

**MOHS**  
**Micrographic Surgery**

*For*

**Problem Skin Cancers**

**Information**

**For**

**Patients**

*Handbook prepared by:*

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## **DEDICATION**

This handbook is dedicated to my patients  
who have suffered with skin cancer.

## **INTRODUCTION**

Over 30 years ago, Dr. Frederic Mohs developed a technique (known then as chemosurgery) for the microscopically controlled removals of problem skin cancers. When first developed, Mohs surgeons applied a chemical to the surface of the skin and then cut out a layer of the cancer. Today, chemicals are not used. There is no relationship between Mohs surgery and chemotherapy and none of the side effects of chemotherapy will be experienced by you. Mohs surgery is done under local anesthesia and rarely requires hospitalization. Mohs micrographic surgery does require highly specialized training and personnel, and is usually available only in larger cities. It is a time consuming technique, but as is demonstrated by the very high cure rate, (99% of first time skin cancers, and 95%-97% of skin cancers that have come back), it is well worth the trouble. President Reagan and President Bush, Sr. have both had their skin cancers treated by Mohs surgery.

These pages attempt to answer some of your questions you may have as a patient. We expect and welcome further questions about the surgery.

## **ABOUT OUR STAFF**

There are several individuals involved in your care while performing your micrographic surgery. There are specially trained nurses, who are experienced in dealing with patients who have skin cancer and are knowledgeable about problems which may arise. Another important member is the technician who prepares the tissue for microscopic examination. Finally, the coordinator in the front office rounds out the team. Our front office will help with the filing of insurance forms, and questions concerning billing and payment can be answered by them.

## **WHAT IS SKIN CANCER?**

Cancer is tissue that grows at an uncontrollable and unpredictable rate. The types that we commonly treat with Mohs surgery are basal cell carcinoma, and less commonly, squamous cell carcinoma and some other very rare skin cancers. Skin cancer begins at the surface of the skin and grows roots downward. What can be seen of the cancer on the surface is usually only the "tip of the iceberg."

## **IS IT DANGEROUS?**

Skin cancers that we treat with Mohs surgery usually do not spread to other parts of the body and cause death. They can, and often do, destroy the skin and structures where they grow and locally spread. A skin cancer left untreated long enough can cause death if it invades into a vital structure. These skin cancers do not go away on their own! Though they may seem to heal over, if untreated, they always come back bigger, and with deeper roots. While the removal of skin cancer is not an emergency, in general they should be removed within a month or two of diagnosis.

## **WHAT CAUSES SKIN CANCER?**

No one is certain of all the causes of skin cancer. Several factors, most importantly is sun exposure, seem to interact together to make some people more susceptible. People with very fair skin, light or red hair and blue eyes definitely get skin cancer more often. Heredity does seem to play a part, with some families having more skin cancer than others. Other possible causes of skin cancer include X-ray therapy, given in the past for acne, old burn scars, and certain patient medicines such as Fowler's solution, and Paris Green insecticide, both of which contain arsenic.

## **MY SKIN CANCER HAS BEEN TREATED SEVERAL TIMES, WILL I EVER BE CURED?**

A frequent reason why patients are sent to us is because other forms of treatment have failed. This does not mean that you are hopeless or cancer prone. Mohs surgery uses microscopic control to search out the roots of the cancer, it cures almost all patients. It even cures those in whom skin cancer has persisted despite several other treatments.

## **WILL MY INSURANCE PAY FOR MOHS SURGERY?**

Yes, almost always. You may want to call your insurance company to make sure. Mohs surgery is very time consuming and labor intensive. Our charges are about the same or lower as others in the United States. Most commercial insurance will pay at least 80% of the cost of your surgery, some will pay 100%. You are responsible for any deductible and 20% copayment if required. Some insurance companies disallow a certain part of the Mohs

surgery fee. We do not bill you for this disallowment. We like to arrange for your insurance company to reimburse us directly if possible. We accept medicare assignment but you will still be responsible for the 20% copayment. Almost always this copayment and deductible is covered if you have a secondary policy (gap insurance). If this is a hardship, let us know, and we will work out an alternative plan. If you are a Medicare enrollee be sure to mention any special supplemental policies to the front desk secretaries. Also, bring any insurance cards and policy numbers with you.

