



PATIENT INFORMATION

Mohs Micrographic Surgery

In the Treatment of Skin Cancer

Nathan Cleaver D.O., FAOCD, FAAD



CLEAVER
DERMATOLOGY

770-800-3455

CLEAVER.MEDICALGROUP.COM

Where are we **Located?**

Cumming, GA

105 Professional Park Dr.
Cumming, GA 30040
(Off of Samaritan Dr. and
Canton Rd/Hwy 20, less than
one mile NE of downtown
Cumming)

Dahlonega, GA

59 Tipton Dr.
Dahlonega, GA 30533
(In Dahlonega Family Practice
clinic building near Chestatee
Regional Hospital)

Dalton, GA

1104 Professional Blvd.
Dalton, GA 30720
(In AOSM orthopedics clinic,
adjacent to Dalton
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 and is now practiced throughout the world. 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 reported cure rate.

Special Qualifications of the Mohs Surgeon

Physicians performing Mohs surgery should have specialized skills in dermatology, dermatologic surgery, dermatopathology, and Mohs surgery. Dr. Nathan Cleaver has completed year long fellowships in both dermatopathology and Mohs micrographic surgery. Dr. Cleaver has completed over 2,000 cases of non-melanoma skin cancers of the head and neck with both simple and complex closures, including advanced flaps and skin grafts.

Dr. Cleaver completed his education at the following:

- Mohs Micrographic Surgery Fellowship: Northeast Regional Medical Center
- Dermatopathology Fellowship: Ackerman Academy of Dermatopathology
- Dermatology Residency: St. Joseph Mercy Hospital (affiliated with Michigan State University) where he served as chief resident
- Internship: St. John Macomb-Oakland Hospital
- Medical School: Kirksville College of Osteopathic Medicine
- Undergraduate: Truman State University

Advantages of the Mohs Surgical Procedure

Mohs surgery is unique and effective because of the way the removed tissue is microscopically examined, evaluating 100% of the surgical margin. The pathologic interpretation of the tissue margins is done on-site by Dr. Cleaver, who is specially trained in the reading of these slides and is able to correlate any microscopic findings with the surgical site on the patient.

Advantages of Mohs surgery include:

- 1) Ensuring complete cancer removal during surgery, virtually eliminating the chance of the cancer growing back.
- 2) Minimizing the amount of healthy tissue lost.
- 3) Maximizing the functional and cosmetic outcome after surgery.
- 4) Repairing the site of the cancer the same day the cancer is removed, by the same surgeon, in most cases.
- 5) Curing skin cancer when other methods have failed.
- 6) Mohs differs from other techniques in that microscopic examination of all excised tissues occurs during rather than after the surgery.
- 7) In contrast to a standard surgical excision in which only a few slices of tissue are examined, Mohs involves examination of the entire surgical margin of the tissue.

Special Indications for Mohs Surgery

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

The Mohs Surgical Procedure

Typically, Mohs surgery is performed as an outpatient procedure in the physician's office. Although the patient is 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:



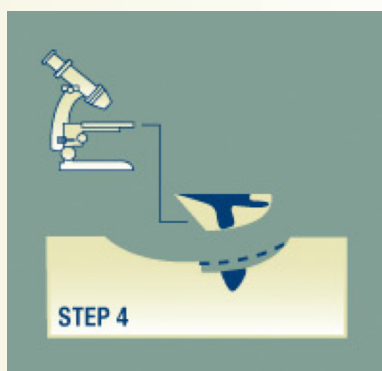
The roots of a skin cancer often extend beyond the visible portion of the tumor. If these roots are not removed, the cancer will recur. Dr. Cleaver will first examine the visible lesion and circle the area with a surgical marker. The area will then be numbed with local anesthesia, and the surgery will begin.



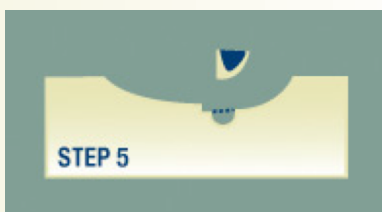
Dr. Cleaver will remove the visible portion of the tumor with a small margin of normal tissue.



Dr. Cleaver will divide and map the tissue using reference marks he makes in the skin, and color-code the tissue. He will then draw a corresponding map of your skin. His technician will then process your tissue and put it onto slides, so that Dr. Cleaver can check it under the microscope.



In his laboratory, Dr. Cleaver uses a microscope to examine the undersurface and edges of each section of tissue in search of evidence of remaining cancer.



If Dr. Cleaver finds cancer cells under the microscope, he will mark their location on the map and return to remove another deeper layer of skin, but only from precisely where the cancer cells originated. This method ensures that the Mohs surgery results in the smallest scar possible.

The removal process stops when there is no longer any evidence of cancer in the surgical site. Because Mohs surgery removes only tissue containing cancer, it ensures that the maximum amount of healthy tissue is kept intact.

At this point, Dr. Cleaver will discuss reconstructive options with you, then repair your surgical wound. Before you leave for the day, one of his assistants will carefully go over wound care instructions, and answer any questions you may have.

Insurance Coverage for Mohs Surgery

Most insurance policies cover the costs of Mohs surgery and the reconstruction of the resultant surgical defect. Please contact the billing department of your Mohs surgeon's office at 770-800-3455 if you have questions about insurance coverage or to see if your insurer requires you to have a referral from your primary care physician. You may need to contact your insurance company directly about benefits or coverage.

