

Seaport Dermatology & Mohs Surgery

Mohs Micrographic Surgery: A Handbook for Patients

John R. West, MD

Dear Patient:

Welcome to Seaport Dermatology. Your doctor has referred you for Mohs surgery, the most effective treatment available for skin cancer. The Mohs technique not only provides the highest cure rate of the available treatments, but also permits optimal cosmetic results by minimizing the amount of tissue removed.

This booklet will familiarize you with the Mohs procedure and tell you what to expect when you come for surgery. It will also teach you about the causes of skin cancer, how to recognize it and how to prevent it. If you have any questions that are not answered by this booklet, please feel free to call our office. My staff and I will be happy to assist you.

Sincerely,

John R. West, MD

What is Skin Cancer?

Cancer is tissue composed of abnormal cells that grow at an uncontrolled and unpredictable rate. As cancerous, or malignant, tissue grows, it invades and destroys the surrounding normal tissue. The most common types of skin cancer are:

- Basal cell carcinoma - commonly appears as a pearly white, pink or red patch or bump that may bleed or scab repeatedly, and may be more visible when the skin is stretched tight with the fingers;
- Squamous cell carcinoma- typically a firm reddish bump with a crusty surface; may be tender;
- Malignant melanoma - flat patch or bump ranging in color from light brown to black, often displaying multiple colors (including pink or red) within a single melanoma lesion; tends to gradually enlarge; may bleed or scab. The borders of a melanoma are typically irregular or scalloped rather than smooth.

These cancers generally originate in the skin, but if neglected, can invade and destroy muscle, bone and other structures. Metastasis is the migration and growth of cancer cells in new locations beyond the site of the original growth or lesion. Basal cell and squamous cell carcinoma usually do not metastasize. Malignant melanoma, on the other hand, may metastasize and can be life-threatening if not treated early. Unlike other forms of cancer that develop in internal body organs, skin cancer can be seen without the aid of sophisticated medical equipment. This allows patients and their dermatologist to identify the problem and seek treatment early while the cancer is still small and easily cured.

How Can I Prevent Skin Cancer?

Skin cancers, as well as aging, wrinkling and pigmentation changes of the skin, are usually the result of damage to the skin cells by sun exposure. You can help prevent further damage to your skin by avoiding outdoor activities during peak sunlight hours (10:00 am to 2:00 pm), and by avoiding tanning booths and sun lamps. When in the sun, wear a hat and other protective clothing, and a sunscreen that contains avobenzone (Parsol 1789), mexoryl, or zinc oxide with a Sun Protection Factor (SPF) of at least 30, on all exposed skin.

What Are The Signs of Skin Cancer?

You should consult your dermatologist immediately if you notice any of the following:

- A new growth on an adult that persists for more than 4-6 weeks
- An existing lesion that grows, changes color or becomes translucent or pearly
- A mole or birthmark that changes in size, shape, border, color or texture
- Any skin spot, growth or sore that continues to itch, hurt, erode (opens to form a sore), scab or bleed, refuses to heal for several weeks, or heals and later reopens.

What is a Biopsy?

A biopsy is the removal of tissue from the living body for microscopic examination for purposes of diagnosis. There are many benign (non-malignant) skin growths or lesions that may display some of the signs of skin cancer listed above, but that are obviously not cancer when viewed under the microscope. In many cases, a biopsy is the only way to distinguish between a cancer and an innocent mole or wart. Usually, only a small portion of a skin growth is removed upon biopsy, so additional surgery is required to remove the remainder if it proves to be cancerous.

How is Skin Cancer Treated?

Techniques for the treatment of skin cancer include curettage and electrodesiccation (scraping away cancerous tissue with a surgical instrument, then using an electrical unit to stop the bleeding), surgical excision (cutting out cancerous tissue), cryotherapy (freezing with liquid nitrogen), radiation therapy (X-ray), and Mohs micrographic surgery, a comparatively recent form of skin cancer surgery that is becoming increasingly popular.

What is Mohs Micrographic Surgery?

Mohs micrographic surgery is named in honor of Dr. Frederic Mohs, the physician who developed the basic technique in the 1930's. The terms chemosurgery, Mohs surgery, microscopically controlled surgery and histographic surgery all refer to the same technique. In the years since Dr. Mohs pioneered the procedure, many technical improvements and refinements have contributed to make Mohs surgery a safe and highly effective means of treating skin malignancies.

