do not recommend special scar creams, essential oils, or antibiotic ointments to your wounds as these will not affect the appearance of your scar and could potentially harm the area. Please follow the wound care instructions we provide to you.

- Recurrence. Mohs micrographic surgery provides the highest cure rate available for most skin cancers. A recurrence (cancer coming back), however, is possible so getting your regular skin examinations with your dermatologist or other provider is important.
- Asymmetry. When large wounds are stitched side to side, it may tighten the skin in that area. If the surgical site is on one side of your body (such as the left side of face), you may notice slight asymmetry between the sides of your face. However, most people do have natural mild asymmetry of their face and this will not be very noticeable when your scar fully heals.

After Surgery

- Avoid tobacco, smoking/vapors, and cannabis for at least 3 weeks.
- Do not drink alcohol for 2 to 7 days as this can slow healing or cause bleeding.
- Do not participate in athletic activities while you have stitches in place (for most patients, for approximately 1 week). The first 48 hours is the most important time period.
- Do not lift anything more than 10 pounds for 1 to 2 weeks.
- Some household chores may need to be delayed or delegated such as vacuuming, snow shoveling, mowing the lawn, or caring for young children that need to be carried/lifted. Working any major muscle groups increases your heart rate and can increase bleeding.
- Avoid swimming, hot tubs, and direct water pressure to your surgery site until stitches are removed. You may shower once your initial bandage comes off (24 to 48 hours).
- Avoid antibiotic ointments. Stick with your wound care instructions.
- Whenever possible, it is helpful to take photographs with your camera or phone of any problems or concerns you see with your wound.
- After 2 months, you can begin to massage any areas of firm scar to help it soften. Do this 3 times per day, 3 minutes each time. Do not start massage before 2 months! This can be helpful up to 6 months after surgery.

- Your wound will appear completely healed soon after sutures are removed but the scarring and healing process may actually continue for 1 to 2 years.
- “Spitting” sutures – sometimes the knots or tails of the suture material may poke through your incision. This is not uncommon. This would look and feel like a pimple at first, followed by a small fine fish-wire-like material poking through. Please call us if this occurs.
- These are general guidelines. More specific guidelines will be provided to you after your surgery in your “after visit summary” including phone numbers to call for urgent needs.
- Keep your follow-up appointments and make sure to continue to have your skin checked, as often as is recommended by your dermatologist.

Wound Care

For wounds left open or closed with stitches:

- Gently remove your initial bandage
- Change your bandage once a day (and whenever it becomes wet, soaks through)
- For bandage changes:
 - Wash hands with soap and water.
 - Clean the area with cotton-tipped swabs or gauze dipped in soapy water.
 - If you cannot remove crusted areas, you may soak with wet gauze first for 15 to 20 minutes to soften it.

- Pat the area dry with clean gauze or cotton swabs.
- Use a cotton swab to apply a generous layer of petroleum jelly over the incision lines.
- Cover with clean gauze or nonstick dressing. Secure with paper tape or bandage.
- Continue wound care daily until stitches are removed or until wound has healed.

Wound care – for tissue glue (no stitches)

*does not apply to most people:

- Change your dressing once a day. Wash your hands first. Remove the old dressing. Apply clean dry gauze followed by paper tape.
- Do not scratch, rub, pick at, or place tape on the glue itself. Do not apply any ointments, creams, lotions, or petroleum jelly on top of the glue or on your skin.
- You can stop wound care after 7 days. At 7 days, you can wash the glue off with soapy water, or you can leave it on the skin until it naturally gets washed off.

When to call your surgeon:

- Fever of 100.4 degrees Fahrenheit or higher.
- Bleeding not controlled with direct firm pressure to your wound.
- Pain that is worsening and not relieved by over the counter medications.
- Wound reopening after stitching.

- Pus or bad odor from your wound.
- Worsening redness and warmth around your wound.
- If you think your surgery site is infected, please call us before seeking care or antibiotics from other providers

To reach your surgeon:

Dartmouth-Hitchcock

Mohs Surgery Office Hours:

Monday through Friday: 8 am to 5 pm

(603) 650-3107

After Hours:

To reach the surgeon or on-call dermatologist after 5 pm on weekdays or on a weekend, call the Dartmouth-Hitchcock operator at (603) 650-5000 and ask for the dermatology resident on-call.

Surgery checklist for day of surgery

- Eat breakfast and pack snacks for the day.
- Bring all of your medications.
- Take your necessary medications such as blood thinners and blood pressure medications.
- Bring a companion/driver.
- Bring this booklet/pamphlet if you have questions about the information.
- Take the steps to stop smoking after surgery (such as gum, patch, or prescriptions to assist in tobacco cessation).
- Wear comfortable button-down clothing that you do not mind getting soiled.
- Wash your hair/face and surgical area and do not put on lotions or make-up.
- Bring something to do while you wait.
- Bring designated decision maker if I do not make my own decisions (example: advanced dementia). If I have a guardian, proof of guardianship paperwork will be required for the consent process
- Wear your hearing aids.

**For a listing of providers, events, support groups and health information
visit Dartmouth-Hitchcock.org**

Manage your health online at myD-H.org

Dartmouth-Hitchcock is a charitable organization and has a financial assistance policy.

DHMC is a smoke-free and tobacco-free campus.



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**NORRIS COTTON
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