## **HOW MAY SKIN CANCER BE TREATED?**

There are a variety of successful methods of treating most skin cancers in most people. These include scraping and burning, cutting out and sewing up, x-ray treatment, and cryosurgery (freezing). About nine out of ten cancers treated by these methods will be cured of their cancer. It is that one out of ten patients with tumors in critical locations and unusual types of tumors may need Mohs surgery. It is important to emphasize however, that no method at any time, including the Mohs technique, can promise 100% cure rates.

## **HOW IS MOHS SURGERY PERFORMED?**

The patient, who may be given a sedative upon request, is numbed with local anesthesia. (note: if a sedative is given you must have someone drive you home!) The numbing, which burns a little, is all the pain that you will feel. The surface of the cancer is shaved off to confirm the diagnosis in our laboratory. The visible cancer is then scraped to determine where the roots go. Then a thin layer of skin is cut out. This tissue is processed in our laboratory, which takes about 45 minutes to an hour. The tissue is then carefully and completely viewed by Dr. Coldiron under the microscope to make sure all, even the microscopic, cancer is out. If all the cancer is not out, a map of your cancer is marked and a second thin piece corresponding to the map is cut out and the process repeated. This way no more tissue than is absolutely necessary is taken out. Most cancers are taken in 2 or 3 trips to the operating room, but very large, longstanding, or aggressive cancers may take longer. Plan on being in the office all day. Bring a friend and a book. In rare

instances, the patient may have to come back the next day to have the process completed.

### **WHY BOTHER WITH MOHS SURGERY?**

Mohs surgery cuts out the bare minimum of normal skin needed for a high cure rate (95%-99%). This is important in critical areas. Once a tumor has come back, conventional treatment (cutting out, scraping and burning, radiation) offers only a 50% cure rate. Mohs surgery is worth the bother in order to get all the cancer out and to get the smallest possible hole.

### **WHY IS MY PICTURE TAKEN?**

We photograph most patients before and after their surgery. These photos are used by us if the insurance company questions us regarding your claim and may also be used for teaching. We also send a picture to your referring physician.

### **WILL I NEED TO BE HOSPITALIZED?**

No, probably not. Only rarely do Mohs surgery patients need to be hospitalized. Whenever possible, Mohs surgery is done on an out-patient basis. We can, however, hospitalize patients if they need it.

### **WHAT ABOUT THE HOLE?**

When it is determined that your cancer has been completely removed, there will be a hole left where it was. A decision will then be made on the best way to manage this wound. If it is small, it may be allowed to heal on its own. It may also be sewn shut, or be repaired with a skin graft or flap. Some wounds are best handled by a plastic or reconstructive surgeon. The method used depends on many variables. In many cases, the repair may be arranged to be done by a specialist before the Mohs surgery.

You will be given a detailed instruction sheet on how to care for your wound at the conclusion of your surgery.

### **WILL THERE BE A SCAR?**

Yes. Any treatment of skin cancer will leave a scar. Mohs surgery preserves as much normal skin as possible resulting in a scar as small as possible.

## HOW DO I PREPARE FOR MOHS SURGERY?

Try to get a good nights sleep, eat breakfast, and get to the office on time. Wear comfortable clothing that you can easily get in and out of. Please leave the whole day open for Mohs surgery. While we often get all the cancer out by noon, the wound may be repaired in the afternoon. Take your usual medicine unless we tell you otherwise.