The main difference between Mohs surgery and other methods of removing skin cancer is microscopic control. In Mohs surgery, cancerous tissue is removed in thin, horizontal layers. Each layer is divided into sections, and each section is carefully identified and "mapped" by the surgeon so its exact location can be pinpointed on the wound.

After careful preparation in the laboratory, each tissue section is inspected under the microscope. As long as cancer cells are seen within a section, the surgeon continues to remove and examine tissue layers from that part of the wound. Because each layer is examined microscopically, the Mohs surgeon can be highly confident that all of the cancer has been eradicated and no malignant cells are left behind. In addition, because no healthy tissue is removed unnecessarily, superior cosmetic results can be achieved.

What are the Advantages of Mohs Micrographic Surgery?

- Highest cure rate- up to 99%
- Smallest possible wound
- Optimal cosmetic result
- Convenient: cancers removed in one outpatient treatment session
- Cost-effective- fewer cancer recurrences, fewer return visits, no operating room fee, no anesthesiology fee
- Safe- avoids risks of general anesthesia

Which Skin Cancers Should Be Treated With Mohs Surgery?

Mohs surgery is now universally recognized as a precise and effective method of treating skin cancers. It is especially effective in treating cancers of the face and other cosmetically sensitive areas because it can eliminate cancer cells while causing minimal damage to the surrounding normal skin.

Mohs surgery is also ideal for recurrent skin cancers- those that grow back after previous treatment and can plague a patient repeatedly. While skin cancers are often easily visible, individual cancer cells are microscopic. Root-like extensions of cancer cells may reach beyond the cancer's visible borders with nests of cells growing in unpredictable areas. Therefore, what is apparent to the naked eye on the surface of the skin may actually be only the "tip of the iceberg." Any cells left behind can cause the cancer to recur, just as roots left behind when pulling weeds may cause the weeds to regrow. With the Mohs technique, all tumor nests can be identified and removed with a high degree of accuracy, producing extremely high cure rates, as high as 99%, even for recurrent skin cancers. Other forms of treatment have success rates as low as 60% in curing these difficult cancers. Your doctor has referred you to Dr. West because he or she feels that Mohs surgery is the best treatment for your skin cancer.

Who Performs Mohs Surgery?

Although the concept of Mohs surgery was developed in the 1930s, relatively few dermatologists were trained in its use until recently. Only in recent years has the technique become widely available throughout the country.

The American College of Mohs Surgery (ACMS) currently recognizes a limited number of training programs in the United States where highly qualified applicants receive comprehensive training in Mohs micrographic surgery. The training period is usually one to two years, during which time the dermatologist acquires extensive experience with all aspects of the technique. Once the physician's training is successfully completed, he or she becomes eligible for membership in the American College of Mohs Surgery (ACMS).

Many dermatologists throughout the country have been trained in the basic micrographic surgical techniques and employ them in their practices. But when patients require more extensive surgery, they are referred to a member of the College.

About Doctor West

Dr. John R. West is a dedicated physician who finds his work tremendously rewarding as he is able to effectively eradicate skin cancer and help his patients look and feel better. After graduating magna cum laude from Brigham Young University, Dr. West attended medical school at the University of California, San Diego, then specialized in dermatology at the University of California, Davis. His Mohs fellowship training was under the direction of Richard G. Bennett, MD at the University of Southern California where he was appointed Assistant Clinical Professor. He then joined a dermatology group in

southern California where he practiced for many years. Dr. West has performed thousands of Mohs surgeries and reconstructions and is recognized as an expert in the field. He is a diplomate of the American Board of Dermatology, a fellow of the prestigious American College of Mohs Surgery, the American Society of Dermatologic Surgery, and the American Academy of Dermatology, and is on the staff of Lawrence & Memorial Hospital in New London, CT, and The Westerly Hospital in Westerly, RI.

In 2006 Dr. West came to Mystic and established Seaport Dermatology & Mohs Surgery. This move was the fulfillment of Dr. West's goal to direct his own practice and of his wife's dream to live in New England where she spent time as a child and where both are delighted to raise their children.

About Our Staff

The staff of Seaport Dermatology & Mohs Surgery consists of several individuals who will serve you. Assisting Dr. West is a highly trained staff of nurses who are experienced in dealing with patients with skin cancer and who are knowledgeable about pre-operative instructions, post-operative care and possible problems that may arise. Another important member of the team is a technician who quickly and skillfully prepares tissue specimens by the Mohs technique for microscopic examination. Finally, the front office staff will assist you with appointment scheduling, insurance issues and other related matters.

