



Skin Cancer may be more than meets the eye

There are many ways of treating skin cancer. Many skin cancers of the trunk, arms and legs may be treated adequately with common methods such as scraping and burning or simple excision. Mohs surgery is highly effective and precise, and is therefore the appropriate treatment for most skin cancers of the head, and many skin cancers of the neck, hands and feet. It is also the best treatment for selected skin cancers of the trunk, arms and legs. For certain skin cancers, common treatment methods are often not successful because they rely on the human eye to determine the size of the cancer. These methods can remove too little cancer, which could allow the cancer to recur and require additional surgery (see below); alternatively, such methods could remove too much healthy tissue, which could cause unnecessarily extensive scarring. Only Mohs surgery allows the surgeon and patient to know with certainty that the skin cancer has been removed completely in an office setting, prior to closure of the surgical wound

You have been referred to Dr. West for Mohs surgery because your referring physician believes Mohs surgery to be the best option for your skin cancer. When considering skin cancer treatments it is important to recognize that the tumor that is visible to you—and even to your physician—may be just the “tip of the iceberg”. Skin cancer is frequently not visible to the naked eye. “Invisible “cancer cells may form “roots” that can extend beyond the boundaries of the visible cancer, extending invisibly both outward along the surface of the skin and deeply into the fat and muscle beneath. If these cancer cells are not removed completely on the first attempt (using a superficial treatment method such as scraping and burning, for example), the cancer will persist and may undergo significant growth. These persistent skin cancers usually continue to grow on and/or beneath the skin, are usually difficult to recognize as skin cancers, and often reach a large size before they are diagnosed as persistent skin cancers. Such persistent skin cancers are much more difficult to treat. Over time dermatologists have learned that it is much better remove the skin cancer completely the first time. This is best accomplished with Mohs Surgery.

What is Mohs Micrographic Surgery?

Mohs Micrographic surgery (named after Dr. Frederic Mohs) refers to the surgical removal of skin cancer in layers or “stages”, using microscopic examination in order to ensure, with the greatest certainty possible, that the cancer has been removed completely. This method also enables the surgeon to remove the smallest possible amount of healthy tissue. Using Mohs surgery, the Mohs surgeon can directly compare what he sees in the patient’s skin to what he sees under the microscope.

Of all treatments for skin cancer, Mohs Micrographic surgery:

- * Offers the highest cure rate (up to 99%, based on data for treating basal cell carcinomas and squamous cell carcinomas)
- * Has the lowest chance of regrowth
- * Minimizes the amount of healthy skin and other tissues removed adjacent to the skin cancer
- * Is the most exact and precise means of skin cancer removal.

On Which Skin Cancers Should Mohs Surgery be Used?

Mohs Micrographic surgery is not necessary for most small cancers of the trunk, arms and legs. Simple excision or scraping will suffice for many skin cancers. At least one of the following criteria is usually present in skin cancers that are selected to undergo Mohs surgical removal: 1) location on the head, feet, hands or lower leg, wrist or genitalia; 2) uncertainty of the size/boundaries of the skin cancer; 3) relatively large size of the skin cancer in relation to the anatomic site; 4) aggressive microscopic appearance of the skin cancer, 5) young patient age; 6) failure of other methods to remove the skin cancer completely.

How does Mohs Surgery work?

Your procedure begins in the morning. The skin cancer and surrounding tissue are anesthetized using local anesthesia (similar to the anesthesia for the original biopsy of the skin cancer). After cleansing the surgery site, the skin cancer is then removed with a scalpel, taking a very narrow margin of apparently normal skin around and beneath it. This first piece of removed tissue is called a “stage”, or a “layer” or a “section”, and is taken to the laboratory for processing (see next paragraph for details). Any bleeding of the resulting surgical wound is stopped with low-energy electrocautery, and a bandage is placed over the wound. It takes 60-90 minutes to process the first stage, during which time you will be free to leave the office. As Mohs patients rarely need sedation and never need general anesthesia, you will be allowed to drive during this 60-90 minute period, unless you have received a sedative (such as Xanax, hydrocodone or alprazolam) prior to or during Mohs surgery. Many patients choose to run errands, shop or get a snack during this free time. It is important to have a functional cell phone with you on the day of Mohs surgery so that we can contact you when it's time to return to the office. Alternatively, some patients choose to sit in the waiting room during this free time.

The first stage (as described in the preceding paragraph) is divided into small pieces and then prepared in the laboratory for examination under the microscope. Microscopic examination of this tissue tells us two important results: 1) if all the skin cancer was removed in this first stage; 2) the location, in the surgical wound, of any remaining skin cancer (for example, right side vs. left side vs. base of the surgical wound). Thus, when the specimen is viewed under the microscope, we can know with great precision the location of any remaining skin cancer at the edges or base of the surgical wound.

If, in studying the first stage under the microscope, Dr. West determines that not all of the skin cancer has been removed (that is, you are still “positive” for skin cancer), then we will call you back to the operating room and remove additional tissue in the areas that were found to be “positive” on the first stage. This tissue is then processed exactly as the first stage. If the second stage is positive, then a third stage is taken. This process is continued until you are “negative”, which means your last stage shows no evidence of residual skin cancer.

It should be noted that the second and subsequent stages generally take less than the 60-90 minutes required for the first stage.

How Long Will It Take?

Larger, deeper and less visible skin cancers tend to require more stages, and as a result require more time to remove completely. A patient who is clear on the first stage may leave as early as noon. Most patients require two stages or more, however, and the average patient who requires two stages is finished by 2:30pm. Some patients who require two or three stage will not be finished until 3-4 pm. Patients who require four or more stages may not be finished until 5-6 pm, although it is very unusual for a patient to require more than 4 stages.

