



# MOHS MICROGRAPHIC SURGERY

The Treatment of  
Skin Cancer

 **FOREFRONT  
DERMATOLOGY®**

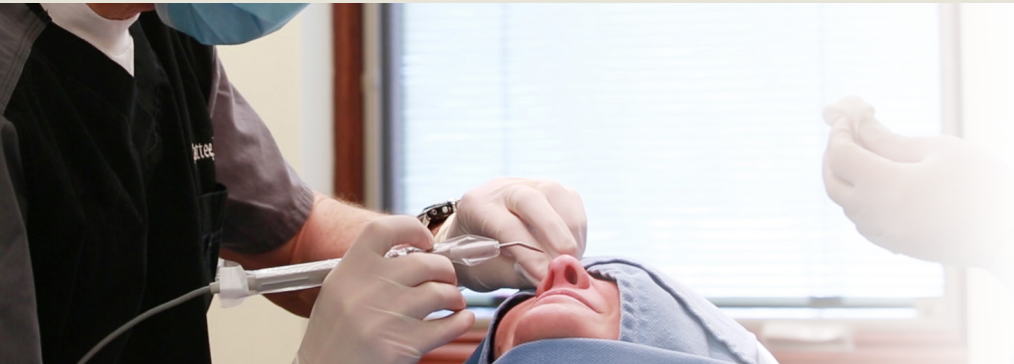
# What is Mohs Micrographic Surgery?

Mohs Micrographic Surgery is a specialized, highly effective technique for the removal of skin cancer. The procedure was developed in the 1930s by Dr. Frederic Mohs at the University of Wisconsin. Mohs Surgery differs from other skin cancer treatments in that it permits the immediate and complete microscopic examination of the removed cancerous tissue, so that all "roots" and extensions of the cancer can be eliminated.

Due to the methodical manner in which tissue is removed and examined, Mohs Surgery has been recognized as the skin cancer treatment with the highest cure rate.

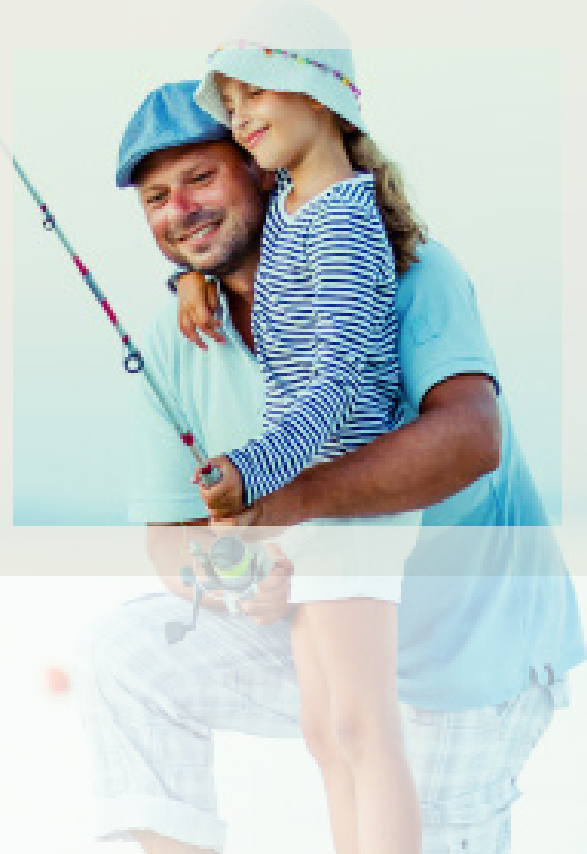
## **How effective is Mohs surgery?**

Mohs surgery is the most advanced, precise method of removing skin cancer. It has a cure rate above 99%, as compared to a cure rate of 85% to 92% for standard skin cancer surgery.



the surgical area. If a large tumor is removed or extensive surgery is required, occasionally a nerve to muscles may be cut, resulting in temporary or permanent weakness in a portion of the face. This is, however, an unusual complication, and will be discussed by your surgeon with you if it is a concern.

**Will I have any limitations after surgery?** Depending on the size and location of the surgery, most patients are able to return to normal activity within a few days. We advise that you would take it easy the first few days, limiting any strenuous activities or exercise. You will know how you are feeling and can adjust your activity level accordingly.



# Potential Complications Associated with Mohs Surgery

## **Post-surgical Pain & Discomfort**

Most patients do not complain of significant pain. Typically, only Tylenol is required for relief. However, stronger pain medications are available and will be prescribed for you when leaving the office, if necessary.

