

# Zinc Paste May Enhance Mohs Surgery Success

BY HEIDI SPLETE  
Senior Writer

SAN DIEGO — The use of zinc chloride fixative paste may be controversial, but its judicious application can increase the melanoma-clearing properties of Mohs surgery, Dr. Norman A. Brooks said at a meeting sponsored by the American Society for Mohs Surgery.

"Zinc chloride fixative paste is an amazing substance; it has the ability to cure cancer right out of the bone," said Dr. Brooks, a Mohs surgeon in private practice in Encino, Calif.

Application of the paste has been shown to freeze melanomatous tissue in place. This process kills the tissue, which can then be removed using Mohs surgery.

Dr. Frederic Mohs did not invent the paste, but he did fine-tune the standard formula, which is still in use today.

The use of zinc chloride fixative paste for the treatment of skin conditions has not been approved by the Food and Drug Administration, and patients should not apply it themselves or buy it online. The paste is powerful, toxic, and potentially scar causing, and it must be handled carefully, Dr. Brooks said.

It does, however, appear to work. Studies have shown higher cure rates in melanoma patients when the paste was used prior to excision of the cancer with Mohs surgery, he noted.

The application of zinc chloride fixative paste is a two-step process. The paste can't penetrate the outer keratin layer of the skin, so it's necessary to apply a saturated dichloroacetic or trichloroacetic acid solution to the area. When the area turns white, that means the acid has dissolved the keratin and the paste can be applied. The paste is applied in a layer 1- to 2-mm thick, with a narrow margin around the clinical melanoma that includes subclinical extensions. A dry, sterile cotton ball is then applied with clear plastic adhesive tape as an occlusive dressing to hold the paste in place.

Approximately 24 hours later, the killed tissue is excised and a wall of white, fixed tissue will be visible, Dr. Brooks said. The excised specimen can be preserved in formaldehyde, embedded in paraffin, and sectioned for examination.

The use of zinc chloride paste is not a substitution for Mohs surgery, but it can be a supplement to it. "If used preoperatively, after a biopsy, it can cure patients even more effectively than surgery alone," Dr. Brooks said.

Zinc chloride paste does not get the publicity of cancer treatments such as interferon because it is not FDA approved, Dr. Brooks noted. Companies that might consider seeking FDA approval balk at the multimillion-dollar cost of a toxicity study. Although the paste is made of naturally occurring ingredients, the toxicity study is cost prohibitive and no company has been willing to put up the money.

"I don't blame them. That would be financially insane," Dr. Brooks said. But that doesn't mean Mohs surgeons can't use the paste if they get informed consent from patients.

"You need to tell the patient that this is not an FDA-approved drug; it is a naturally occurring substance, and it can improve the outcome of the surgery by reducing the risk of recurrence," Dr. Brooks said.

The formula for zinc paste perfected by Dr. Mohs has been published and can be found in the Mohs surgery literature.

Many patients with cancer are now receiving preoperative treatments such as chemotherapy, and the use of zinc chloride fixative paste prior to excision of the cancer can be another effective strategy when properly applied, Dr. Brooks said. ■



A biopsy was performed on a 1.8-mm-thick amelanotic melanoma of the left arm.



Zinc chloride fixative paste was applied to the fresh tissue site with a 2- to 3-mm margin.



A dressing held the zinc chloride paste in place for 24 hours before Mohs excision.



Conventional excision of a deep wide margin was done a week after applying paste.



No sentinel node involvement was seen on this patient at time of fresh tissue excision.

# Eliminate Perineural Invasion By Taking Wider Margins

BY HEIDI SPLETE  
Senior Writer

SAN DIEGO — Tumors travel within the nerve structure, so if a Mohs surgeon has a habit of taking superficial margins, he or she will miss perineural tumors, Dr. Alexander Miller said at a meeting sponsored by the American Society for Mohs Surgery.

The nerve structure includes the endoneurium (nerve fibers), perineurium (mostly collagen), and epineurium (connective tissue). All these components vary with the nerve size, and tumors can travel through all of them.

"A perineural tumor doesn't care which nerve it gets into, and it will go anywhere and in any direction," Dr. Miller said. "It could attack several nerves simultaneously," said Dr. Miller of the University of California, Irvine.

About 60%-70% of perineural tumors are asymptomatic and unknown to the patient. With symptomatic tumors, patients report burning, aching, numbness, or even a complete lack of sensation. The nerves are rarely palpable, although they may be more palpable at points where they cross over bones.

Although most perineural invasion is localized, there are cases in which it travels far beyond the general body of the tumor. "Your challenge is to discriminate between localized and not localized," he said. The majority of perineural tumors are localized to areas within 1 cm or less of the general body of the tumor. That said, some invasions extend several centimeters beyond the general body of the tumor, Dr. Miller said.

"Perineural tumors are hard to see under the microscope, and some people forget to look," he said.

Tumors that are most likely to become perineurally invasive are basal cell carcinoma and squamous cell carcinoma, but microcystic adnexal carcinoma, neurotropic malignant melanoma, and other adnexal tumors, particularly salivary or sweat gland tumors, also are candidates for perineural invasion.

An estimated 1% of basal cell carcinomas have perineural invasion. Those most likely to become perineural are morphealike, micronodular, metatypical, and basal cells invading as long arms of tumor surrounded by concentric fibrous sleeves of collagen.

About 3%-4% of squamous cell

carcinomas are perineural, usually those that are moderately to poorly differentiated, and show tumor spreading like a narrow cord.

Squamous cell carcinomas more than 2 cm in diameter or greater than 4-mm thickness are more likely to be perineural than smaller ones; if they are 8 mm in thickness the risk is substantial.

Most microcystic adnexal carcinomas, approximately 80%, invade perineurally and subclinically, and it is crucial for the Mohs surgeon to be aware of this, Dr. Miller said. "Take a wider margin than you would with other tumors, be careful about tracking out the edges, and get good-quality slides."

Regardless of the type of tumor, tumors that are perineurally invasive share a uniform histology and display similar behaviors.

**'It's crucial to realize that perineural tumors can affect more than one nerve or multiple branches of the same nerve.'**

DR. MILLER

"They all pretty much look the same once they get into the perineural space," Dr. Miller said.

The tumor cells can be tightly packed, clustered, or in a line. "In order to tell the tumor of origin, you have to go back to the original histology and look elsewhere on the slide" he said.

The pattern of growth can be spotty or concentric, and perineural tumors tend to be multifocal. "It's crucial to realize that perineural tumors can affect more than one nerve or multiple branches of the same nerve," he said.

"Be aware of multifocality in the subcutaneous layer," Dr. Miller advised. "If you have poor-quality slides that are consistently destroying fat, you may miss crucial structures." Obvious inflammation around a nerve is a helpful indicator of perineural invasion, he added.

Tumor depth has been shown to correlate with perineural invasion, as has tumor recurrence and fibrous sleeve growth. Also, pay attention to nerve orientation on the microscope slides. A tumor may invade concentrically around the nerve, or just crawl along a portion of the nerve circumference. When a tumor invades along only one edge of a nerve, it can easily be missed.

"Multiple Mohs sections and slides must be examined for perineural tumor, or you will miss it," Dr. Miller emphasized.

"When perineural tumors recur, they are unpleasant; they are deep, and they can grow subclinically for a long time," Dr. Miller said. "Meticulous, compulsive evaluation is needed to successfully treat these patients and prevent recurrence." ■