What happens once the skin cancer is removed?

Once the skin cancer is removed, the surgical defect (that is, the “hole” in the skin and underlying tissue created by removal of the skin cancer) is addressed. In almost all cases the surgical wound is removed and closed on the same day. In a small minority of unusual cases, arrangements may be made for any of the following: 1) special wound care with frequent follow up as the wound is allowed to heal without sutured repair; 2) delayed reconstruction by Dr. West; 3) referral to another specialist for reconstruction. Depending on your health status and the complexity of the wound and wound closure, the postoperative management of your surgical wound may require out-patient surgery or even hospitalization. It should be noted, however, that we will almost always know well in advance if any special precautions or management will be required, so it should not come as a surprise to you.

Will the Surgery Leave a Scar?

Yes. Scarring occurs after every surgery, but because Mohs surgery removes only cancerous tissue and a minimum of healthy tissue, Mohs surgical scars tend to be smaller and less visible than scars created by other surgical methods. Most Mohs surgical scars are straight or curved lines, and are approximately 3-4 times as long as the width the final Mohs surgical defect. For example, if your Mohs surgical defect were to measure 1 cm (0.4 inch) in diameter, then you would likely end up with a line scar that measures approximately 3-4 cm (1.2 - 1.6 inch) in length. (1cm is a very common Mohs surgical defect size). In some cases Mohs defects are of such a size, shape or in such a location that they require different closure methods that result in scars of more unusual shapes, including scars shaped like “T”, “L”, “H”, “Z”, “S” or scars shaped like questions marks (“?”) or other unusual shapes. Some patients are surprised by the length or size of the sutured wound after surgery, since the skin cancer frequently appears to be relatively small. Nevertheless, nearly all scars eventually become very thin and pale lines by 2-6 months after surgery, and nearly all patients are quite pleased with their ultimate appearance after healing. Dr. West has 27 years of experience in Mohs surgery, performing approximately 1000 cases yearly for the last 17 years. When it comes to the appearance of Mohs surgical scars, experience makes a big difference!

Short-term and Long Term Wound Care and Skin Surveillance

Stitches (sutures) or staples are usually removed 6-14 days after surgery. Dr. West will be happy to see you during clinic hours (generally 8:30 - 4:30, M - F, excluding Monday and Friday morning) for any concerns about your Mohs surgery site. In the event of an emergency during weekends and evenings, please call for the physician on call, who will then contact Dr. West. Dr. West and his partners have hospital privileges at Norton Women’s and Children’s Hospital (formerly Suburban Hospital). If it is determined that you need to be seen on a weekend or during the night, we would normally have you report to the Norton Women’s and Children’s Emergency Department (main hospital, 4001 Dutchman’s Lane, Louisville); this should be coordinated with Dr. West or the physician on call.

After developing a skin cancer you should see your referring dermatologist regularly. A high percentage of people who develop one skin cancer will develop a second one; people who develop a second skin cancer tend to develop many skin cancers during their lifetimes. The earlier skin cancers are detected, the easier the treatment. Surveillance by a qualified dermatologist is essential!

Activity Limitations following surgery

Excessive bleeding and infection are the main complications in the first week after surgery.

You can usually avoid excessive bleeding by keeping the surgical site elevated, preferably above the level of your heart, as much as possible for the first 5-6 days after surgery. Since most Mohs surgical sites are on the head, this means keeping your head above your heart for 5-6 days after surgery. Specifically, do

not bend over such that your head is below your heart (e.g., as in picking something up off the ground). Also, sleep with your head elevated (for example, use 2 or 3 pillows rather than one or no pillow).

The risk of infection cannot be eliminated, but careful wound care according to wound care instructions will help minimize wound infection risk. Some patients receive a course of antibiotics after the procedure.

Some patients may benefit from extended periods of specialized activities/exercises, massage, or rest. Of course, exposure of the skin to direct sunlight should be avoided. You should use a broad-spectrum sunscreen when sun exposure is expected.

Things to Remember

1. There is no need to fast prior to Mohs surgery. In fact, we encourage you to eat breakfast and take any prescribed medications you usually take on the morning of your surgery. Alternatively, some patients prefer to eat breakfast at a local restaurant during the 60-90 minutes of free time after the first stage of Mohs surgery; this is a perfectly acceptable option.
2. You will have lots of free time during the day of Mohs surgery. You may leave the office if you have a functioning cell phone. You can bring your own food into the building. Of course you can relax in the waiting room if you wish, or read or get caught up on computer/paperwork. Our office does not currently offer public Wifi access, so you will need to use your personal hotspot or data plan for internet access.
3. Depending on the size and location of the defect, it will take 20-90 minutes to close the Mohs surgical defect. Most closures take about 30 minutes or less. If you wish, you may bring a cell phone (or other music player) and ear buds for playing your preferred music during your closure
4. In most cases, Mohs surgery produces a scar that measures 3-4 times the diameter of the Mohs surgical wound (frequently a 3-4 cm linear scar)
5. If you wish to discuss any aspect of Mohs surgery or your particular skin cancer with Dr. West on a day prior to the day of Mohs surgery, Dr. West will be happy to meet with you. Cancellations less than 24 hours prior to surgery are subject to a significant cancellation fee.
6. Due to limited space in our waiting room, we request that patients bring only one family member or friend with them on the day of surgery.