Important Information about Mohs Micrographic Surgery

Highly effective skin cancer treatment

**What is Mohs micrographic surgery?**

Mohs micrographic surgery is a highly effective technique for removing 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 is different from other skin cancer treatments because the removed tissue is immediately and completely examined under a microscope. This ensures that all “roots” and extensions of the cancer are removed. Due to the methodical manner in which tissue is removed and examined, Mohs surgery is recognized as the skin cancer treatment with the highest reported cure rate.

**Special qualifications of the Mohs surgeon**

Physicians performing Mohs surgery have specialized skills in dermatology, dermatologic surgery, dermatopathology and Mohs surgery. In addition, the Mohs surgeon must have the required surgical and laboratory facilities, and be supported by a well-trained Mohs nursing and histotechnological staff. Your Mohs surgeon can provide you with information regarding his or her training and professional affiliations.

**Advantages of Mohs surgery**

Mohs surgery has two major advantages over other skin cancer treatments. First, it has the highest cure rate of any skin cancer treatment. Second, Mohs surgery only removes the cancerous tissue and spares normal skin.
Some skin cancers can be deceptive — far more extensive under the skin than they appear to be from the surface. These cancers may have “roots” in the skin or along blood vessels, nerves or cartilage. 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 designed to remove these cancers by tracking and removing the cancerous roots. This is why it is impossible to predict precisely how much skin will have to be removed. The amount of skin removed could be only slightly larger than the initial skin cancer, or if the cancer has deep roots, a sizeable amount of skin may need to be removed. Only the cancerous tissue is removed. Normal tissue is spared.

Mohs surgery is not appropriate for the treatment of all skin cancers. It is typically used for skin cancers that are likely to reoccur or for cancers in areas such as the nose, ears, eyelids, lips, hands, feet and genitals, where keeping as much healthy tissue as possible is critical for cosmetic or functional purposes.

**The Mohs surgery procedure**

Mohs surgery is typically performed in the doctor’s office. Although you will be awake during the procedure, the area is numbed with a local anesthetic and discomfort is usually minimal.

The Mohs surgical procedure is illustrated in the following diagrams.

**Figure A**

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.

Stage 1

**Figure B**

The removed tissue is cut into sections, stained, and marked on a detailed diagram called a Mohs map.
Your surgeon examines the entire specimen. All microscopic “roots” of the cancer are identified and pinpointed on the Mohs map. If residual cancer is found, your surgeon will use the Mohs map to direct the removal of additional tissue (Stage 2). Additional tissue is removed only if cancer is present.

The tissue removal and examination process is repeated as many times as necessary to locate any remaining cancerous areas (Stage 3, Stage 4, etc.).

When microscopic examination shows that there is no remaining cancer, the wound is ready to be closed.

**Insurance coverage for Mohs surgery**

Mohs surgery and reconstruction of the surgical area are covered by most health plans and insurance. Check with your insurance company for information on your coverage. Our billing department may also be able to assist you.
Preparing for your surgery

If you are taking prescription medications, continue to take them unless your doctor tells you not to. Tell your Mohs surgeon if you are taking blood-thinning medications such as Coumadin, Plavix, aspirin, or aspirin substitutes (such as Advil, Motrin, Naprosyn, etc.). These medications may increase the risk of bleeding after your surgery.

If you have had a previous heart attack, coronary artery bypass graft, cardiac stents, transient ischemic attack (TIA), or a stroke and your doctor has prescribed aspirin, continue to take it. If you have not had any of these conditions, and your doctor has asked you to take aspirin for preventive measures only, stop taking the aspirin two weeks prior to your surgery. If you have been prescribed Warfarin (Coumadin), Clopidogrel (Plavix), or other “blood thinners” by your doctor, continue to take these medications as prescribed. For aches, pains or headaches, take Tylenol which does not increase your risk of bleeding during surgery.

If you take Vitamin E, ginkgo, garlic, ginseng, ginger, ephedra or other natural supplements, stop taking those two weeks before your surgery. These medications and supplements can also cause an increased chance of bleeding after surgery.

It is important to get a good night’s rest and to eat normally on the day of your surgery. Wear casual, layered clothing. If you are having surgery on your head or neck, we recommend an old shirt or a shirt with a loose neck. If you are having surgery on your face, please do not wear makeup and have your hair pulled away from the surgical site. You may also want to bring a light snack and a book or magazine. Also, we encourage you to have someone whom you may contact to drive you home after the procedure, should that become necessary.

Length of the procedure

Most Mohs surgery can be completed in three or fewer stages. However, as it is not possible to predict how extensive a cancer will be before the procedure, we recommend that you reserve the entire day for your surgery.

Options for reconstruction after surgery

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

- Allowing the wound to heal naturally without additional surgery.
- Wound repair performed by your Mohs surgeon.
- Referral to another surgeon for wound repair.

For small surgical sites, it may be possible to close the wound with stitches. On some areas of the body, there is very little extra tissue that can be stretched over the wound, so a skin flap may be used. To create a skin flap, skin next to the surgical area is partially cut free and rotated or moved to cover the wound. Stitches hold the flap in its new position, providing immediate coverage for the wound.

Continued
Other areas may need a skin graft to cover the wound. Skin is taken from the side of your neck, behind your ear, or over your collar bone, placed over the wound and sewn into place. The area where skin is removed is closed with stitches or allowed to heal on its own.

**What to expect after your surgery**

Most patients do not complain of significant pain. Normally, Tylenol will provide relief. Stronger pain medications may be prescribed if needed. You may experience some bruising and swelling around the wound, especially if surgery is performed near your eye.

You will be given detailed wound care instructions following your surgery.

**Healing, scarring and improving scar appearance**

As with all forms of surgery, there will be a scar at the surgical site after the skin cancer has been removed and the wound has healed. Because Mohs surgery removes the smallest amount of tissue possible, scars from Mohs surgery are usually small. Often, wounds allowed to heal on their own heal well on certain areas of the body. Even following extensive surgery, many people are not bothered by the amount of scarring. Scars will continue to improve in appearance for six to twelve months after surgery as the scar matures.

There are many techniques available for improving the appearance of the surgical area following Mohs surgery. A raised or rough scar may be smoothed using a laser or chemical peel. Skin flaps and grafts also may need a “touch up” procedure to further improve their appearance.

**Potential complications from Mohs Surgery**

There is no absolute guarantee that any surgical 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, nerves to muscles may be cut, resulting in temporary or permanent weakness in a portion of the face. This is a very unusual complication.

The surgical area may remain tender for several weeks or months after surgery, especially if large amounts of tissue are removed. Rarely, some patients experience occasional itching or shooting pain in the surgical area. It is also possible that the skin grafts and flaps used to cover the wound may not heal properly and may require additional surgery.