

**Daphne Panagotacos, M.D.**

**Clayton Hinshaw, M.D.**

**Mary Kay Graves, R.N., FNP**

**Holly Nichols, R.N., FNP**

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

Dear \_\_\_\_\_

You are scheduled for a Mohs Surgery on \_\_\_\_\_ at \_\_\_\_\_.

Enclosed please find information regarding the Mohs surgery and answers to questions frequently asked by patients.

**SURGERY:** When you arrive, Dr. Panagotacos will numb the area around the lesion. The tissue is removed, carefully mapped and coded by the Doctor. A fresh-frozen section is done on the tissue. While the Doctor examines the tissue, you will have a temporary dressing placed over the wound during waiting periods.

The surgical procedure alone takes 10-15 minutes. However, it takes a minimum of 30 minutes to prepare and microscopically examine the tissue. Several surgical stages and microscopic examinations may be required and you will be asked to wait between stages. There is no way to tell before surgery how many stages will be necessary.

We would like to make the time you spend with us as pleasant and comfortable as possible. You may want to bring reading material to occupy your time while waiting and magazines are available from the waiting room.

**WILL THE SURGERY LEAVE A SCAR?** Yes. Any form of treatment will leave a scar. However, because Mohs surgery removes as little normal tissue as possible, scarring is minimized. After, the cancer is removed, the Doctor may choose to: 1) leave the wound to heal by itself. 2) repair the wound with stitches 3) reconstruct the wound with a skin graft or flap. This decision is based on the safest method and what will provide the best cosmetic results.

**WILL I HAVE PAIN OR BRUISING AFTER SURGERY?** Most patients do not complain of severe pain. Tylenol is all that is usually necessary for relief. You may have bruising around the wound, especially if the surgery is close to the eye or if you are taking any blood thinners. Please call the office if you experience severe pain. It is important to limit your physical activity after surgery as directed; the limitations will vary based on the area treated.

It will be necessary to return for suture removal, usually within seven to ten days.

We hope that this packet will help prepare you and ease your mind of any concerns and questions, however, please feel free to contact us with any concerns.

*Sincerely,*

*Daphne Panagotacos, M.D. & Staff*

# Daphne Panagotacos, M.D.

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

## Medications to avoid 14 days before surgery

### Nonprescription medicines with aspirin

- 4-way cold tablets
- 8 hour Bayer time released aspirin
- Alka-Seltzer Antacid and pain reliever, flavored, effervescent, plain and extra strength
- Anacin Analgesic coated caplets, tablets, and extra strength
- Arthritis pain formula by the makers of Anacin analgesic tablets and caplets
- Arthritis pain formula by the makers of Anacin analgesic tablets and caplets
- Ascriptin tablets –A/D tablets and extra strength
- Bayer Children’s chewable aspirin & cold tablets
- BC Powder & Arthritis strength BC powder
- Bufferin
- Cama Arthritis pain reliever
- Doan’s PM
- Ecotrin tablets & maximum strength
- Empirin aspirin
- Excedrin extra strength analgesic tablet and caplets
- Genuine Bayer aspirin & maximum Bayer
- Measurin tablets
- Momentum muscular backache formula
- Midol maximum strength for cramps and original formula
- Mobigesic analgesic tablets
- Norwish aspirin & extra strength
- Pepto-Bismol liquid or tablets
- St Joseph aspirin for children
- Triaminicin Tablets
- Ursinus Inlay tabs
- Vanquish

### Ibuprofen Medicines

- Advil Ibuprofen caplets & tablets
- Aleve
- Haltran Tablets
- Medipren Ibuprofen caplets & tablets
- Nuprin Ibuprofen/Analgesic tablets
- Nyquil & Nyquil PM
- Trendar Ibuprofen tablets

### Anticoagulants

- Calciparine injection
- Coumadin
- Heparin Lock flush solution in Tubex & Heparin sodium injection
- Heparin sodium injection USP sterile solution
- Mephytn tablets
- Plavix
- Protamine sulfate
- Ticlid