### MEDICATIONS & HERBS TO AVOID PRIOR TO SURGERY (\*\*Recommend discontinuing 2 weeks prior to surgery\*\*)

Advil	Empirin Products	NSAIDS nonsteroidal
Aleve	Emprazil	anti inflammatories
Alka Seltzer	Equagesic Products	Nuprin
Anacin	Excedrin	Orudis
Anaprox	Feldane	PAC Analgesic
ASA	Florinal Products	Pepto Bismol
Ascoden	4 Way Cold Tablets	Percodan
Ascriptin	Garlic	Persistin Products
Aspergum	Ginger	Phenaphen
Aspirin	Gingko Biloba	Robaisal
BC Powder	Ginseng	Robixisal Products
Bufferin	Guaifenesin	Rutin
Cephalgesic	Halfprin	Salflex
Cheracol	Haltran	Sine Aid
Children's Aspirin	Ibuprofen Products	Sine Off
Clinoril	(Advil, Motrin, Nuprin)	St. John's Wort
Congesperin	Ibuprophin	St. Joseph Aspirin for children
Contact	Indocin	Tolectin
Cope	Indomethacin	Trigesic
Coricidin	Meclomen	Trilisate
Coumadin	Medipren	Ursinus
Cramp End	Melantonin	Vanquish
Darvon Products	Midol	Vitamin E
Disalcid	Midol IB	Voltaren
Doans P.M.	Momentum	Zorprin Products
Dolobid	Motrin	
Dristan	Nalton	
Echinacea	Naprosyn	
Ecotrin	Norgesic Products	

Aspirin interferes with the ability of your blood to clot. If you need a pain medicine take Tylenol or acetaminophen. Do not drink alcoholic beverages for 3 days before or after surgery. Alcohol causes the skin to flush and interferes with the clotting of the blood.

## **DOES IT HURT?**

A local anesthetic, usually Xylocaine, is injected around the skin cancer to numb the area. This burns only a little and the numbness lasts several hours after injection. More Xylocaine may be injected later so that there is no pain if more surgery is required. Pain after going home is unusual, and two regular Tylenol, by mouth every four hours, is usually adequate for any pain.

## **SHOULD SOMEONE COME WITH ME**

### **ON THE DAY OF SURGERY?**

### **DO I NEED SOMEONE TO DRIVE ME HOME?**

Yes, I suggest you do bring someone with you to drive you home and keep you company during the procedure. If this cannot be arranged, public transportation or a taxi may be adequate. Do not count on driving yourself. If you receive a sedative, or have a skin cancer near your eye, you will not be able to drive.

## **WHAT HAPPENS ON THE DAY OF SURGERY?**

Appointments for surgery are usually scheduled early in the day. It is important to be on time. You will be escorted into the operating room. The cancer may be outlined with a marking pen, then a local anesthetic is injected to numb the skin. The next step is to remove a thin layer of skin around the cancer. This tissue is carefully removed. The bleeding is stopped with a cautery machine. This machine makes a buzzing sound and generates heat which stops the bleeding. The nurse will then bandage you. By the time you get to the waiting room the removed tissue is already in our laboratory being processed for microscopic examination.

The most difficult part is waiting for the results of the surgery. This usually takes about an hour, though it may take longer.

If the microscopic examination reveals that your tissue still contains cancer, the operating room procedure is repeated and the tissue again examined. Only the tissue containing skin cancer is removed. Several trips in and out of the surgery room may be required the day that you are here.

## **WHAT ABOUT BLEEDING AFTER SURGERY?**

Uncommonly, about one in 200 patients, there is some bleeding after you go home. If this occurs, lie down and apply steady firm pressure over the wound as close as possible to the area that is oozing blood. Apply this pressure continuously for 15 minutes (time it). While applying pressure, do not lift the bandage to check for bleeding. If the bleeding persists after 15 minutes of steady pressure, call Dr. Coldiron at home (859) 291-1339 or on his mobile phone (513) 550-2828, or go to the nearest emergency room.

If the bleeding stops after 15 minutes, (as it almost always does), you may apply an additional layer to the dressing if it is soiled. Do not remove the original dressing until the following day when you clean the wound.

