

MOHS MICROGRAPHIC SURGERY

Mohs Micrographic Surgery is a specialized procedure for the removal of skin cancers. The procedure is named after the originator of the technique, Dr. Frederick Mohs. The following information is intended to help you understand what Mohs Micrographic Surgery is and why it is recommended for the treatment of your skin cancer.

ABOUT SKIN CANCER

Skin cancer is by far the most common malignant cancer 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 seen directly. The tumor often extends far beyond what is visible on the surface of the skin. If not completely removed, both types of skin cancer can 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. With Basal Cell Carcinoma, metastasis is extremely rare and usually occurs only in the setting of long-standing large tumors. Squamous Cell Carcinoma is slightly more dangerous, and patients must be observed for spread of the tumor. Still, such spread is infrequent. Melanoma is very different and a more dangerous kind of skin cancer. Although the treatment of melanoma may include Mohs Micrographic Surgery, many other factors must be considered. The treatment of melanoma will not be considered in detail in this brochure.

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 certain chemicals may also be involved in the development of skin cancers.

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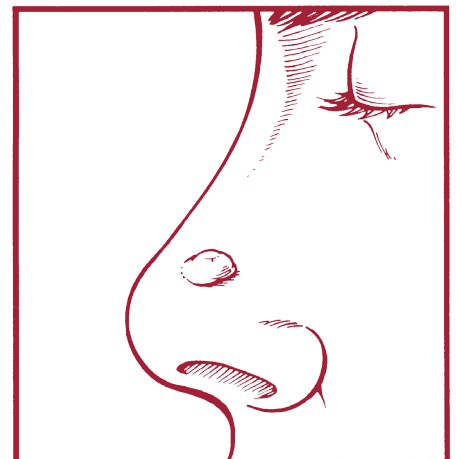
Mohs Micrographic Surgery allows the selective removal of areas involved with skin cancer while preserving as much of the surrounding normal tissue as possible.

Because of the complete systematic microscopic search for the “roots” of the skin cancer, Mohs Micrographic Surgery offers a 97-99% chance for the complete removal of a skin cancer which has not had prior treatment, without an excessive loss of normal tissue.

The chance for complete removal of tumors which have returned after other therapies is still excellent, but slightly lower. As a result, Mohs Micrographic Surgery is very useful for large skin cancers, those with indistinct borders or near vital functional or cosmetic structures, and tumors for which other forms

of therapy have failed. However, no surgeon or technique can guarantee a 100% chance of cure.

After the visible portion of the tumor is removed by excision or curettage (debulking), there are two basic steps to each Mohs Micrographic Surgery stage. First, a thin layer of tissue is surgically removed from the base of the defect created by debulking. Next, this tissue is processed and examined under the microscope. On the microscopic slides, the physician examines the entire bottom surface and the outside edges of the removed tissue. 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 seen on the microscopic examination.



The visible tumor may be only the tip of the iceberg.

THE PREOPERATIVE EVALUATION

The preoperative evaluation lets the doctor examine your skin cancer, obtain your medical history and determine whether the technique of Mohs Micrographic Surgery is the most appropriate treatment for you. Please bring a list of your medications with you. It also gives you the opportunity to meet the doctor and the staff and to learn about the procedure. The skin cancer and surrounding tissue will be photographed before the treatment, as well as during and immediately after the surgery and again after healing. These photographs become part of your medical record and may be used for teaching purposes.

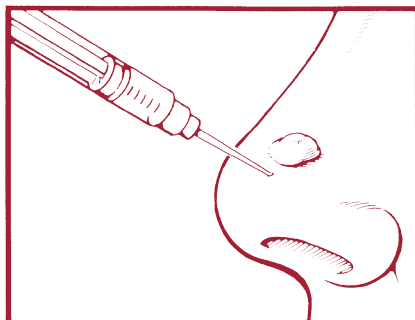
Mohs Microscopic Surgery utilizes a team approach. Your team will always consist of your Mohs surgeon, nurses and technicians. OU Dermatology is a leader in the education of physicians in Dermatology and Dermatologic Surgery. These physicians may also be involved in your care under the direct supervision of your surgeon.