### Prescription Medicines with Aspirin

- Easprin

### Antacids with Aspirin

- Alka-Seltzer Effervescent pain reliever & antacid, plain & flavored
- Alka seltzer plus cold medicine
- Axotal
- BAC Tablets
- Dia-gesic
- Fiogestic tablets
- Norgesic & Norgesic forte
- Supac
- Synalogos DC capsules

### Anti-arthritics

- Anaprox
- Butazolidin capsules & tablets
- Clinoril tablets
- Ecotrin capsules & tablets
- Feldene capsules
- Indocin capsules, oral suspension & suppositories
- Indomethacin capsules
- Lodine
- Maximum Bayer aspirin
- Meclomen
- Medrol Tablets
- Motrin Tablets
- Nalfon puvules & tablets
- Naprosyn
- Prednisone
- Relafen
- Rufen tablets
- Tolectin tablets & DS capsules
- Toradol
- Voltaren
- Zorpin

### Anti-gout medication

- Lopurin
- Zylorim

### Controlled analgesics with aspirin

- Ascriptin with codeine
- Darvon compound & Darvon compound 65
- Darvon with ASA & Darvon N with ASA
- Eguagesic
- Emperin with codeine
- Fiorinal & Fiorinal with codeine
- Micrainin
- Percodan & Percodan-demi
- Synalgos DC
- Talwin compound

**Daphne Panagotacos, M.D.**

**Clayton Hinshaw, M.D.**

**Mary Kay Graves, R.N., FNP**

**Holly Nichols, R.N., FNP**

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

## **Herbal supplements to avoid 2 weeks before surgery**

### **All vitamin supplements**

Ajoene

Birch barke

Black cohosh

Cayenne

Chinese black tree fungus

Cumin

Echinacea

Ephedra

Evening primrose oil

Feverfew

Fish oil

Garlic

Ginger

Ginko biloba

Ginseng

Grapseed extract

Melatonin

Milk thistle

Omega 3 Fatty acids

Onion extract

St Johns Wort

Tumeric

Vitamin C

Vitamin D

Vitamin E

Yohimbe

**It is best to stop taking ALL vitamins, herbs and diet  
supplements 10-14 days before surgery and up to 7  
days after surgery**

**Daphne Panagotacos, M.D.**

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

**MOHS SURGERY PRE-OPERATIVE INSTRUCTIONS**

You have been scheduled for Mohs surgery. A special period of time has been set aside for this procedure. If, for any reason, you need to reschedule your surgery, please let our office know at least 48 hours in advance so that other patients can be accommodated during this time.

**We ask that you follow the instructions below in preparation for surgery:**

- 1) Plan to arrive 15 minutes early. You may be asked to fill out a medical history form prior to surgery.
- 2) You may eat breakfast on the day of surgery. There will also be coffee & snacks available in our office the day of your surgery.
- 3) It is **important** that the following medications be stopped **two weeks prior to surgery and two days** following surgery: Aspirin, Aspirin containing analgesics, Motrin, Advil, Ibuprofen, Aleve, and any other medications used for headaches or arthritis. You may substitute any of the above pain reliever drugs with Tylenol.
- 4) It is **important** to also stop all vitamins and Herbal supplements **two weeks prior to surgery** (see Herbal supplement list).
- 5) If you are taking blood thinners (i.e., coumadin, Plavix Warfarin, Persantine), contact our office for special instructions.
- 6) Avoid all alcohol two days before and after surgery.
- 7) Please bathe or shower on the day of surgery, paying special attention to the surgical area. If surgery is planned for the scalp area, be sure to wash scalp vigorously. **Do not apply any lotions or sunscreens to the surgical area prior to coming into the office.**
- 8) Remove all makeup or moisturizers near the cancer site to eliminate any possible contamination and possible infection.
- 9) Avoid heavy exercise, all sporting or strenuous activities, including golfing and travel. Avoid movement or irritation of surgical site until sutures are removed the week following your surgery. The first two days after surgery you will need to plan to stay home and rest.

If you have any questions pertaining to the above instructions or other concerns, please contact our staff prior to the time of surgery. Thank you for your cooperation.