## **WHAT ELSE MAY HAPPEN?**

All wounds develop a small ring of redness which will gradually disappear. Severe itching with extensive redness usually indicates an allergy to the ointment used to dress the wound or a reaction to the adhesive tape. You should call the office if this happens.

Swelling is common after Mohs surgery, especially around the eyes. This is a normal response. You may develop bruises around the area of surgery.

Initially all wounds drain a clear or pink tinged fluid which is normal. Infection is unusual. If the wound has been left to heal on its own, as is sometimes done, a thick yellowish discharge will develop by the second week. This is not pus but rather dead tissue separating from the base of the wound. As this separates, there may be a slight amount of bleeding.

## **WHAT HAPPENS AFTER THE WOUND HEALS?**

You may feel a sensation of tightness (or drawing) as the wound heals, but this is normal and will lessen as time goes on.

Frequently, skin cancers involve the nerves of the skin, making it necessary to cut the nerves. It may take a year or more after surgery before the feeling returns to normal. Sometimes the area stays numb permanently. Much less commonly, one of the several

nerves that control the muscles of the face are involved with the cancer. Every attempt is made not to damage these nerves but sometimes they must be cut out to get the cancer out. This may result in temporary or permanent paralysis of certain muscles of the face. If permanent paralysis occurs, there are restorative surgical procedures that can be performed.

The new skin that grows over a wound contains many more blood vessels than the skin that was removed. This results in a red scar, and the area may be sensitive to temperature changes (such as cold air). This sensitivity improves with time, and the redness gradually fades. If you are having a lot of discomfort, try to avoid extremes of temperature.

The new skin lacks the ability to protect itself from the sun so it will blister readily. You must protect it with a sunscreen (factor 15 or higher) at all times.

Patients frequently experience itching after their wounds have healed because the new skin that covers the wound does not contain as many oil glands as previously existed. Applying a small amount of plain Vaseline will help relieve this itching.

### **HOW OFTEN MUST I RETURN FOR FOLLOW-UP VISITS ONCE THE WOUND HAS HEALED?**

After the stitches come out we usually like to see you two months later. A period of observation of at least 5 years is essential. This follow up can be done by your Dermatologist. There are several reasons why this is important.

Should there be a recurrence of the skin cancer after Mohs surgery, it may be detected at once and treated. Experience has shown that if there is a recurrence it will usually be within the first year following surgery.

Studies have shown that once you develop a skin cancer there is a high risk that you will develop others in the years to come. You should watch for an open sore which does not heal and bleeds easily. If you notice any suspicious areas, it is best to check with your referring physician to see if a biopsy is indicated.

## **MUST I TOTALLY AVOID THE SUN?**

No, not entirely. Sunshine cannot harm you as long as you are protected with a factor 15 or greater sunscreen, avoid burning, and use discretion. You should not restrict your activities to the degree that it would interfere with your lifestyle.

Sunlight is probably the main cause of skin cancer, and patients who have developed one skin cancer will often develop another one at a later time. I recommend you apply a factor 15 or higher number sunscreen to all exposed areas. It is important that men and women remember to include the tops of their ears, and men cover their bald spots.

It is best to apply the sunscreen 15 minutes before going outdoors. Reapply it liberally, especially after swimming or exercise.

In addition to sunscreen, a broad brimmed hat and long sleeve cotton shirts provide good sun protection.

Factor 15 sunscreen blocks 97% of the harmful rays, while higher numbers (20, 25 even 50), block up to 99% of the harmful rays. I tell patients to buy the brand that is factor 15, or greater, that is on sale. There have been exaggerated reports of sunscreens being carcinogenic. These reports are based on sunscreen breakdown products in bacterial tests. I feel confident in saying that the risk of cancer is much, much, greater if you do not wear a sunscreen and strongly recommend that you do.

I hope this information has answered many of your questions. If you have further questions do not hesitate to ask.

## *About*

# *DR. COLDIRON*

Dr. Brett Coldiron graduated from Dixie Heights High School in Edgewood, Kentucky, in 1974. He was an honor student and an All State and All American football player in high school. He considers the greater Cincinnati area his home town.

