

carcinomas, recurrent basal cell carcinomas, or large, nodular basal cell carcinomas.

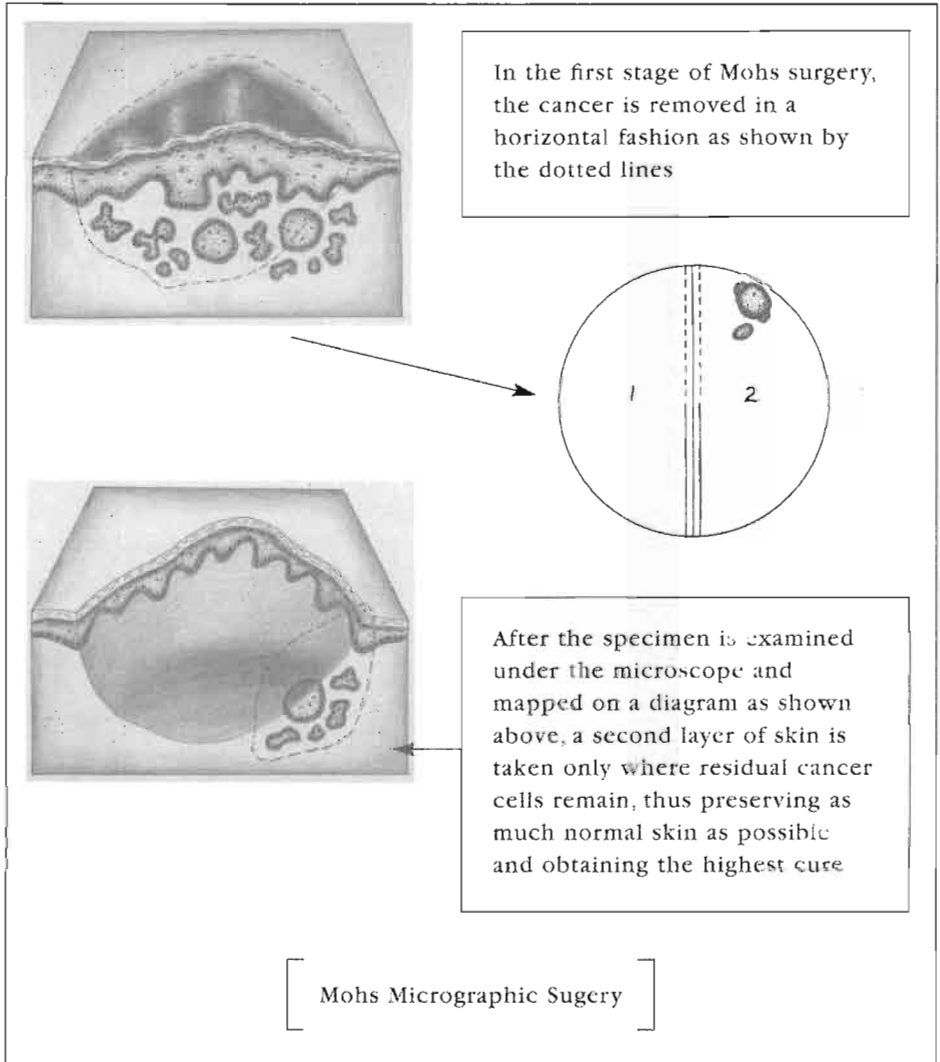
MOHS MICROGRAPHIC SURGERY

The most thorough method for treating basal cell cancer and squamous cell cancer is a technique called *Mohs micrographic surgery*. This office-based procedure, once not widely available because only a limited number of individuals had been trained to perform it, is now available at every major university center and in many communities throughout the United States, Canada, and Europe.

Named after Frederick Mohs, a general surgeon at the University of Wisconsin, the technique is based on the notion that normal pathology specimens, cut like a bread loaf, evaluate only about 3 percent of the total surface area of the margins of the cancer. By contrast, the Mohs technique allows evaluation of the complete surface area. This is important because many basal cell cancers grow with fingerlike projections or roots, and the random sampling of the specimens used by conventional pathology may not permit a thorough assessment of residual cancer. In addition, the Mohs technique requires that the dermatologist, *who must be specially trained*, not only excises the cancer from the patient but maps it out with special colored inks for purposes of orientation, and then evaluates the microscopic cancer. That one physician controls all three aspects of the process, I believe, is an important factor in the very high cure rate. Indeed, Mohs surgery has the highest cure rate of any of the methods mentioned, approaching 98 to 99 percent in most cases.

Because of the mapping technique, the complete cancer and only a minimal amount of normal tissue is removed, so Mohs micrographic surgery is a tissue-sparing method. Therefore it has the best cosmetic outcome, since there is often no need for the large plastic surgery reconstruction that would normally be done with traditional surgical excision. Often, simpler plastic reconstruction can be done at the same time that the Mohs micrographic surgery is performed. Moreover, because the cancer can often be removed in a very thin layer, the wound may, in some cases, be allowed to heal on its own, which can yield a better cosmetic result than plastic reconstruction. In cases where the cancer is large, Mohs micrographic surgery provides the assurance of the highest cure rate while permitting optimal reconstruction.

Under local anesthesia, the cancer is excised from the patient in a disk-



like shape (see box above). The specimen is divided into pieces and carefully mapped with different colors. The tissue pieces are then processed and studied under the microscope in such a way that it allows the complete peripheral surface and undersurface to be viewed at once. This enables the Mohs surgeon to determine whether there is any cancer at the undersurface of the specimen as well as at the periphery, an advance that is extremely important. If residual cancer is present, an additional specimen is removed, but only at the specific site designated by the map.