# Daphne Panagotacos, M.D.

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3367 (Fax)

805-379-3376

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

## WHAT IS MOHS MICROGRAPHIC SURGERY?

By J.A. Carruthers, MD,  
FRCPC, and  
L.M. Warshawski, MD,  
FRCPC

---

MOHS MICROGRAPHIC SURGERY IS A METHOD OF REMOVING SURFACE MALIGNANCIES. ITS SUCCESS DEPENDS ON THE FACT THAT MANY TUMORS WILL GROW IN CONTINUITY, EITHER MAINLY OR INITIALLY. BASAL CELL CARCINOMA IS THE COMMONEST TUMOR TO BE TREATED BY MOHS MICROGRAPHIC SURGERY, BUT THE LIST OF SUCH TUMORS IS GROWING AND NOW INCLUDES EXTRAMAMMARY PAGET'S DISEASE, DERMATOFIBROSARCOMA, PROTRUBERANS, AND ORPHARYNGEAL CARCINOMA.

---

Treatment by Mohs micrographic surgery will give a significantly higher cure rate than other modalities. E.g.: about 98% of all basal cell carcinomas are curable by this technique. Mohs micrographic surgery destroys all less normal tissue, allowing for better reconstruction and a superior ultimate cosmetic result.

### History

Frederick Mohs is a general surgeon from Madison, Wisconsin, USA. As a student in the 1930's, he experimented within the vivo fixation

of tissue on laboratory animals by using a fixative paste with a zinc chloride base. He extended the use of this paste for the treatment of epithelial neoplasm in patients in patients. After fixation, 24 hours, the abnormal tissue was removed bloodlessly and frozen sections were cut, stained, and reviewed; then more paste was applied to areas of residual tumor. Mohs' important modification of standard frozen tissue sectioning was to section the material horizontally rather than vertically so that the entire surgical margin is viewed. The modification improved cure rates significantly. A number of problems arose with the paste method, which he called "chemo surgery." Only one layer of tissue could be removed each 24 hours, and, during fixation, the patient experienced significant pain. Finally, since a thin layer of fixed tissue remained after chemosurgery, it was left to separate. The majority of defects healed spontaneously; plastic surgical repair was performed only if necessary. Although it produced cosmetically excellent results in the majority of patients, the slow healing process was a nuisance.

These three problems were circumvented by the introduction of the fresh tissue technique by Stegman and Tromovitch in 1969. In this technique, the zinc chloride paste was abandoned and fresh tissue was excised under local anesthesia. The majority of tumors could now be excised in a single day with much less pain. The wound was also suitable for immediate repair.

Ninety-nine percent of all Mohs micrographic surgery now uses the fresh tissue technique. Cure rates

of Mohs micrographic surgery and the fixed tissue technique have been shown to be identical. The practicality and simplicity of the fresh tissue technique have produced an enormous expansion in the number of patients treated by Mohs micrographic surgery. In 1970, the American College of Chemosurgery had less than 20 members. In 1989, the American College of Mohs Micrographic Surgery and Cutaneous Oncology has about 200 members. To become a member of this organization, an individual must complete a one-year fellowship at a training program approved by the College. At present, five members of the college practice in Canada.

### Technique

Simply put, Mohs micrographic surgery is excision with frozen section control; however, a number of changes in the normal technique significantly improve the cure rate. The procedure is done under local anesthesia in an outpatient surgical facility. The surgeon acts as a pathologist.

After induction of local anesthesia, the tumor is debulked, usually with a curette. A thin layer of normal-appearing tissue is then removed from the sides and base of the defect. The sides are beveled, so that the tissue can be flattened, which places the sides and base of the defect on the same plane. The tissue is then divided into blocks of an appropriate size for sectioning. Frozen sections are cut horizontally off the base of the blocks, stained with hematology cosin or special stains such as toluidine blue for basal cell carcinoma, and then read by the Mohs surgeon. Areas of

# Daphne Panagotacos, M.D.

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3367 (Fax)

805-379-3376

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

persistent tumor are marked on the map, which is then used to guide the surgeon in the removal of further tissue. The process is continued until a tumor-free plane is achieved throughout the defect.