You should expect some bruising and swelling around the wound, especially if surgery is performed near the eye area. Complications are possible with any procedure, however complications from Mohs surgery are rare. Bleeding is the most

common complication after surgery and is most likely to occur in the first 48 hours. Most bleeding can be controlled with pressure and by following your post-op instructions. However, severe bleeding may require you to return to the office or go to your local emergency room for treatment. Another possible complication after skin surgery is infection, however, the entire process is done sterily and the infection rate is less than 5%.

During surgery, tiny nerve endings may be cut, which may produce a temporary or permanent numbness in and around





### **Special Qualifications of a Mohs Surgeon**

Physicians performing Mohs Surgery should have specialized skills in dermatology, dermatologic surgery, dermatopathology, and Mohs Surgery. Basic and advanced training in Mohs Surgery is available through selected Residency programs, specialized fellowships, observational preceptorships,

and intensive training courses. In addition, the Mohs surgeon must have the required surgical and laboratory facilities and must be supported by a well-trained Mohs nursing and histotechnological staff.



# Advantages of Mohs Surgery



Some skin cancers can be deceptively large – far more extensive under the skin than they appear to be from the surface. These cancers may have “roots” in the skin, or along the blood vessels, nerves, or cartilage. It is important to realize that what we see of a skin cancer may be significantly smaller than the actual size, like the “tip of the iceberg”. Skin cancers that have recurred following previous treatment may send out extensions deep under the scar tissue that has formed at the site. Mohs Surgery is specifically designed to remove these cancers by tracking and removing these cancerous “roots.”

For this reason, prior to Mohs Surgery it is impossible to predict precisely how much skin will have to be removed. You can put your mind at ease knowing that in addition to providing you with the highest cure rate possible, the Mohs procedure removes the least amount of healthy skin compared to other surgical techniques. The immediate tissue processing and precise mapping done with Mohs surgery makes this unnecessary. The final surgical defect could be only slightly larger than the initial skin cancer, but occasionally the removal of the deep “roots” of a skin cancer results in a sizeable defect.



Mohs surgery provides the best chance for optimal wound healing with minimal scarring. Your surgeon prides themselves in achieving the best cosmetic outcome possible for each individual patient. Although a scar is inevitable after performing skin cancer surgery, often, even after extensive surgery and reconstruction, this scarring is minimal. From the initial consultation to the final post-operative visit, your surgeon will work closely with you to make sure that your experience is the best that it can possibly be.



# Wound Healing, Scarring and Scar Revision



A pressure bandage will be placed on the wound and will need to stay in place for 24-48 hours. At the time of your surgery you will be instructed on how and when to change your bandage and when to return to have your sutures removed.



The patient should bear in mind, however, that Mohs Surgery removes only the cancerous tissue, while the normal tissue is spared.

### **Special Indications for Mohs Surgery**

Mohs Surgery is not appropriate for the treatment of all skin cancers. Mohs Surgery is indicated for cancers located in areas such as the nose, ears, eyelids, lips, head, neck, hairline, hands, feet, and genitals, in which maximal preservation of healthy tissue is critical for cosmetic or functional purposes. Mohs Micrographic Surgery typically is for those skin cancers that have recurred following previous treatment or for cancers that are at high risk for recurrence.



