



A Patient's Guide to

Mohs Surgery

Microscopically Controlled Surgery for the Treatment of Skin Cancer

Mohs Surgery has been recommended to you

This information has been prepared to answer your questions regarding Mohs surgery including pre- and postoperative care and what to expect on the day of surgery. Please review all of this information before the date of your surgery.

During a pre-surgical visit, you will be asked to provide information regarding your medical history and the history of your skin cancer. It would be helpful if you could tell us when you first developed your cancer, and when and how it has been treated in the past. Please remember to provide a list of the medicines you take regularly and any medical records related to the skin cancer such as pathology reports and operative notes.

After discussing the procedure with you and examining your skin cancer, we will schedule a date for your surgery. Should you have further questions after reviewing this information, we will be happy to answer them for you.

What is Mohs surgery?

There are several effective methods available for treating skin cancer. The method chosen depends on the location of the cancer, its size and previous treatment, and patient preference. Mohs surgery has been recommended to you because it has been proven to be a highly successful treatment for your type of skin cancer. Other treatment methods include conventional surgical removal (excision), curettage and electrodesiccation (scraping and burning with an electric needle), radiation therapy (x-ray treatments), cryosurgery (freezing) and topical chemotherapy (topical medication).

Mohs surgery is indicated for skin cancers that arise in certain locations, are large, or have failed simpler therapies. The technique provides the highest possible cure rate while ensuring maximum preservation of healthy, cancer-free skin. Because Mohs surgery can be relatively time-consuming and requires highly trained personnel, it is reserved for cases which meet certain criteria.

Frederic E. Mohs, M.D., developed this technique, which involves microscopically controlled excision of the cancerous tissue, at the University of Wisconsin. The procedure involves rapidly preparing the excised tissue in the laboratory and examining it under a microscope to check for any remaining cancer roots. If any cancer roots are detected, a "map" of the tumor is created using the microscope, and additional tissue is then excised based on the map. In this manner, the cancer can be precisely and efficiently removed with a minimal loss of healthy surrounding tissue.

How do I prepare for surgery?

No special preparation, apart from a good night's sleep, is required for Mohs surgery. Eat a light breakfast on the day of surgery. Fasting is not necessary. Take all of your usual medications unless otherwise instructed. Bring any medications you take during the middle of the day with you. We also recommend bringing lunch or snacks as you may be in our office for several hours. You may want to bring reading material to pass the time. Wear warm comfortable clothing that is easy to remove over the surgical site.

Patients who take prescription or over-the-counter medications that thin the blood at the advice of a health care provider should always check with the prescribing provider before stopping any medication prior to surgery. Medications that thin the blood include: aspirin, ibuprofen, Advil, Motrin, naproxen, Aleve, warfarin, Coumadin, Plavix, clopidogrel, Pradaxa, Xarelto, rivaroxaban, Eliquis, apixaban, Lovenox and enoxaparin. Some patients must remain on their blood thinners before and after Mohs surgery due to various health conditions and risk factors such as history of stroke, blood clot, heart valve replacement, or heart attack. Other patients should avoid aspirin (or aspirin-containing medications such as Excedrin, Bufferin, Alka-Seltzer or Anacin) for seven days prior to surgery, and over the counter anti-inflammatory pain medications (ibuprofen, Motrin, Advil, Aleve, naproxen) for four days before the surgery. All of these medications thin the blood and can increase bleeding and bruising during and after surgery. Alcoholic beverages have a similar effect on the blood and should be avoided for two days before the surgery. Some supplements and vitamin E thin the blood so be sure to mention use of these as well. Tylenol (acetaminophen) is safe to take before and after the surgery.

What can I expect on the day of surgery?

Shortly after your arrival you will be taken to one of the treatment rooms where the doctor will use a small needle to numb the area where the skin cancer is located. The doctor will then remove the cancerous skin. Any bleeding will be stopped with an electrical device (cautery). It takes approximately 15 to 20 minutes for the layer of tissue to be removed. Your wound will then be bandaged and you will be able to sit up and move about.

While you are waiting, the tissue is taken to our laboratory, where processed and made into microscope slides. This slide preparation process takes up to one hour.

If examination of the microscope slides reveals that residual cancer is present, the procedure will be repeated. Further tissue is removed only from the areas in which tumor cells are found on microscope examination. On average, two or three surgical sessions are needed before the cancer is removed completely.

Once we determine that your skin cancer has been completely removed, we will select the best method for managing the wound created by the surgery; this will depend on the size and location of your wound. It is not possible to predict the exact size of the wound or the best repair method for all patients in advance.

In most cases, the wound will be closed with sutures (stitches). Larger wounds and wounds in certain areas may require skin grafts or flaps. In some cases, the site will be left to heal by itself (this process is known as "healing by granulation"). This type of wound may require four to eight weeks to heal. Daily bandage changes will be required during this period.

Mohs surgery and reconstruction usually can be finished in the course of a single day. Please plan to spend several hours at our office. You should not plan other appointments or activities for later in the day.

What can I expect after the surgery?

Most patients do not complain of severe pain following surgery. You may experience some discomfort. We recommend Tylenol (acetaminophen) every four to six hours for pain management. Please note that many common over-the-counter pain medications (those that contain aspirin, ibuprofen and naproxen), vitamin E, and alcoholic beverages thin the blood and may result in increased post-operative bleeding and bruising. You should not stop taking any blood-thinning medication that has been recommended by a health care provider for a specific medical condition unless you have obtained the prescriber's approval to do so prior to surgery. You should avoid smoking until the surgical site is fully healed, as smoking is associated with increased wound healing complications.

For the first several days following surgery, the operative site may be swollen or red. Bruising is also common and fades within a few weeks. It is common for wounds to drain for a few days after surgery. Numbness where the skin has been cut is often noted by patients for at least several weeks. Scars improve in appearance gradually over many months. Some surgical sites require scar revision or a second stage of reconstructive surgery to achieve an optimal appearance.

You will be given instructions on how to care for your wound following the surgery. Please do not hesitate to contact our office if you have questions about your wound. One of our physicians is on call at all times. During evening and weekend hours, you can reach the doctor by calling our office at 714.525.3500 and following the instructions in the recorded message. Most stitches are removed in the office after 1-2 weeks depending on the location of the skin cancer. A follow-up visit will be scheduled before you leave the office.

Who performs Mohs Surgery?

Many dermatologists are familiar with basic Mohs surgery techniques and employ them in their practices. When patients require more extensive surgery, they are referred to a member of the American College of Mohs Surgery.

The American College of Mohs Surgery (www.mohscollege.org) oversees training programs in the United States where qualified doctors receive comprehensive training in Mohs surgery. The period of training is at least one year, during which time the dermatologist acquires extensive experience with all aspects of the technique. After successfully completing the advanced training, which includes research, the physician is eligible for membership in the College.

In addition to completing this year of intensive training, Dr. Holmkvist has performed Mohs surgery on more than 10,000 patients with high-risk or extensive skin cancers. She is also Board Certified in Dermatology. Dr. Holmkvist received the top award for outstanding research in Mohs surgery at the 1998 Annual Meeting of the American College of Mohs Surgery. She has published several scientific articles on Mohs surgery and has lectured at national and international medical conferences on the technique.