The Preoperative Consultation

The preoperative visit gives Dr. West an opportunity to examine your skin cancer, take a pertinent history and confirm that Mohs surgery is the most suitable treatment for you. Also, it gives you the opportunity to meet Dr. West and his staff, to learn more about the procedure and to ask any questions you may have. Your surgery will then be scheduled for the earliest possible date. If your skin cancer has not been biopsied previously, a biopsy will usually be performed, as well.

How Should I Prepare for Surgery?

If you take any medication, continue taking it as prescribed unless we direct otherwise. If it is safe for you to do so, avoid aspirin and medications that contain aspirin (Anacin, Bufferin, Excedrin, Alka-Seltzer, etc.) for at least ten days prior to and 1 week following surgery. However, **IF YOUR PHYSICIAN HAS RECOMMENDED THAT YOU TAKE ASPIRIN DO NOT STOP TAKING IT.** Also avoid anti-inflammatory medications (Advil, Aleve, ibuprofen, Nuprin, indomethacin, Naprosyn, Daypro, etc.) for three days before after surgery. These medications tend to increase and prolong bleeding during surgery and may interfere with wound healing. You may take Tylenol (acetaminophen) and Celebrex. **Please do not apply makeup or facial moisturizer** if your surgery will be on the face.

The Day of Surgery

Your surgery will usually take between 3-4 hours, however, you should arrange to be available for the rest of the day. Surgery is nearly always finished the same day, unless the tumor is extensive or a highly complex repair is required. While the length of time required for Mohs surgery is initially surprising and perplexing to some patients, the following description of the process generally alleviates such concerns.

First, a local anesthetic is used to numb the skin around the tumor to prevent discomfort during surgery. Light sedation is rarely required, but is available for those who feel anxious. When the skin is numb, Dr. West then removes a layer of tissue involved by the cancer, bleeding is stopped with electrocoagulation, and a dressing is applied. The procedure to this point typically requires 10-15 minutes.

The removed tissue is immediately taken to the laboratory where it is prepared for microscopic examination. Laboratory preparation and examination under the microscope are delicate procedures and require great precision. They are also time-consuming; usually an hour to an hour-and-a-half is required for each layer or stage. On average, two to four stages are required to completely remove a tumor.

The most difficult part of the procedure for you will be waiting for the results of the microscopic examination. You may want to bring a pillow if needed for back support, and a sweater or blanket (we keep the temperature on the cool side). Be sure to wear comfortable clothing and to bring reading material, paper work, word puzzles or other activities to help pass the time. You are welcome to bring one friend or relative to accompany you while sitting in the waiting room, however, ***patients are discouraged from bringing more than one guest*** due to limited seating capacity. Snacks and drinks are usually available in the office, however, if you desire, you may bring a lunch. It is preferred that patients stay in the office until their surgery is completed. If for some reason you must leave the office, it is very important that you first check with a nurse and leave a number where you can be reached.

Once the skin cancer is completely removed, Dr. West will discuss with you the options for management of the surgical wound. Usually there are three choices: 1) let the wound heal by itself; this usually takes 4 to 8 weeks, 2) close the wound with stitches, and 3) cover the wound with a skin flap or graft. Dr. West will recommend which of these choices will be best in your case. If it is determined that the wound should be repaired, this is usually performed by Dr. West the same day. In unusual cases, a plastic surgeon may be consulted to perform the repair.

The Post-Operative Course

It is seldom necessary to have someone drive you home after surgery, but it may be convenient if you tend to tire easily. Since you will probably be fatigued you should plan on taking it easy and getting plenty of rest the first night. Most patients do not complain of pain. Two Tylenol tablets (total 1,000 mg acetaminophen) taken every 4-6 hours are usually sufficient to relieve the discomfort some patients experience the first 12 to 24 hours. Swelling and bruising are very common, particularly when surgery is performed on the nose or around the eyes, and generally resolve within a week to ten days. Painless red, purple or yellow bruising and swelling of the eyelids often appear 2-3 days after surgery on the forehead, and are no cause for concern. The use of extra pillows the first 4 nights following surgery to keep the head and shoulders elevated while sleeping can help minimize this.

