

MOHS MICROGRAPHIC SURGERY

SKIN CANCER

Skin cancer is by far the most common malignant tumor in humans. The most common types of skin cancer are basal cell carcinoma, squamous cell carcinoma, and melanoma. Both basal cell carcinoma and squamous cell carcinoma begin as a single point in the upper layers of the skin and slowly enlarge, spreading both along the surface and downward. These extensions cannot always be directly seen. The tumor often extends far beyond what is visible on the surface of the skin. If not completely removed, both types of skin cancer may invade and destroy structures in their path. Although these skin cancers are locally destructive, they do not tend to metastasize (spread) to distant parts of the body. Metastasis of basal cell carcinoma is extremely rare and usually occurs only in the setting of long-standing large tumors where the patient's immune system is compromised. Squamous cell carcinoma is slightly more dangerous, and patients must be observed for any spread of the tumor. Such spread is still infrequent. Melanoma can be much more dangerous type of skin cancer. The risk of metastasis is directly related to the depth the tumor has invaded into the skin at the time of biopsy. For melanoma just at the surface of the skin (melanoma In-situ), the risk of metastasis is exceedingly low. For melanoma that has already invaded into the skin, the risk of metastasis can be much higher. There are several options for treatment. Melanoma can be treated with wide local excision, Mohs Micrographic Surgery, or "Slow" Mohs. Regardless of the treatment option chosen, close follow up with your Dermatologist is very important.

Excessive exposure to sunlight is the single most important factor

associated with the development of skin cancers. In addition, the tendency to develop these cancers appears to be hereditary in certain ethnic groups, especially those with fair complexions and poor tanning abilities. Fair-skinned people develop skin cancers more frequently than dark-skinned people, and the more sun exposure they receive, the more likely they are to develop a skin cancer. Other factors, including exposure to radiation, trauma, and exposure to certain chemicals, may also be involved in the development of skin cancers.

The vast majority of skin cancers are present for more than a year before being diagnosed and their growth is rather slow. Skin cancers may be more aggressive in certain instances: patients whose immune system is compromised, patients with a medical history of leukemia or lymphoma, and cancers in certain locations such as the ear, lips, lower nose, or around the eyes.

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There are five standard methods for the treatment of skin cancers. The two nonsurgical treatments are cryotherapy (deep freezing) and radiation therapy. The three surgical methods include excision with or without immediate frozen section check of the edges, physical destruction (curettage with electrodesiccation) and Mohs Micrographic Surgery. Newer methods under investigation include photodynamic therapy and immunochemotherapy.

In the past, Mohs Micrographic Surgery was sometimes called chemosurgery or Mohs chemosurgery.

Originally, chemicals were applied to the skin during the surgery and hence, the name chemosurgery. Chemicals are now rarely used, but the name chemosurgery continues to be associated with the procedure.

After the removal of the visible portion of the tumor by excision or curettage (debulking), there are two basic steps to each Mohs Micrographic Surgery stage. First, a thin layer of tissue is surgically excised from the base of the site. This layer is generally only 1-3 mm larger than the clinical tumor. Next, this tissue is processed in a unique manner and examined underneath the microscope. On the microscopic slide, Dr. Friedman or Dr. Perry examines the entire bottom surface and outside edges of the tissue. (This differs from the "frozen sections" prepared in a hospital setting which, in fact, represent only a tiny sampling of the tumor margins.) This tissue has been marked to orient top to bottom and left to right. If any tumor is seen during the microscopic examination, its location is established, and a thin layer of additional tissue is excised from the involved area. The microscopic examination is then repeated. The entire process is repeated until no tumor is found.

Mohs Micrographic Surgery allows for the selective removal of the skin cancer with the preservation of as much of the surrounding normal tissue as is possible. Because of this complete systematic microscopic search for the "roots" of the skin cancer, Mohs Micrographic Surgery offers the highest chance for complete removal of the cancer while sparing the normal tissue. The cure rate for new skin cancers exceeds 97%. As result, Mohs Micrographic Surgery is very useful for large tumors, tumors with indistinct borders, tumors near vital functional or cosmetic structures, and tumors for which other forms of therapy have failed. However, no surgeon or technique can guarantee 100% chance of cure.

PREOPERATIVE VISIT

We strongly encourage the opportunity for a preoperative consultation. This helps us get to know one another and gives us time to answer any questions you may have about the procedure. It will also provide us with an opportunity to closely examine your skin cancer to determine and discuss the best approach to its treatment and reconstruction.

BEFORE MOHS MICROGRAPHIC SURGERY

*Take your usual medications, unless otherwise directed.