Dr. Coldiron was selected by Wabash College in Crawfordsville, Indiana to be the recipient of the Gilbert Memorial Scholarship. The Gilbert Memorial Scholarship is given out once every four years to a student who demonstrates outstanding scholarly and athletic ability. He played varsity football at Wabash College, was a Wabash Honor Scholar and elected to the student senate. In addition, he was voted the outstanding senior of Phi Delta Theta social fraternity.

Dr. Coldiron attended medical school at the University of Kentucky, in Lexington, Kentucky. While there, he won the Lange book award for outstanding achievement as a medical student, was on the curriculum committee, chairman of the presidents council, and was class president.

Dr. Coldiron returned home to Cincinnati, to University Hospital, to complete his first residency in Internal Medicine. He completed three years of Internal Medicine.

Dr. Coldiron became interested in Dermatology and completed three years of Dermatology residency at the University of Texas Health Science center at Dallas (Parkland Memorial Hospital). While a Dermatology resident he won numerous honors, including a national scientific manuscript contest, and had several research papers published. While he was a Dermatology resident he developed a keen interest in Dermatologic surgery.

Dr. Coldiron returned to his home town of Cincinnati after completing his fellowship in July of 1989. He was Assistant

Professor of Dermatology and Otolaryngology at the University of Cincinnati Medical Center from 1989-1992. Dr. Coldiron is currently in private practice but maintains a Clinical Assistant Professorship at the University of Cincinnati. He currently takes care of patients, teaches medical students and residents, and has several active clinical research projects, including a special focus on patient safety.

Dr. Coldiron is the founder of The Skin Cancer Center. The Skin Cancer is the only facility in Cincinnati dedicated to the prevention, diagnosis, and treatment of skin cancer. It contains the only Ultraviolet B monitoring station in the Tri-state area.

Dr. Coldiron is board certified by the American Board of Internal Medicine, the American Board of Dermatology and the American Board of Mohs Micrographic Surgery and Cutaneous Oncology. He has also been elected to fellowship in the American College of Physicians and the American Dermatology Association. He is the author of over fifty scientific publications, including eight book chapters, and has presented numerous papers at national and international meetings.

Dr. Coldiron is a member of the American Medical Association, the Cincinnati Academy of Medicine, the Ohio and Kentucky State Medical Associations, the Cincinnati Dermatology Society, the Northern Kentucky Medical Association, the Ohio Dermatology Society, the Ohio Dermatologic Surgery Society and the Noah Worcester Society.

Dr. Coldiron was elected President of the Ohio Dermatologic Surgery Society in 1995. In 1996, he was recognized as one of eight outstanding young physicians in the state of Ohio, by Ohio medicine magazine. In 2007, he received the distinguished Service Award from the American College of MOHS Surgery.

**Dr. Coldiron runs his office with candor and efficiency.**

Dr. Coldiron insists that all of his office staff be vaccinated against hepatitis B, as he is. He has voluntarily been tested for the AIDS virus, though he has no risk factors, and is not infected. All equipment and supplies are sterilized. His office was the second in the United States to be JACHO accredited.