Very occasionally there is continued bleeding following surgery. If this occurs, lie down, remove all of the bandages, and with gauze, apply firm, steady pressure for 20 minutes (timed) over the area of the wound that is oozing blood. Do not lift the gauze to check on the bleeding before 20 minutes have passed. If bleeding persists after 20 minutes of steady pressure, immediately notify our office or go to the nearest hospital or emergency room.

All wounds normally develop a small halo of redness around them which gradually disappears. If **increasing** redness, warmth, tenderness or pain develop, or if you see foul-smelling fluid or pus draining from the wound, call our office immediately. The wound may have become infected and an antibiotic may be necessary. If the skin around the wound becomes very itchy and red, you are probably having a reaction to the adhesive tape or to the antibiotic ointment used to dress the wound. You should call our office if this occurs.

After the Wound Has Healed

Some patients may experience uncomfortable sensations of tightness, numbness, tingling, sensitivity to temperature change, or itching at the surgical site. These sensations are normal and tend to improve with time over several months. Gently massaging the site several times each day can speed the process, however, this should not be done until at least 6 weeks after surgery. Itching may be due to

dryness and can be improved with plain Vaseline. Redness at the site is also normal and will gradually fade, usually by 6 months.

A follow-up period of observation at intervals for at least 10 years is essential. One out of two patients with their first skin cancer will develop another within five years. Therefore, patients should be seen for examination every 3-4 months for one year, then annually. This way any new or recurrent skin cancers may be detected and treated in their early stages. If you were referred by another dermatologist, this follow-up should be performed by them. Be sure to report immediately any suspicious lesions you notice on your skin to see if a biopsy is necessary.

Questions Commonly Asked About Mohs Surgery

Will the Surgery Leave a Scar?

Yes. Any form of surgical treatment will leave a scar. However, the Mohs technique tends to minimize this as much as possible.

Should Plastic Surgery Be Performed?

Selected surgical wounds created by Mohs surgery may be allowed to heal on their own. In some cases this will result in a cosmetic appearance equal or superior to that which could have been obtained by plastic surgery. The cosmetic appearance continues to improve for at least a year after surgery. At this point, plastic surgery may be considered if the result is unsatisfactory. In this way, unnecessary surgery can be avoided.

While Mohs surgery is a highly effective treatment for skin cancer, no method of treatment is successful in all patients. In those few patients who do have a recurrence, the tumor usually becomes apparent within 12 months following Mohs surgery. Immediate plastic surgical repair of the Mohs wound may distort and cover up tissue that still contains cancer cells. For this reason, we may recommend that your wound be allowed to heal on its own if we feel there is a significant risk of tumor recurrence.

In cases where spontaneous wound healing would produce an unsatisfactory result, and the risk of tumor recurrence is felt to be minimal, plastic surgical repair may be indicated. Although plastic surgery may reduce scarring and improve the cosmetic result, you will not look exactly as you did before surgery. In some patients, however, plastic reconstructive surgery may result in an appreciable difference. Dr. West has a great deal of experience in plastic surgical repair of Mohs surgery defects, and repairs the vast majority of them himself on the day of Mohs surgery. In unusual cases, a plastic surgeon may be consulted to handle the repair. Dr. West will be able to advise you about this after your skin cancer has been removed. If you prefer to see a plastic surgeon for management of the surgical wound, you are welcome to do so.

Will My Insurance Cover Mohs Surgery?

Many health insurance policies cover the entire cost of Mohs surgery; others provide at least partial coverage. Some insurance plans require that you obtain prior authorization for surgery or a referral from your primary care physician before coverage is granted. Please check with your insurance company for questions regarding cost and insurance coverage. Our office staff may also be of assistance.

Will I Ever Be Cured?

Many patients are referred to us for Mohs surgery because other forms of treatment have failed to cure their skin cancer. If this is your situation, it does not mean you are cancer-prone or have a hopeless case. It simply means that the methods used to treat you in the past were not effective enough to destroy or remove all of your skin cancer cells. Because of meticulous microscopic control, Mohs surgery cures almost all patients, even those in whom skin cancer has persisted after several previous treatments.

Mohs Micrographic Surgery Preoperative Checklist

Some important steps will need to be taken in advance to ensure that all goes smoothly the day of surgery . The following instructions apply to all patients. Additional instructions specific to your case may be given at your consultation visit.