*Please let us know if you take aspirin, Coumadin (warfarin), Plavix (clopidogrel), Ticlid (ticlopidine), Vitamin E, or other prescription or non-prescription blood thinners; however, **DO NOT DISCONTINUE THESE MEDICINES UNLESS DIRECTED BY DR. FRIEDMAN OR DR. PERRY**

*Please do not take any Ginkgo Biloba, non-steroidal anti-inflammatories (NSAIDs) like Advil, Aleve, ibuprofen, or Motrin, or aspirin-containing products like Alka Seltzer, BC powders, Goody's, or Excedrin, for 10 days prior to your surgery. These medications may "thin" your blood and cause more bleeding. **You may substitute acetaminophen (Tylenol) if required.**

*Do not drink any alcoholic beverages for 48 hours before or after surgery.

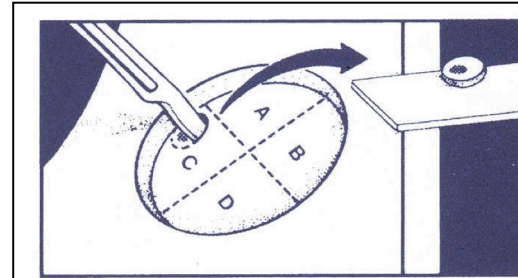
*If you normally take an antibiotic prior to dental work (in other words, require antibiotic prophylaxis), please bring this to our attention so that there is no delay in your surgery.

*Shower and shampoo your hair before surgery, as your wound and initial dressing will have to remain dry for 24 hours after surgery.

The length of the procedure varies depending on the size and location of the skin cancer and the type of reconstruction to be done.

Appointments for surgery are scheduled throughout the day. Although the average length of time is 2-4 hours, you should plan on spending much of the day in our office. Please cancel all activities for the day of surgery. We ask that you limit the number of people accompanying you to one because of the limited space in our waiting room.

6.



The area(s) of remaining tumor is located on the map and removed. The entire process is repeated.

1.



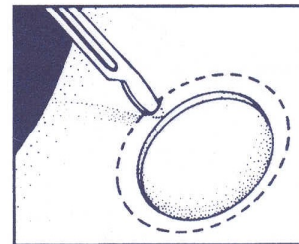
An injection numbs the area.

2.



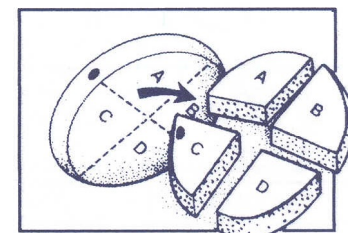
The visible portion of the tumor is removed (debulked).

3.



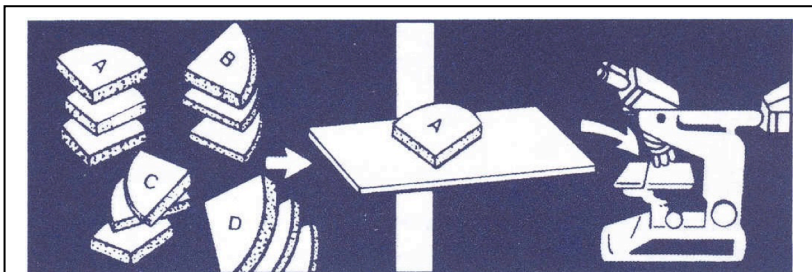
A thin layer of tissue is excised from the surrounding skin and the base.

4.



The removed tissue is mapped, sectioned, and microscopic slides are prepared.

5.



Under the microscope the deep and peripheral margins are examined. If microscopic examination reveals the presence of additional tumor, it is located on the map.

Depending upon the amount of tissue removed, processing usually takes an additional 30-45 minutes. Your wound will be bandaged; the tissue will then be processed for examination, stained, and examined by Dr. Friedman or Dr. Perry. If the microscopic examination of the removed tissue reveals the presence of additional tumor, we will go back and remove more tissue. The Mohs technique allows us to precisely map out where the roots of the cancer remain. Most skin cancers are removed in 1-3 surgical stages.

THE DAY OF SURGERY

*Be well rested and eat a light breakfast (and lunch, if surgery is in the afternoon).

*Do not take your fluid pills (Lasix, furosemide, etc) the morning of surgery. You may take them when you arrive home after surgery.

*It is a good idea to wear loose fitting clothing and avoid "pullover" clothing. (You may want to bring a jacket to wear in the waiting room as our office is often kept very cool). Also, if the operative site is on the face, please do not wear make-up on or around the area.

We will obtain your written consent for the procedure, photographs will be taken, and your blood pressure will be recorded. If you have any additional questions, please feel free to ask them at that time.

The area surrounding the skin cancer will be cleansed with an anti-bacterial soap. The doctor or his assistants will then anesthetize (numb) the area of skin containing the cancer by a small local injection. This injection will probably be similar to the one you received for your biopsy. We will be as gentle as we can when administering this. It usually takes 15 minutes to anesthetize the involved area and remove the tissue. After the tissue has been removed, it will be processed in our office laboratory.