# Patient Preparation for Surgery

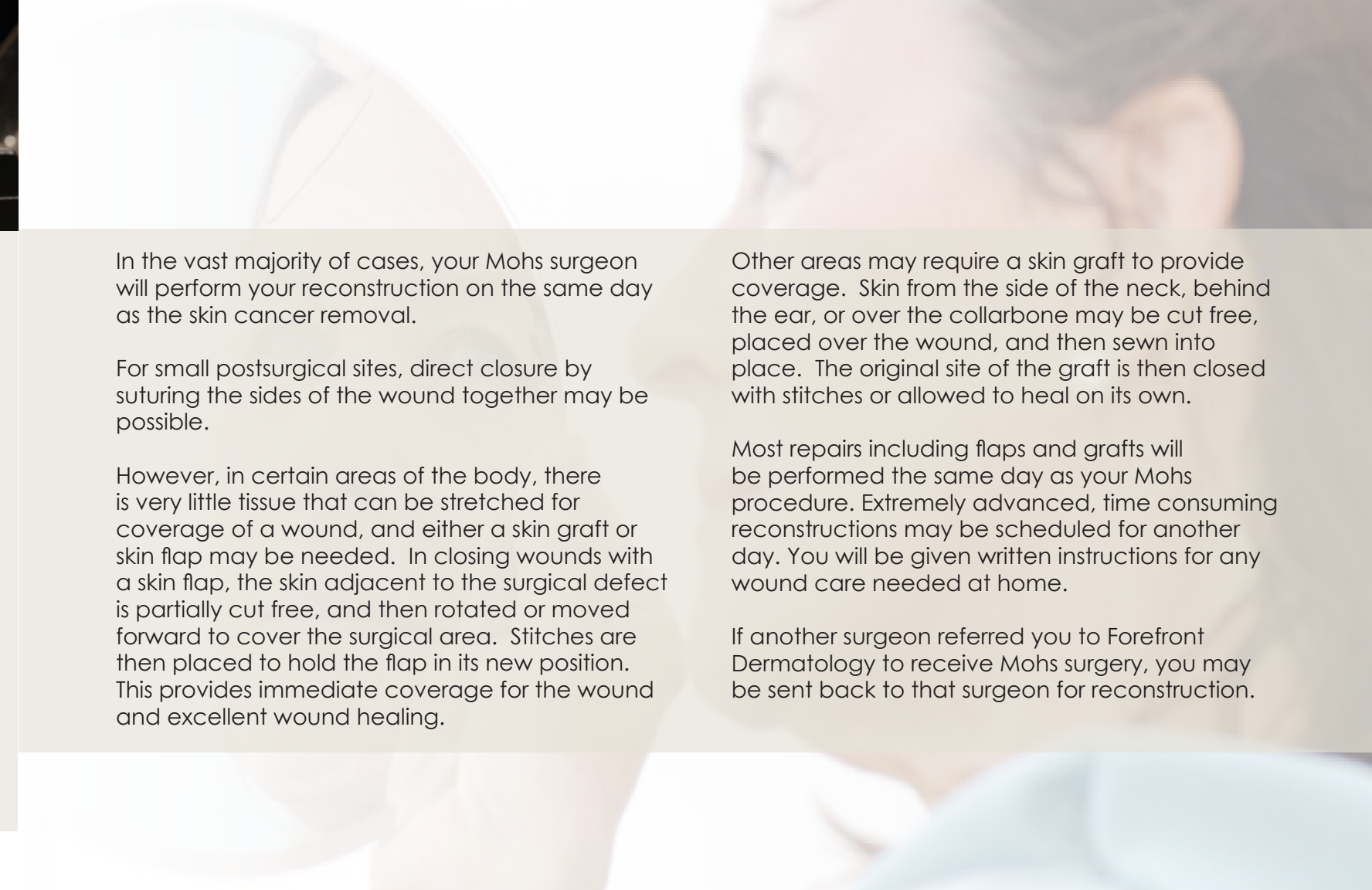


If you normally take antibiotics prior to going to the dentist because you have an artificial joint less than 2 years old, or artificial heart valve, you may need to take antibiotics before surgery. If you were not given a prescription for antibiotics, please call our staff. If you do not have an artificial joint or artificial heart valve, no antibiotics are required before your Mohs surgery. If you are taking prescription medications, continue to take these unless otherwise directed by a physician. However, you should inform your Mohs surgeon if you are taking blood-thinning medications such as Coumadin, Plavix, aspirin, aspirin substitutes (such as Advil, Motrin, Nafton, Naprosyn, etc.), vitamin E, ginkgo, garlic, ginseng, ginger, ephedra or other nutritional supplements. These medications and supplements can sometimes cause an increased chance of bleeding after surgery.

It is important that you obtain a good night's rest and eat normally on the day of your surgery.

This procedure can sometimes last several hours with much of the time spent waiting for slides to be made and interpreted. It is advisable to reserve the entire day for this surgical procedure. Having someone come to your appointment with you is a good idea but not necessary. Your companion may come in the room and keep you company during the waiting periods. You may wish to bring a book or mobile device to help occupy your wait time and a light snack to tide you over.

For your comfort, it is recommended that you wear casual, layered clothing. After check-in, one of the Mohs assistants will greet you and bring you into the surgery room. Your companion may accompany you into the surgery room initially, but will have to return to the waiting room during the procedure itself.



In the vast majority of cases, your Mohs surgeon will perform your reconstruction on the same day as the skin cancer removal.

For small postsurgical sites, direct closure by suturing the sides of the wound together may be possible.

However, in certain areas of the body, there is very little tissue that can be stretched for coverage of a wound, and either a skin graft or skin flap may be needed. In closing wounds with a skin flap, the skin adjacent to the surgical defect is partially cut free, and then rotated or moved forward to cover the surgical area. Stitches are then placed to hold the flap in its new position. This provides immediate coverage for the wound and excellent wound healing.

Other areas may require a skin graft to provide coverage. Skin from the side of the neck, behind the ear, or over the collarbone may be cut free, placed over the wound, and then sewn into place. The original site of the graft is then closed with stitches or allowed to heal on its own.

Most repairs including flaps and grafts will be performed the same day as your Mohs procedure. Extremely advanced, time consuming reconstructions may be scheduled for another day. You will be given written instructions for any wound care needed at home.

If another surgeon referred you to Forefront Dermatology to receive Mohs surgery, you may be sent back to that surgeon for reconstruction.