10 Days before surgery:

- Minimize sun exposure to the surgical site from this time until 3 months after surgery.□
- **IF YOU HAVE BEEN INSTRUCTED BY A PHYSICIAN TO TAKE ASPIRIN DO NOT STOP IT.** If you take aspirin of your own accord and you have not been instructed by your doctor to take it, please stop it from 10 days before until 1 week after your surgery. Aspirin-containing products include Ecotrin, Anacin, Bufferin, Alka-Seltzer and many others.□
- **DO NOT STOP PRESCRIPTION BLOOD THINNERS!** These include Plavix, Coumadin, Ticlid, Aggrenox, heparin and Persantine. Continue to take them as prescribed by your doctor.□
- Be sure you have notified us if you are allergic to any medications including antibiotics, anesthetics and pain medications.□
- Cancel other commitments the day of surgery- you should take it easy for at least 24 hours□
- Consider arranging a ride home after surgery (helpful, but rarely a necessity)□

3-4 Days before surgery:

- Stop anti-inflammatory medications such as Advil, Motrin, Nuprin (ibuprofen), Naprosyn, Aleve, Pamprin (naproxen sodium), and Indocin (indomethacin). If you experience significant pain you may continue to take them at the lowest dose and frequency that keeps your pain at a tolerable level. Celebrex does NOT need to be stopped.
- Tylenol (acetaminophen) is the only acceptable pain medication.
- Continue all prescription medications
- Stop ginkgo biloba, vitamin E and all herbal supplements. Multivitamins may be continued.
- Stop all alcohol-containing beverages.
- Stop smoking.
- Be sure to drop off your prescriptions and pick up your medications at the pharmacy!

On the day of surgery:

- Cancel other commitments for the day of surgery- you'll want to take it easy for at least 24 hours.
- Plan to be at our office for at least 3-4 hours on the day of your surgery.
- Consider arranging for a ride home after surgery (helpful, but rarely a necessity)
- **Do not apply makeup** or facial moisturizer if your surgery will be on the face.
- Eat a light breakfast and/or lunch before surgery. Please do not fast.
- Do not consume caffeine (coffee, tea, cola and other soft drinks)
- Take your antibiotic 1 hour before your surgery appointment as prescribed
- Wear comfortable clothing, consider bringing a sweater or blanket, pillow and things to do while waiting for lab work to be completed (books, paper work, laptops, puzzles). Television and music are available at the office for your enjoyment.
- Please arrive a few minutes early for your appointment. Your first 15-30 minutes at the office will be spent explaining your surgery, answering questions, obtaining written consent, taking photographs, preparing the surgery site, administering local anesthetic, etc.

Cancellations

If you must cancel your surgery please notify us **at least one week** in advance so patients waiting for an appointment can be scheduled in your place. **Failure to give at least 48-hours notice will result in a late cancellation or no-show fee that is not covered by insurance.**

How to Find Seaport Dermatology & Mohs Surgery

From Stonington and Westerly take Route 1 south to Mystic, cross the Mystic River drawbridge, then take the first left turn (south) onto Water Street (Route 215). After 0.2 miles you will see the sign for “Mystic Downtown Marina” high on a gray warehouse building on your left. At this point you must bear left, leaving Route 215 where it curves to the right. Continue about 50 yards on Water Street, then turn right into the parking lot for 34 Water Street Commons, which is just past Captain Daniel Packer Inne Restaurant and shares its steep uphill driveway. Keep left as you go up the driveway to access our paved lot, then enter the second floor lobby through the door at the south end of the parking lot. Additional wheelchair-accessible parking is available in an upper lot at 5 Fort Rachel Place (offices of Morgan Stanley) off Route 215.

From points south, west, and north of Mystic take Interstate 95 to exit 89 (Allyn Street). Go south 1.2 miles; turn left on Route 1 (New London Road). Travel 0.3 miles then turn right (south) on Water Street (Route 215) which is the last right before the Mystic drawbridge. After 0.2 miles you will see the sign for “Mystic Downtown Marina” high on a gray warehouse building on your left. At this point you must bear left, leaving Route 215 where it curves to the right. Continue about 50 yards on Water Street, then turn right into the parking lot for 34 Water Street Commons, which is just past Captain Daniel Packer Inne Restaurant and shares its steep uphill driveway. Keep left as you go up the driveway to access our paved lot, then enter the second floor lobby through the door at the south end of the parking lot. Additional wheelchair-accessible parking is available in an upper lot at 5 Fort Rachel Place (offices of Morgan Stanley) off Route 215.

**Seaport Dermatology & Mohs Surgery
34 Water Street #2
Mystic, CT 06355
Voice 860-572-9994 Fax 860-572-9930**