RECONSTRUCTION

After the skin cancer has been completely removed, a decision is made on the best method for treating the wound created by the surgery. These methods include letting the wound heal by itself, closing the wound in a side to side fashion with stitches, or closing the wound with a skin graft or a flap. In most cases, the best method is determined on an individual basis after the final defect is known. Most of the wound closures are performed in our office. However, other surgical specialists may be utilized for their unique skills if a tumor turns out to be much larger than initially anticipated or upon your request. We individualize your treatment to achieve the best results.

When the reconstruction is completed by other surgical specialists, your reconstruction may take place on the same day or on a subsequent day. There is no harm in delaying the reconstruction for several days. If the reconstruction is to be extensive, that portion of the operation may require hospitalization. This is the exception rather than the rule as most wounds are repaired immediately in our office while the site is still anesthetized.

AFTER MOHS MICROGRAPHIC SURGERY

Your surgical wound will likely require care during the weeks following surgery. Detailed written instructions will be provided. You should plan on wearing a bandage and avoiding strenuous physical activity for at least a week. We will discuss your activity restrictions at the time of your surgery. Most of our patients report minimal pain which responds readily to Tylenol. You may experience a sensation of tightness across the area of surgery. Skin cancers frequently involve nerves and months may pass before your skin sensation returns to normal. In rare instances, the numbness may be permanent. You may also experience itching after your wound has healed. Complete healing of the surgical scar takes place in 12-18 months. Especially during the first few months, the site may feel "thick," swollen, or lumpy, and there may be some redness. Gentle massage of the area (starting about 1 month after the surgery) may speed the healing process.

You will be asked to return in one to three weeks following the procedure. An indefinite follow-up period of observation is then necessary after the wound has healed. Studies have shown that once you develop a skin cancer, there is a strong possibility of developing other skin cancers in the future. Should you notice any suspicious areas, it is best to check with your dermatologist for a complete evaluation. You will be reminded to return to your dermatologist on a frequent basis for continued surveillance of your skin.



A large pressure dressing will remain in place for the first 24 hours after surgery.

RISKS OF MOHS MICROGRAPHIC SURGERY

Because each patient is unique, it is impossible to discuss all the possible complications and risks in this format. The usual risks are discussed below. Dr. Friedman or Dr. Perry will discuss any additional problems associated with your particular case. Please understand that these occurrences are the exception and not the rule:

- The defect created by the removal of the skin cancer may be larger than anticipated. There is no way to predict prior to surgery the exact size of the final defect.
- There will be a scar at the site of the removal. We will make every effort to obtain optimal cosmetic results, but our primary goal is to remove the entire tumor. Again, Mohs surgery will leave you with the smallest wound thus creating the best opportunity for optimal cosmetic results.
- There may be poor wound healing. At times, despite our best efforts, for various reasons (such as bleeding, poor physical condition, smoking, diabetes, or other diseases), healing is slow or the wound may reopen. Flaps and grafts utilized to repair the defect may at times fail. Under these circumstances, the wound will usually be left to heal on its own.
- There may be a loss of motor (muscle) or sensory (feeling) nerve

function. Rarely, the tumor invades nerve fibers. When this is the case, the nerves must be removed along with the tumor. Prior to your surgery, the doctor will discuss with you any major nerves which might be near your tumor.

- The tumor may involve an important structure. Many are near or on vital structures such as the eyelids, nose or lips. If the tumor involves these structures, portions of them may have to be removed with resulting cosmetic or functional deformities. Furthermore, repairing the resulting defect may involve some of these structures.

- Rarely, wounds become infected (fewer than 1%) and require antibiotic treatment. If you are at particular risk for infection, you may be given an antibiotic prior to or after your surgery.

- There may be excessive bleeding from the wound. Such bleeding can usually be controlled during surgery. There may also be bleeding after surgery. Bleeding into a sutured graft or flap may inhibit good wound healing.

- There may be an adverse reaction to medications used. We will carefully screen you for any history of problems with medications; however, new reactions to medications may occur.

- There is a small chance that your tumor may regrow after surgery. Previously treated tumors and large, longstanding tumors have the greatest chance for recurrence.

Important Reminders

DO advise us as soon as possible if you must cancel or change your appointment

DO get a good night sleep prior to surgery

DO take your usual medications on schedule unless instructed otherwise

DO eat breakfast

DO dress comfortably

AVOID “pullover” clothing
DO ask any questions you might have

DO let our staff know if you take antibiotics before dental work, aspirin, coumadin, or other blood thinners, blood pressure medications, and/or diuretics

DO let our staff know if you have a pacemaker or defibrillator

DO NOT consume alcohol 48 hours prior to or after surgery

DO NOT engage in strenuous activity 24 hours prior to surgery. The doctor will discuss when you may resume strenuous physical activities

FINALLY

Please read the handouts you have been given. We want you to be as comfortable as possible

Jared S. Friedman, MD

Adam G. Perry, MD