The significant differences between this method and the standard frozen tissue technique include the horizontal sections, the proximity of the patient, surgeon, technician, cryostat, staining equipment, and microscope, and finally, the fact that the surgeon acts as the pathologist. The conversion of a three-dimensional tissue section into a two-dimensional frozen section is the most important difference since it allows the surgeon to visualize the entire surgical margin. It can be compared to the standard histopathological method of tissue sectioning, which is akin to selecting random slices from a loaf of bread. Horizontal sectioning, when combined with the mapping of defects, allows the surgeon to localize residual tumors accurately, even after multiple layers of tissue have been removed in extensive tumors. When a single person acts as both surgeon and pathologist, he or she can compare what appears under the microscope with what has been seen in the patient; this knowledge can guide the surgeon more accurately in subsequent tissue removal. When one individual performs or supervises the entire procedure, any "failure to communicate" is prevented and the individual's understanding of all parts of the procedure is increased. For example, the surgeon should be able to cut sections, stain them, and understand the functioning of the cryostat, as well as supervise the technician, and affect any emergency repairs.

Mohs micrographic surgery is time-consuming for patient, staff, and physician. Consequently, when compared with other office procedures, it is expensive, however, this technique is performed as an outpatient procedure in a non-hospital facility. The costs in such facilities are significantly less than those in larger institutions such as hospitals. When comparing the total cost to all budgeting levels, Mohs micrographic surgery does not differ greatly from excision and repair in a hospital operating room or radiation treatment in an institution.

## INDICATIONS

### Basal Cell Carcinoma

Basal cell carcinoma is a common tumor of exposed skin that grows in continuity and rarely metastasizes. It is ideal for treatment by Mohs micrographic surgery. Many early basal cell carcinomas can be satisfactorily treated by simpler methods, such as electrodesiccation and curettage or outpatient excision and closure with a cure rate of greater than 90%.

### Primary Tumors

Essentially, Mohs surgery should be considered when a feature of the tumor suggests to the physician that the chance of cure is less than 90-95% with other therapies.

1. *Sites:* especially the nasofacial groove, nasolabial fold, inside the orbital rim, and the periauricular area
2. *Size:* particularly greater than 2.0 cm

3. *Histology:* infiltrating, spindling, sclerosing, morpheic, invasive
4. *Patients:* young, cosmetically concerned patients with a lesion in a sensitive area, such as the tip of the nose or above the alar rim

## Recurrent Tumors

When a basal cell carcinoma is recurrent, it implies that the tumor was larger than was clinically obvious during the original treatment. The therapeutic choice is therefore between radiation of an extensive area and excision (blind, with standard frozen sections, or with Mohs micrographic surgery). In older patients, radiation may be preferable because of the lack of surgical trauma, although the inconvenience of five consecutive trips for therapy followed by a brisk, inflammatory response means this treatment is not as "easy" as patients sometimes imagine. Radiation is most valuable in older patients with tumors of nose, eyelid, or ear, where extensive surgical repair can be avoided. Basal cell carcinomas should never be treated by radiation in those less than 40 years of age, and should rarely be considered in patients less than 60 years.

Of the surgical options, Mohs micrographic surgery will have the highest cure rate, it is not less convenient or significantly more expensive. Mohs micrographic surgery is the treatment of choice for all radiation-recurrent tumors.

Recurrence rates at five years or longer for common treatment modalities have recently be

# Daphne Panagotacos, M.D.

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

analyzed by Rowe et al (Table 1). They reviewed all papers published over the past 40 years and confirmed the superior results of treatment by Mohs micrographic surgery.

## Squamous Cell Carcinoma

Squamous Cell Carcinoma can metastasize and therefore may not be suitable for local treatment alone; however, the majority of actinic squamous cell carcinomas, excluding the lip and aggressive tumors in the temple area do not metastasize and can be treated in the same manner as basal cell carcinoma. The cure rate of Mohs micrographic surgery is about 95% and the combination of this high cure rate with its characteristic ability to spare tissue indicates that this modality can be used for the treatment of squamous cell carcinomas that are similar to basal cell carcinomas.

Invasive and in-situ squamous cell carcinoma of the penis and vulva constitute a special group. These tumors may extend well beyond the

clinical margins, e.g.: down the urethra. They are highly suitable for treatment by Mohs micrographic surgery, which should be considered the primary surgical therapy for these tumors.