Once all the cancer has been removed through Mohs surgery, if a shal-

SKIN CANCERS THAT CAN BENEFIT FROM MOHS MICROGRAPHIC SURGERY

Basal cell cancer or squamous cell cancer that is

- located near the eye, ears, lips, or in the central face.
- the morpheaform subtype, that is, the doctor cannot easily tell the margins of the cancer.
- greater than one centimeter.
- in a location where tissue preservation is important and the best cosmetic result is desired.
- recurrent.

low wound results it can be allowed to heal naturally, without additional surgery. The wound will generally heal within three to four weeks, but may remain red for some time after that. Makeup can be applied, but one should not expect the best cosmetic result to occur until nine to twelve months have passed.

More often than not, the type of skin cancer that requires Mohs micrographic surgery will, upon its removal, need reconstruction of the wound area. The majority of Mohs surgeons in this country are specially trained in plastic reconstruction of facial wounds.

If your plastic surgeon or other reconstructive surgeon does not mention Mohs surgery as an option and describes a very complex reconstructive process, stop and question whether a simpler approach might not be acceptable. It is extremely important to have open lines of communication with your physician.

Because of the high cure rate, the logic of the procedure, and the opportunity to get the best cosmetic outcome, Mohs surgery is the method of choice for any recurrent skin cancer, any large skin cancer, and certainly any facial cancer where the best cosmetic result is desired.

RADIATION

Radiation therapy is a widely used treatment for the management of many cancers, and is best used only for very specific situations when it comes to skin cancer. Technologically, radiation therapy has improved enormously in the past two decades and the latest generation of X-ray

devices permit the delivery of finely tuned and specific doses. In this painless technique the tumor is identified and radiation is applied in a series of short daily treatments which usually span four- to six-weeks.

Radiation has some disadvantages, however. No tumor is excised, so the margins of excision cannot be identified. As a result, and to compensate, a radiation field, identified on the patient prior to treatment, may include a wide area of obviously normal skin, thus irradiating tissue unnecessarily.

In addition, if the radiation therapist is not that familiar with the particular type of cancer, such as a morpheaform basal cell cancer, and does not understand that its roots may extend beyond what is obvious, undertreatment may result, with recurrence of the cancer later on. Another disadvantage of radiation therapy is that it is delivered in small, fractional doses over a long period of time to get the best cosmetic results. For elderly patients, it is not often feasible to make the daily trips for treatment.

The principal advantage of radiation therapy is that when it is performed correctly on the properly selected cancer, it can yield a good cosmetic result. It should be noted that although no incision is made radiation therapy may still leave a scar. Radiation therapy is especially helpful for basal cell cancer and squamous cell cancer that is inoperable, or as an adjunct treatment after removal of a high risk cancer.

CHEMOTHERAPY

Chemotherapy has little role in the management of basal cell cancer and squamous cell cancer of the skin. However, for decades a form of topical chemotherapy has been used for precancers such as actinic keratoses and can be effective when used properly.

While the diagnosis of cancer is upsetting and the diagnosis of a cancer that occurs on your face may be of even greater concern than if it occurs elsewhere, it is important to remember that techniques are available that can result in the highest cure rate possible and the best cosmetic result. It is important to help your physician help you understand how the different options would best apply.

▪ A HAPPY ENDING

After extensive discussion about the various ways to treat her skin cancer, Cheryl elected to undergo the Mohs technique. She arrived at the

office for the procedure and, after the site was identified, my nurse anesthetized the cancer and the skin around it with lidocaine solution. Although that stung briefly Cheryl was amazed that she felt none of the rest of the surgery. I took the first layer of tissue, or *Mohs stage*, and after processing was able to study it under the microscope. I offered Cheryl a peek under the microscope and she was relieved to see just a small collection of cancer cells in the area that mapped out toward the eye. She returned to the procedure room, and with the area already numb, I removed a sliver of tissue smaller than the white of your nail. After studying this piece, it was clear no more cancer remained.

Cheryl was delighted that the cancer was completely removed and we turned our attention to the reconstruction. The option of skin graft, linear closure, where the edges of the wound are simply pulled together and sewn, and a skin flap in which a piece of adjacent tissue is elevated and transposed into the wound to fill it were discussed in detail. She asked about allowing the penny-sized wound to heal on its own. Because of its location I was concerned that it would pull on the corner of her eye and perhaps distort the tear duct, so we elected to perform a small skin flap. This surgery took only twenty minutes, and soon after, Cheryl, wearing a large pressure bandage, went home with her husband. When I called her at night to see how she was doing, she explained that she was a bit tired and a bit tearful but amazed that she had so little pain. I reminded her that she would probably get a black eye in a few days, but that after the stitches were removed, she would feel much better about the healing and the prospects for minimal scarring on her face.

WHEN IS MOHS MICROGRAPHIC SURGERY THE BEST ROUTE?

The high cure rates and tissue-sparing benefits of this technique are well suited to facial surgery where it is best to minimize the chance of recurrence and optimize the cosmetic result. An important benefit of Mohs surgery is that because a very thin layer of tissue is first taken, if clear of cancer cells, the shallow wound may be allowed to heal naturally and look better than if a skin graft or skin flap is placed. If plastic surgery is required, it can be performed at the time of cancer removal.

Cheryl's sutures were removed in five days and when I saw her for follow-up six weeks later, she was pleased that the scar had already begun to fade. She carried a bottle of sunscreen with SPF 15 and asked if it was the correct one to use. I told her that it was, and the hat she had taken to wearing in bright sun, with its wide brim, was likely to help as well. "I don't let the children outdoors without their sunscreen, either," she said, highlighting the strongest action step she could take to prevent skin cancer in the next generation.