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## Skin Cancer

Skin cancer is by far the most common malignant tumor in humans. The most common types of skin cancer are *basal cell carcinoma, squamous cell carcinoma, and melanoma*. These begin as a single point in the upper layers of the skin and slowly enlarge, spreading both along the surface and downward. These extensions cannot always be directly seen. The tumor often extends far beyond what is visible on the surface of the skin. Skin cancer may invade and destroy structures in their path. Although these skin cancers are locally destructive, basal cell carcinomas do not tend to metastasize (spread) to distant parts of the body. Metastasis of basal cell carcinoma is extremely rare and usually occurs only in the setting of long-standing large tumors where the patient's immune system is compromised. Squamous cell carcinoma is slightly more dangerous, and patients must be observed for any spread of the tumor. Such spread is still infrequent. Melanoma is a very different and more dangerous kind of skin cancer. Other testing and close long-term follow up is warranted after its removal.

## Mohs Micrographic Surgery

There are five standard methods for the treatment of skin cancers. The two non-surgical treatment are cryotherapy (deep freezing) and radiation therapy. The three surgical methods include simple excision, physical destructions (curettage with electrodesiccation) and Mohs Micrographic Surgery. Other methods include photodynamic therapy and immunochemotherapy.

In 1938, Dr. Fredric Mohs developed a technique for skin cancer removal known as chemosurgery. Originally, chemicals were applied to the skin during the surgery. These chemicals are now rarely used, but the name Mohs chemosurgery continues to be associated with the procedure now correctly termed Mohs Micrographic Surgery. There are two basic steps to each Mohs Micrographic Surgery stage. First, a thin layer of tissue is surgically excised around the site of the skin cancer. This layer is generally only 1-2mm larger than the clinical tumor. Next, this tissue is mapped and processed in a unique manner and examined under the microscope. Our doctor examines the entire bottom surface and outside edges of the tissue on the microscopic slides. (This differs from the "frozen sections" prepared in a hospital setting which, in fact, represent only a tiny sampling of the tumor margins.) This tissue has been marked to orient top to bottom and left to right. If any tumor is seen during the microscopic examination, its location is established and a thin later or additional tissue is excised from the involved area. The microscopic examination is then repeated. The entire process is repeated until there is no tumor found.

Mohs Micrographic Surgery allows for the selective removal of the skin cancer with the preservation of as much of the surrounding normal tissue as is possible. Because of this complete systematic microscopic search for the "roots" of the skin cancer, Mohs Micrographic Surgery offers the *highest chance for complete removal of the cancer* while sparing the normal tissue. The cure rate for new basal cell and squamous cell carcinomas exceeds 98%. As a result, Mohs Micrographic surgery is very useful for large tumors, tumors with distinct borders, tumors near vital functional or cosmetic structures, and tumors for which other forms of therapy have failed. No surgeon or technique can guarantee 100% chance of cure.

General Dermatology \* Mohs & Skin Cancer Surgery \* Dermatopathology \* Cosmetics

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## **Preoperative Visit**

If you would feel more comfortable meeting with Dr. Kirkland and our staff, we welcome the opportunity for a preoperative consultation. However, if you feel comfortable with the explanation provided by this pamphlet and your referring doctor, feel free to schedule your surgery directly. If you normally take an antibiotic prior to dental work, please bring this to our attention so that there is no delay in your surgery.

## **Before Mohs Micrographic Surgery**

Be well rested and eat a good breakfast, unless instructed otherwise. Take your usual medications, unless directed otherwise. Please do not take Ibuprofen (Motrin, Advil, etc.) or **Vitamin E supplements**. These medications may “thin” your blood and cause more bleeding. You may substitute acetaminophen (Tylenol) if required. Do not drink any alcoholic beverages for 24 hours before surgery.

Shampoo your hair before surgery, as your wound and initial dressing may have to remain dry for 24 hours thereafter. The length of the procedure varies depending on the size and location of the skin cancer and the type of reconstruction to be done. Although the average time is 3-6 hours, **you should plan on spending much of the day at our office**. We ask that you limit the number of people accompanying you to one, because of the limited space in our waiting room. There is plenty of time spent waiting for the lab work, so bring a book and handiwork to keep you busy.

## **The Day of Surgery**

Appointments for surgery are scheduled throughout the day. It is a good idea to wear loose fitting clothing and avoid “pullover” clothing. Tylenol may be taken before surgery in order to reduce discomfort. Also, if the operative site is on the face, please do not wear make-up on or around the area and **do not use any fragrance or scented toiletries**. We will obtain your written consent for the procedure, photographs will be taken and your blood pressure will be recorded. If you have any additional questions, please feel free to ask them at this time.

The area surrounding the skin cancer will be cleansed. The doctor will then anesthetize (numb) the area of skin containing the cancer by a small local injection. This injection will probably be similar to the one you received for your biopsy. We will be as gentle as we can when administering this. It usually takes 15 minutes to anesthetize the involved area and remove the tissue. After the tissue has been removed, it will be processed in our office laboratory.

Depending upon the amount of tissue removed, processing usually takes an additional 30-60 minutes. Your wound will be bandaged, and you will move to the waiting room while the tissue is being processed, stained, and examined by the doctor. If the microscopic examination of the removed tissue reveals the presence of additional tumor, we will go back and remove more tissue. The Mohs technique allows us to precisely map out when the roots of the cancer remain. Most skin cancers are removed in 1-3 surgical stages.