Mohs Micrographic Surgery is performed in our dedicated operating rooms at The OU Physicians Dermatology Clinic.

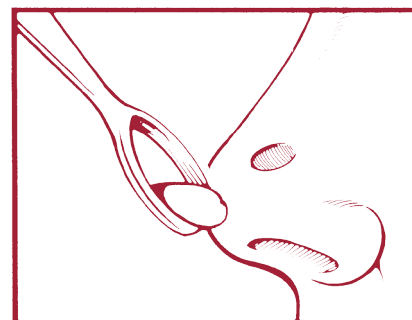
Please write down any questions you may have about Mohs Surgery or your care in the space below:

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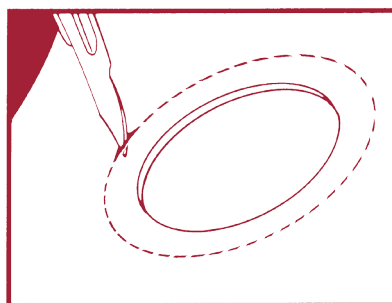
How It Works



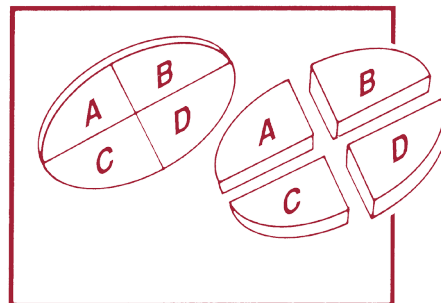
1. An injection numbs the area.



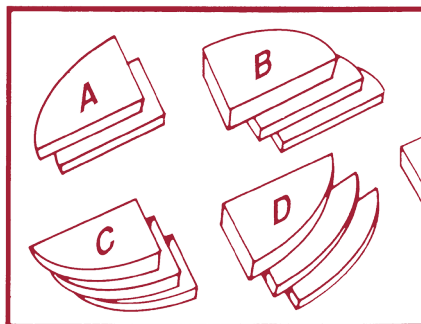
2. The visible portion of the tumor is removed (debulked).



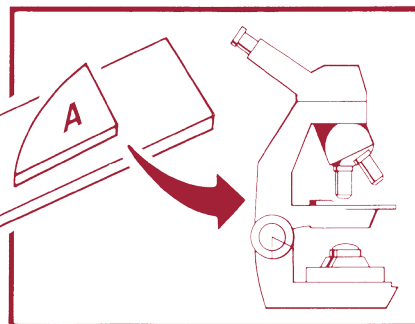
3. A thin layer of tissue is excised from the surrounding skin and the base.



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



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.



6. The area(s) of remaining tumor is located on the wound, marked and removed. The entire process is repeated until no tumor is found.

BEFORE MOHS MICROGRAPHIC SURGERY

Be well rested and eat a good breakfast. Take your usual medications, unless directed otherwise.

Unless it is part of a physician directed program, please do NOT take any aspirin or aspirin-containing products, such as Anacin or Bufferin, for TWO WEEKS prior to the surgery. In addition, do not take Ibuprofen (Motrin, Advil, etc.). These medications “thin” your blood and may cause more bleeding. You may substitute acetaminophen (Tylenol) if required. Do not drink any alcoholic beverages or engage in strenuous exercise for 24 hours before surgery.

Bathe as usual and shampoo your hair the night before surgery, as your wound and initial dressing have to remain dry for 24 hours after surgery. You should arrange to have someone drive you home after the surgery.

The length of the surgery varies depending on the size and location of the skin cancer and the type of reconstruction to be done. Although the average length of time is approximately three to four hours, you should plan on spending most of the day. We ask that you limit the number of people accompanying you to one or two persons because of the limited space in our waiting room.