# Options for Post-Surgical Reconstruction

Your Mohs surgeon has received extensive and advanced training in facial reconstructive surgery and will consider all options to ensure that the optimal cosmetic result and healing will be achieved.

After the skin cancer has been removed, your Mohs surgeon will discuss the following options with you:



1. Allowing the wound to heal naturally, without the necessity of additional surgery (which may produce the best cosmetic result).
2. Complex (linear) wound repair performed by your Mohs surgeon.
3. Adjacent tissue flap repair performed by your Mohs surgeon.
4. Skin Graft repair performed by your Mohs surgeon.
5. Referral to the original referring physician for wound repair.

If you do not have someone with you, It may be advisable to arrange for someone to drive you home following surgery, if needed.

The Mohs team taking care of you will consist of the Mohs surgeon, two assistants and a histotechnologist. The Mohs surgeon will be in to greet you and answer any questions before surgery begins. You will be positioned on the surgery table in a comfortable position. Multiple measurements and pictures of the treatment site will be taken throughout the day.

The only discomfort you should feel is a slight burning sensation during the first injection of local anesthetic. This will be very similar to the sensation noticed during the biopsy. At each stage of the process, additional anesthetic is injected. These additional injections cause minimal discomfort as the area is usually still numb.



# The Mohs Surgical Procedure

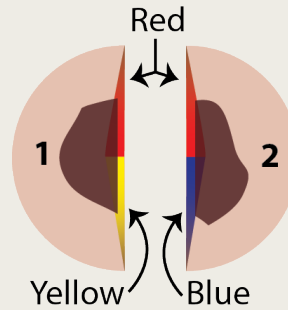
Typically, Mohs Surgery is performed as an outpatient procedure in our office. Although you will be awake during the entire procedure, discomfort is usually minimal and no greater than it would be for more routine skin cancer surgeries. The Mohs surgical procedure is illustrated in the following diagrams:



**Figure A (Stage 1)**

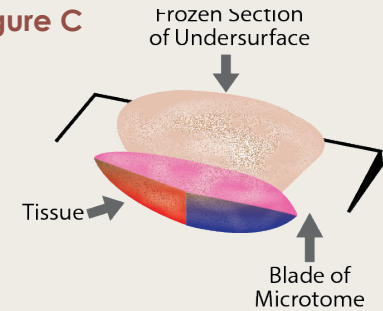
The area to be treated is cleansed, marked and injected with a local anesthetic. The Mohs surgeon removes the visible cancer, along with a thin layer of additional tissue (Stage 1). This procedure takes only a few minutes, and patient waits while tissue is being processed and examined.

**Figure B**



The removed tissue specimen is cut into sections, stained and marked on a detailed diagram (Mohs map).

**Figure C**



Tissue is frozen on a cryostat and the technician removes very thin slices from the entire edge and undersurface. These slices are then placed on slides and stained for examination under the microscope. This is the most time-consuming portion of the procedure, often requiring one hour or more to complete.





**Figure D (Stage 2)**

The Mohs surgeon carefully examines the entire undersurface and complete edge of the specimen. All microscopic "roots" of the cancer are precisely identified and pinpointed on the Mohs map. Upon microscopic examination, if the residual cancer is found, the Mohs surgeon utilizes the Mohs map to direct the removal of additional tissue (Stage 2). Additional tissue is removed only where cancer is present.



**Figure E (Stage 3)**

This process is repeated as many times as necessary to locate and remove any remaining cancerous areas within the tissue specimen.

#### **Duration of Procedure**

Most Mohs cases can be completed in three or fewer stages, requiring less than four hours. However, it is not possible to predict how extensive a cancer will be, as the extent of a skin cancer's "roots" cannot be estimated in advance.



**Figure F (Stage 4)**

When microscopic examination reveals that there is no remaining tumor, the surgical defect is ready for repair.

Bleeding will be stopped with an electric cautery. You will be able to hear a buzzing noise and will notice a distinct smell as it cauterizes the blood vessels. Your companion will be allowed to rejoin you during the waiting process of each stage.



[www.forefrontdermatology.com](http://www.forefrontdermatology.com)

*Please contact our office  
with any questions before or  
after your surgery:*

**877-230-4745**

#### **Major conditions we treat**

- Acne – teen & adult
- Contact allergies
- Eczema
- Genetic disorders
- Moles
- Psoriasis
- Rashes
- Skin cancer
- Warts

#### **We also treat**

- Actinic keratosis
- Cysts
- Hair loss
- Herpes
- Nail conditions – ingrown nails & fungus
- Rosacea
- Ringworm
- Scabies/lice

**Contact Forefront Dermatology today  
to learn how we can help you achieve  
total skin health.**