The term *Mohs chemosurgery*, which was coined in the 1930s, was used to describe a new technique for the removal of skin cancers. The method achieved a high degree of precision and conservation during skin cancer surgery. The accuracy of Mohs surgery was not based on the guesswork of representative or incomplete margin samples, as in routine scalpel surgery. Accuracy was ensured by a microscopic survey of all margins. This enabled complete removal of the cancer with surgical borders of 1 or 2 mm. Today Mohs surgery is performed in major university medical centers throughout the country and its accessibility has helped set a new standard for quality patient care.

While the routine techniques for removing non-melanoma primary skin malignancies (including cryosurgery, ionizing radiation, curettage, and standard scalpel excision) will remain the accepted practice for the treatment of the majority of skin tumors, Mohs surgery is the treatment of choice for certain cancers.

**Fixed-Tissue Technique**

The original chemosurgical technique started with the application of a keratolytic agent, dichloracetic acid, which stripped away the stratum corneum barrier. This allowed for better penetration of the second chemical, zinc chloride paste. The paste was applied to the surface of the skin cancer and covered with a bandage overnight. During this time (24 hours), the zinc chloride penetrated 1–2 mm into the skin, killing and fixing the tissue.

The following day, a grid or “map” was drawn with dye on the surface of the fixed tissue extending onto the normal untreated skin. This map was then recorded for permanent record which would be used to orient the tumor specimen to the wound site after surgical removal. A thin tangential (horizontal) layer of fixed tissue was removed as a flat, wafer-like specimen. The key to ensuring 100% margin control was to cut the specimen uniformly flat and thin in order to allow the lateral skin edges at the perimeter to lie in the same horizontal plane as the deep margin. By scanning the skin edges (the entire circumference) and the undersurface, Mohs was able to detect minute fingers of tumor extending into deep or lateral margins. The map constructed just prior to excision, oriented the surgical specimen to the wound site.
Using the map, the surgeon returned to the precise location of the remaining cancer. Zinc chloride paste was then reapplied only to cancerous areas, and the procedure continued until tumor cells were completely excised.

Clinical experience with the method during the mid and late 1930s culminated in a publication in 1941 that explained the usefulness of his "chemo-surgery technique" (2). Use of the chemical fixative was the basis for the original term chemo-surgery. The fixative was a mixture of zinc chloride, finely ground stibnite, and an extract of blood root (Sanguinaria canadensis) which was mixed to form a thick paste (3). Today the fixed tissue technique, although rarely used, is basically unchanged. After debulking the tumor, zinc chloride paste is applied under an occlusive bandage for 24 hours. A thin layer of fixed tissue is excised and carefully mapped using colored dyes. Microscopic sections are taken from the entire undersurface and peripheral edges and then stained with hematoxylin and eosin. Finally, these sections are reviewed under the microscope for residual tumor. Each excisional stage takes 24 hours. If more than two or three stages were necessary for complete tumor removal, the procedure becomes uncomfortable. Except for these disadvantages, fixed tissue chemo-surgery represented a major technical advance to skin cancer surgery. The method offers the highest cure rate possible while ensuring maximal preservation of normal skin. However, the fixed tissue technique has been in general replaced by the fresh tissue technique. The limited indications for the former will be discussed later.

Fresh-Tissue Technique

In the early 1970s, Tromovitch and Stegman (4) demonstrated that a "fresh-tissue" modification of the fixed-tissue technique was just as effective and precise as the earlier method. Under magnification, the clinical edge of the tumor is identified and marked. A map is drawn on the patient at the