THE SURGERY

Before surgery, you will change into hospital clothing if necessary. It is a good idea to wear loose-fitting clothing and to avoid any “pullover” clothing. Before the procedure begins, the doctor will again discuss the procedure with you and obtain your written consent

for the procedure. If you have any additional questions, please feel free to ask them at this time.

Once you are in the operating room, we will cleanse the area surrounding your skin cancer with a sterile antibacterial soap, and we will place several sterile drapes over you. In addition, a sticky pad or a metal plate may be placed on your arm or leg to provide grounding for the electrosurgical unit (this machine is used to stop bleeding). The doctor will then anesthetize (numb) the area of skin containing the cancer with a small local injection (needle). This injection will probably be similar to the one you received when your biopsy was taken. After the tissue has been removed, it will be processed in our laboratory next to the operating room. It usually takes 30-45 minutes to anesthetize the involved area and remove the tissue.

Depending upon the amount of tissue removed, processing usually takes an additional 30-45 minutes. You will be asked to remain in the operating room while the tissue is processed and examined by the doctor. If the microscopic examination of the removed tissue reveals the presence of additional microscopic cancer, we will go back and remove more tissue. Most skin cancers are removed in two or three surgical stages.

RECONSTRUCTION

After the skin cancer has been completely removed, a decision will be 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, and closing the wound with a skin graft or a flap. During the preoperative evaluation, the methods which

might be appropriate to your case will be discussed with you; however, in most cases, the best method is determined on an individual basis after the removal of the cancer is complete. We may complete your reconstruction, or other surgical specialists may be called on to use their unique skills. Occasionally, a tumor may turn out to be larger than was initially anticipated. When that happens, other surgical specialists may become involved after the Mohs procedure has begun.

If the reconstruction is completed by other surgeons, it may take place on the same day or a few days later. If the reconstruction will be extensive, that portion of the operation may require you to be admitted to the hospital.

AFTER MOHS MICROGRAPHIC SURGERY

Your surgical wound will require wound care during the weeks following surgery. Detailed written instructions will be provided after your surgery is completed. An emergency contact number will also be provided to you should you have any problems, concerns, or urgent questions regarding your surgery. You should plan on wearing a bandage and avoiding strenuous physical activities for one-two weeks. Most patients report minimal pain which responds to Tylenol.

If sutures have been placed, they will be removed one to two weeks after surgery. The surgical site may require observation during the first few months after surgery. These visits may take place at our facilities or may be made with the physician who referred you to us.

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 some cases, numbness may be permanent. You may also experience itching after your wound has healed. Complete healing of the surgical scar can take up to 12-18 months.

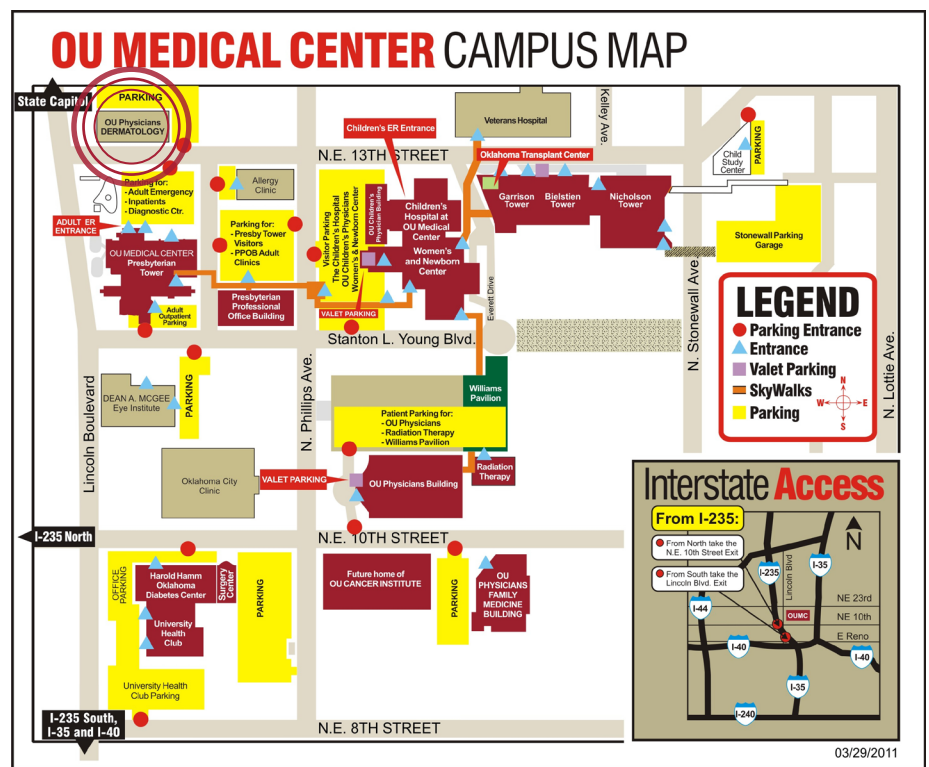
Especially during the first few months, the site may feel “thick,” swollen, or lumpy, and there may be some redness. Gentle massage of the area starting about one month after surgery and keeping lotion on the area will speed the healing process.