Patient Preparation for Surgery

You should provide Dr. Cleaver's office with a complete list of all medications (prescription, over-the-counter, vitamins and supplements). This is especially true regarding blood thinners, including aspirin, aspirin substitutes, herbal medicines and supplements. Your doctor may have other preoperative instructions. Pay special attention to these.

- 1) Eat, drink, and take all medications as you normally would.
- 2) Bring a book, iPad, or other activity to keep you busy while waiting in between stages.
- 3) While it is not absolutely necessary, many patients prefer to bring a friend or family member with them the day of surgery.
- 4) If you are very anxious about your Mohs procedure, please let Dr. Cleaver or one of his staff members know ahead of time, and he will be happy to prescribe medication you can take prior to your procedure to help you relax.
- 5) Wear comfortable clothing. Bring a sweater if you tend to get chilled, and avoid white clothing if possible.
- 6) If you are a smoker, limit smoking as much as possible for 1 week before and several weeks after surgery to speed the healing process

Duration of Procedure

Most Mohs cases can be completed in three or fewer stages. 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. It is advisable to reserve the entire day for this surgical procedure.

Minor Post-Surgical Discomfort Expected

Most patients do not complain of significant pain. If you have pain after surgery: please take any prescribed pain medication as directed. We recommend extra-strength Tylenol for pain after surgery. Call if you have severe pain not controlled with Tylenol. Avoid ibuprofen, aspirin, naproxen and other NSAID pain medications for one week following surgery (UNLESS PRESCRIBED FOR ANOTHER MEDICAL CONDITION)

Options for Post-Surgical Reconstruction

After the skin cancer has been removed, Dr. Cleaver will consider various repair options. These may include:

- 1 Allowing the wound to heal without any additional surgical repair (healing by secondary intention).
- 2 Wound repair performed by Dr. Cleaver.
- 3 Repair by the original referring physician.
- 4 Repair by another surgeon who might have a particular expertise regarding an anatomic area, repair type, special equipment, or skill regarding repair of inordinately large defects.

If your wound requires daily care at home, you will be given detailed instructions following your surgery. For small post-surgical 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 must be used. 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. 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.

Wound Healing, Scarring, and Scar Revision

As with all forms of surgery, a scar will remain after the skin cancer is removed and the surgical area has completely healed. Mohs micrographic surgery, however, will leave one of the smallest possible surgical defects and resultant scars. Often, wounds allowed to heal on their own result in scars that are barely noticeable. Even following extensive surgery, results are frequently quite acceptable. In addition, scars do have the ability, through the body's own natural healing properties, to remodel and improve in appearance for a six to twelve month period. There are also many other techniques available to the patient for enhancement of the surgical area following skin cancer surgery. Skin flaps and grafts also may require a subsequent touch up procedure, to further improve their appearance. Silicone gel may be used starting one week after surgery. Strataderm is the silicone product that Dr. Cleaver recommends. Please contact us at 7700-800-3455 if you are interested in purchasing this.

Potential Complications Associated With Mohs Surgery

Patients should understand that there is not an absolute guarantee that any given procedure will be totally free of complications or adverse reactions. Mohs surgery is no exception. During surgery, tiny nerve endings are cut, which may produce a temporary or permanent numbness in and around 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. The surgical area may remain tender for several weeks or months after surgery, especially if large amounts of tissue were removed. Rarely, some patients experience intermittent itching or shooting pain in the surgical area. In addition, the skin grafts and flaps used to cover surgical areas may not fully survive, requiring additional repair.

Wound Care Instructions

Leave the pressure dressing dry and in place for 48 hours after surgery. You may reinforce the bandage with tape if needed. After two days, remove the pressure bandage, clean the site with mild soap and water, pat dry, liberally apply Vaseline or Aquaphor to the wound, and then cover with a new bandage. Repeat this process daily until the site is fully healed. If present, dried blood may be removed by soaking and cleansing with hydrogen peroxide.

While it is normal to experience some swelling and bruising around the surgical site, there are steps you can take to minimize this:

- 1) If the surgical site involved your face or scalp: Sleep in a recliner or with your head elevated on at least two pillows for 2-3 days after surgery. Avoid bending over, heavy lifting and strenuous activity for at least 2-3 days after surgery
- 2) Periodically apply an ice pack to the skin surrounding the surgical site.
- 3) Avoid sleeping on the side of your body that was operated upon.

If your wound begins to bleed: If the bandage is saturated with blood, remove it so that direct pressure can be applied to the wound. Using a clean, dry washcloth or gauze, apply continuous pressure directly to the wound for 30 minutes (time it). Repeat with an ice pack if needed. If rapid bleeding continues after these measures, contact our office at (770) 800-3455. If you have an after-hours emergency, Dr. Cleaver can be reached on his cell at (660) 349-7048. If you are unable to reach someone, report to the emergency room.

Wounds without sutures (second intention healing): The wound will heal on its own, from the outside edges to the center, without stitches. It is important to keep Vaseline or Aquaphor ointment on the wound so that a scab does not form. The body will produce its own tissue to fill in the surgical wound and will become level with the surrounding tissue area. The edges of the wound will become slightly reddened and you may see some yellowish matter inside of the wound. This is normal appearance of a healing wound. These are NOT signs of infection. As you clean the wound, there may be some pinpoint areas of bleeding from the base. If a scab forms, it may be removed by soaking and gently cleansing with hydrogen peroxide.

Before and After Photos





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