## Other Tumors

Mohs micrographic surgery has been used to treat a number of other malignancies. The most controversial is malignant melanoma. A number of Mohs surgeons claim superior results, but others are concerned that abnormal melanocytes are not visible on frozen sections and advocate routine removal. On the other hand, lentigo maligna, which does grow in continuity, can be removed by Mohs micrographic surgery when permanent sections are used to control the margin after clearance with frozen sections.

Mohs micrographic surgery is the treatment of choice in extramammary Paget's disease. It also appears to produce superior cure rates with:

- 
- Dermatofibrosarcoma

MOHS Micrographic Surgery

- Protruberans
- Microcystic Adnexal Carcinoma
- Atypical Fibroxanthoma
- Oropharyngeal Carcinoma
- Erythroplasia of Queyrat
- Merkel Cell Carcinoma
- Mutilating Keratocanthoma
- Sebaceous Carcinoma

## Summary

Mohs micrographic surgery is a straight-forward, practical technique for the removal of surface malignancies. It is most commonly used for treatment of basal and squamous cell carcinoma, especially larger, aggressive or recurrent tumors. Cure rates for Mohs micrographic surgery are superior to other modalities including radiation and conventional surgical excision. Because of the tissue-sparing property of Mohs micrographic surgery, superior cosmetic results can frequently be obtained.

# Daphne Panagotacos, M.D.

Clayton Hinshaw, M.D.

Mary Kay Graves, R.N., FNP

Holly Nichols, R.N., FNP

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3376

805-379-3367 (Fax)

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

Table 1 Five-year recurrence rates of basal cell carcinoma treated by various modalities		
Treatment Modality	%	Recurrence/Total pts
Surgical Excision	10.1	264/2606
Curettage & Electrodesiccation	7.7	274/3373
Radiation Therapy	8.7	410/4695
Cryotherapy	7.5	20/269
Mohs micrographic surgery	1.0	73/7670
After Rowe et al		

**Daphne Panagotacos, M.D.**

**Clayton Hinshaw, M.D.**

**Mary Kay Graves, R.N., FNP**

**Holly Nichols, R.N., FNP**

32144 Agoura Road #106

Westlake Village, CA 91361

panagotacos@gmail.com

805-379-3367 (Fax)

805-379-3376

Diplomate, American Board of Dermatology

MOHS Micrographic Surgery

**CONSENT FOR THE PROCEDURE OF MICROSCOPICALLY CONTROLLED EXCISIONS**

1. I authorize Daphne Panagotacos, M.D. to treat \_\_\_\_\_ for the condition of skin cancer.

2. The technical name of the operation to treat my skin cancer is microscopically controlled excision (Moh's Surgery). This operation has been explained to me by Daphne Panagotacos, M.D. and I understand it to be:

Following the use of local anesthetic, (and in some cases a sedative), the obvious cancer is removed with a scalpel. A layer of tissue below and peripheral to the obvious cancer is then removed and examined under a microscope. If cancer is present in the first layer, a second layer is taken, and so on until the excised tissue is free of cancer.

3. I consent to the administration of such anesthetics, analgesics, sedatives of other medications as may be considered necessary or advisable by my doctors.

4. The possible alternative methods of treatment have been explained to me. I have been made aware of certain potential risks, signs or symptoms associated with the operation in paragraph 2. Among these are:

- a. Scarring,
- b. Large wound,
- c. Possible need for additional surgery to cover or close the wound,
- d. Temporary (possibly permanent) loss of sensation in the skin surrounding the wound,
- e. Temporary (possibly permanent) loss of muscle motion near the surgical site,
- f. Infection
- g. Possible need for additional surgery to remove all the cancer if it has invaded bone or nerves, and
- h. Possible recurrence of the cancer.

5. My questions concerning the operation and its possible outcome have been answered to my satisfaction.

6. I consent to have photographs taken of me for diagnostic purposes and to enhance the medical record. I authorize Daphne Panagotacos, M.D. to publish, display, or otherwise use photographs of me for teaching purposes or to illustrate scientific papers, books, or lectures.

\_\_\_\_\_  
Patient Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Date