Studies have shown that once you develop a skin cancer, there is a strong possibility that you will develop other skin cancers in the years ahead. If you notice any suspicious areas, it is best to check with your physician for a complete evaluation.

Sunshine is not harmful to you as long as you use adequate protection. Fifteen to thirty minutes before sun exposure, you should liberally apply a sun screen with a sun protection factor (SPF) of 30 or higher to all exposed areas. Since many sunscreens wash off with water or perspiration, reapply it after swimming or exercising. Also wear a broad-brimmed hat and use clothing to further protect yourself from the sun. Remember, sun exposure is most intense between 10 AM and 3 PM. You may lead a normal lifestyle if you take precautions and are sensible.

FINALLY...

Mohs Surgery is an outpatient procedure. You will be awake for the entire time. Please ask your physician or nurse any questions you have about your surgery. We want you to be as comfortable, relaxed, and informed as possible.



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ADDITIONAL RESOURCES

Provided below are online resources that may be of benefit and provide additional education materials to review if you desire further information regarding skin cancer and skin cancer treatment with Mohs Micrographic Surgery. Also included are some resources that address issues related to sunscreens, sun protection, and possible skin cancer risk reduction.

Skin Cancer

<http://www.skincancer.org/>

<http://www.cancer.org/cancer/skincancer/index>

<http://www.asds.net/SkinCancerInformation.aspx>

<http://www.skincancermohssurgery.org/skin-cancer/basics.php>

<http://www.macmillan.org.uk/Cancerinformation/Cancertypes/Skin/Skincancer.aspx>

<http://www.sunsmart.org.uk/>

Basal Cell Carcinoma

<http://www.aad.org/skin-conditions/dermatology-a-to-z/basal-cell-carcinoma>

<http://www.skincancer.org/skin-cancer-information/basal-cell-carcinoma>

Squamous Cell Carcinoma

<http://www.aad.org/skin-conditions/dermatology-a-to-z/squamous-cell-carcinoma>

<http://www.skincancer.org/skin-cancer-information/squamous-cell-carcinoma>

Mohs Surgery

<http://www.skincancermohssurgery.org/>

http://www.mohscollege.org/about/video_patient_education.php

<http://www.skincancer.org/skin-cancer-information/squamous-cell-carcinoma>

Sun Protection

<http://www.skincancer.org/healthy-lifestyle>

<http://www.aad.org/skin-conditions/skin-health-tips>

<http://www.skincancer.org/prevention/sun-protection/sunscreen>

RISKS OF MOHS MICROGRAPHIC SURGERY

Because each patient is unique, it is impossible to discuss all of the possible complications and risks in this brochure. Listed here are some of the general risks associated with Mohs Micrographic Surgery. The doctor will discuss these matters with you and any other potential problems associated with your particular case.