## **Location**

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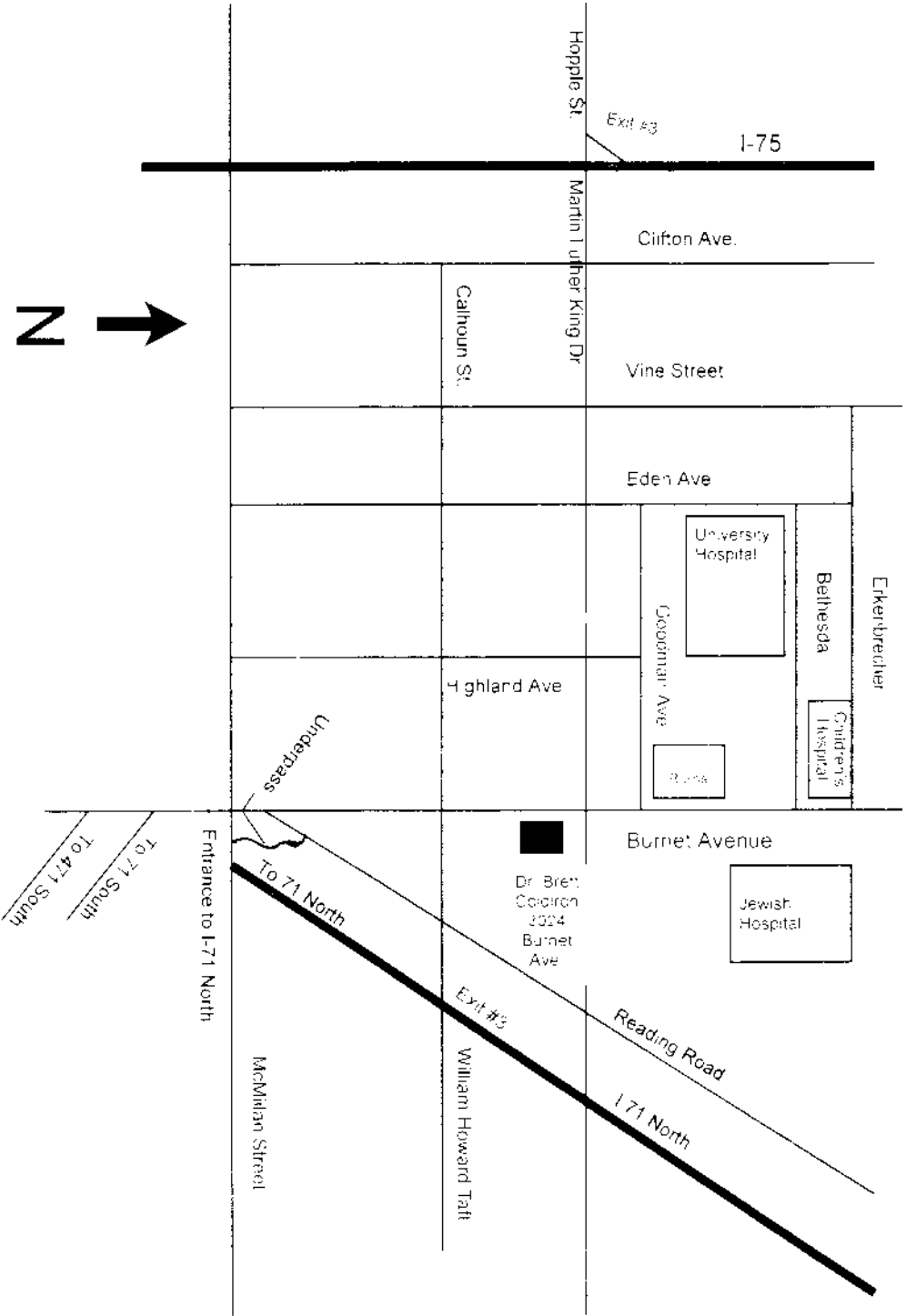
Dr. Colcleron's office is conveniently located at 3024 Burnet Avenue, next door to United Dairy Farmer, upper level in front.

Look for the maroon awning.

## **Parking**

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Free parking is available at the rear of building. 3024 Burnet Avenue. Walk around to the front of the building.



Hopple St.

Exit #3

I-75

Clifton Ave.

Vine Street

Calhoun St.

Martin Luther King Dr.

Eden Ave.

University Hospital

Bethesda Children's Hospital

Eikenbreydier

Georgetown Ave.

Highland Ave.

2,000

Underpass

Burnet Avenue

Jewish Hospital

Dr. Brent Colborn  
3924 Burnet Ave.

To 71 North

Exit #3

Reading Road

I-71 North

Entrance to I-71 North

To 71 South  
To 471 South

McMillan Street

William Howard Taft