## **Reconstruction**

After the skin cancer has been completely removed, a decision is made on the best method for treating the wound created by the surgery. These methods include letting the wound heal by itself or closing the wound with a skin graft or a flap. The best method is determined on an individual basis after the final defect is known. Rarely, other surgical specialists may be utilized for their unique skills if warranted. This is the rare exception rather than the rule as nearly all wound repairs are performed immediately.

## **After Mohs Micrographic Surgery**

Your surgical wound will likely require care during the weeks following surgery. Bruising and swelling, for up to a week, is common after surgery. Detailed written instructions will be provided. Plan to return to our office in 5-7 days. You should also plan on wearing a bandage and avoid strenuous physical activity for a week.

Most of our patients report minimal pain which responds readily to Tylenol. You may experience a sensation of tightness across the area of the surgery. Skin cancers frequently involve nerves and months may pass before your skin sensation returns to normal. In rare instances, the numbness may be permanent. You may also experience itching after your wound has healed. Complete healing of the surgical scar takes place over 12-18 months. Especially during the first few months, the site may feel “thick,” swollen, or lumpy, and there may be

some redness. Gentle massage of the area (starting no sooner than 1 month after the surgery) will speed the healing process.

An indefinite follow-up period of observation is necessary after the wound has healed. You may be asked to return to ensure proper healing. Studies have shown that once you develop a skin cancer, there is a strong possibility of developing other skin cancers in the future. Should you notice any suspicious areas, it is best to check with your physician for a complete evaluation. You will be reminded to return to your dermatologist on a frequent basis for continued surveillance of your skin.

### **Risk of Mohs Micrographic Surgery**

Because each patient is unique, it is important to discuss all the possible complications and risks in this format. The usual risks are discussed below. Our doctor will discuss any additional problems associated with your particular case. *Please understand these occurrences are the exception not the rule.*

- The defect created by the removal of the skin cancer may be larger than anticipated. There is no way to predict prior to surgery the exact size of the final defect
- There will be a scar at the site of the removal. We will make every effort to obtain optimal cosmetic results, but our primary goal is to remove the entire tumor. Again, Mohs surgery will leave you with the *smallest wound* thus creating the best opportunity for optimal cosmetic results
- There may be poor wound healing. At times, despite our best efforts, for various reasons (such as bleeding, poor physical condition, smoking, diabetes, or other diseases), healing is slow or the wound may reopen. Flaps and grafts utilized to repair the defect may at times fail. Under these circumstances, the wound will usually be left to heal on its own. The scar may be revised at a later date if necessary.
- There may be a loss of motor (muscle) or sensory (feeling) nerve function. **Rarely**, the tumor invades nerve fibers. When this is the case, the nerves must be removed along with the tumor. Prior to your surgery, the doctor will discuss with you any major nerves which might be near your tumor.
- The tumor may involve an important structure such as the eyelids, nose, or lips. If the tumor involves these structures, portions of them may have to be removed with resulting cosmetic or functional deformities. Furthermore, repairing the resulting defect may involve some of these structures.
- **Rarely**, wounds become infected (less than 1%) and require antibiotic treatment. If you are at particular risk for infection, you may be given an antibiotic during surgery.
- There may be excessive bleeding from the wound. Such bleeding can usually be controlled during surgery. There may also be bleeding after the surgery. We have never had a significant amount of blood loss, but bleeding into a sutured graft or flap may inhibit good wound healing.
- There may be an adverse reaction to medications used. We will carefully screen you for any history of problems with medications; however, new reactions to medication may occur.
- There is a small chance that your tumor may regrow after surgery. Previously treated tumors and large, longstanding tumors have the greatest chance for recurrence.

## **About our Mohs Surgeon**

Dr. Ryan Kirkland is an American Board of Dermatology certified physician with clinical expertise in Mohs micrographic surgery, cutaneous oncology, and cosmetic dermatology.

Dr. Kirkland completed his dermatology residency at the University of Cincinnati, where in 2009 he served as Chief Resident. He also completed a Mohs surgery, cutaneous oncology, cosmetic surgery, and facial reconstructive surgery fellowship in Morristown New Jersey. The training is officially approved by the AMAs Accreditation Council of Graduate Medical Education.

Prior to joining the Dermatologists of Greater Columbus, Dr. Kirkland also practiced in Washington D.C. where he was named one of The Washingtonian's top dermatologists in 2012.

Dr. Kirkland has authored several articles on topics pertaining to cutaneous oncology, laser surgery, cosmetic surgery and medical dermatology. He is a member of the American Academy of Dermatology, the American Society of Dermatologic Surgery, the Ohio Dermatologic Association, and the Ohio State Medical Association.

## **Important Reminders**

- **DO** advise us as soon as possible if you must cancel or change your appointment
- **DO** bring your insurance card(s) and a valid picture identification
- **DO** plan on being in the office for 3-6 hours
- **DO** take your usual medications on schedule unless otherwise directed
- **DO** eat a big breakfast, unless instructed otherwise
- **DO** have Tylenol at home for post-surgical pain
- **DO** let our staff know if you take Coumadin, Plavix or antibiotics before dental work
- **DO** plan to return 5-7 days after your surgery
- **DO NOT** plan on exercising for 1 week after surgery
- **DO NOT** take aspirin, any aspirin-containing products (unless prescribed by a physician) or Vitamin E for 10 days prior to the surgery. Please read the label on all over-the-counter medications
- **DO NOT** wear fragrances or perfumes
- **DO NOT** consume alcohol 24 hours prior to or 48 hours after surgery

## **FINALLY...**

*Please review this handout. We want you to be as comfortable, relaxed and informed as possible.*