- The defect created by the removal of the skin cancer may be larger than anticipated. The ability to “track” the extent of the tumor is actually an advantage of the Mohs method. However, the tumor may be much larger than estimated from the surface appearance. 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 removal. We will make every effort to obtain the best cosmetic results, but our primary goal is to remove the entire tumor. The cosmetic outcome cannot be guaranteed.
- There may be poor wound healing. At times, in spite of our best efforts, for various reasons (such as bleeding, poor overall physical condition, diabetes, or other disease states), healing is slow or the wound may reopen. Flaps and grafts used to repair the defect may sometimes 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. Sometimes the tumor invades nerve fibers. When this happens, the nerves must be removed along with the tumor. At other times, the tumor, or the tissue moved in the reconstruction of the defect, is adjacent to nerve fibers. At these times, nerves may also be severed or injured. If a sensory nerve is injured or removed, numbness results. Sensation will usually, but not always, return. It may take up to 24 months for sensation to return. If a motor nerve is involved, you may be unable to move the muscle that the nerve served. An example of this would be the inability to wrinkle your forehead. In most, but not all circumstances, this nerve function will return over a prolonged period of time. If a major motor nerve is involved, microsurgical repair may be required.
- The tumor may involve an important structure. Because tumors often occur on the head and neck, many are near or on vital structures such as the eyes, nose or lips. If the tumor involves these structures, portions of them may have to be removed with resulting cosmetic or functional deformities. Furthermore, repair of the resulting defect may involve some of these structures.
- The wound may become infected. A small number of surgical wounds (less than 5%) become infected and require antibiotic treatment. If you have a particular risk for infection, you may be given an antibiotic prior to surgery.
- There may be excessive bleeding from the wound. Such bleeding can usually be controlled during surgery. There may also be bleeding after surgery. There is very rarely a significant amount of blood loss, but bleeding into a sutured wound, graft, or flap may inhibit good wound healing.
- There may be an adverse reaction to medications used. We will screen you carefully for any history of past problems with medications; however, new reactions to medications may occur.
- There is a small chance your tumor may regrow after surgery. Previously treated tumors and large, longstanding tumors have the greatest chance for recurrence.

IMPORTANT REMINDERS ABOUT MOHS MICROGRAPHIC SURGERY

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

DO get a good night's sleep prior to surgery.

DO take all of your usual medications on schedule unless instructed otherwise by the doctor.

DO take any new medications the doctor prescribes for you.

DO eat breakfast unless you have been told otherwise.

DO bring someone with you to drive you home.

DO NOT take aspirin or any aspirin containing products for the two weeks prior to surgery unless you have been placed on aspirin by another physician. Please read the label on all over-the-counter medications to determine if they contain aspirin.

DO NOT consume alcohol 24 hours before or 48 hours after surgery.

DO NOT engage in strenuous physical activity 24 hours before surgery. Your doctor will tell you when you may resume strenuous physical activities.

ABOUT YOUR MOHS SURGEON AT THE OKLAHOMA UNIVERSITY HEALTH SCIENCES CENTER

The highly-trained surgeons that perform Mohs Micrographic Surgery are specialists in dermatology, pathology, and reconstruction. Dr. Stasko and Dr. Blalock have each completed a comprehensive fellowship in Mohs Micrographic Surgery, spending an extra year honing their skills in a program approved by the American College of Mohs Surgery. Both Dr. Stasko and Dr. Blalock are members of that organization (www.mohscollege.org). In addition, each is board certified in Dermatology by the American Board of Dermatology. With their extensive knowledge of the skin and unique pathological skills, they are able to remove only diseased tissue, preserving healthy tissue and minimizing the cosmetic impact of the surgery.

Travis W. Blalock, MD

Assistant Professor
Director of Dermatologic Surgery &
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Thomas Stasko, MD

Professor
Chair of the Department of
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