Title Dr. Frederic E. Mohs

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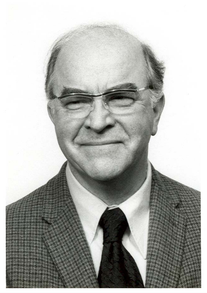

University of Wisconsin
SCHOOL OF MEDICINE AND PUBLIC HEALTH

Introduction

Background

- Although some people have heard of Mohs surgery for the treatment of skin cancer, many are unaware that Mohs surgery was conceived, developed and begun at the University of Wisconsin in 1936 by Dr. Frederic E. Mohs.
- Mohs surgery is practiced world wide and is still, because of its irrefutable logic, highly documented clinical success and practical efficacy, generally considered the gold standard for the treatment of skin cancer.
- Since Dr. Mohs death in 2002, there had been an ongoing joint archival project conducted by the Mohs surgery clinic, the Ebling historical library and the University of Wisconsin historical archives. The American College of Mohs Surgery is now financing the archiving project.

Objective

- To make University of Wisconsin students, faculty and staff aware of Dr. Frederic E. Mohs and his contributions to the science of medicine.

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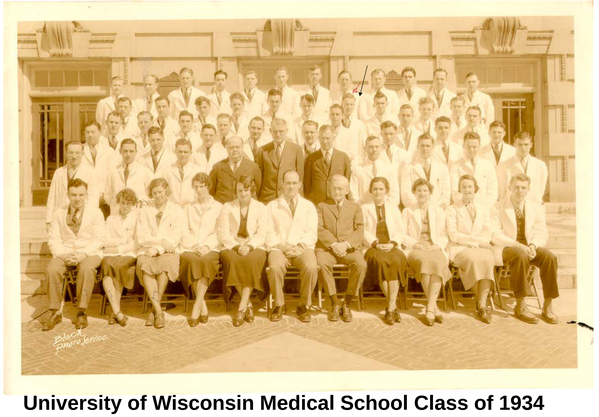
Fred Mohs and his mother, Madison 1919

Frederic E. Mohs was born in Burlington, Wisconsin in 1910. His father died when he was 3 months old. His mother moved the family to Madison in 1918 in order to afford to send Fred and his older brother to the University of Wisconsin. The family owned a boarding house on the edge of campus where young Fred met and idolized UW faculty members and marveled at their accomplishments as he grew up.

Although he had a strong interest in electronics, a chance reading of Paul de Kruif's *Microbe Hunters* sparked the notion that medical research could be a fascinating field to pursue. He graduated from the University of Wisconsin and then from the UW Medical School in 1934.



University of Wisconsin Medical School Class of 1934

Dr. Mohs did his surgical internship at the University of Oregon but returned to Madison in 1935 as a Bowman Cancer Research Fellow until 1938. He then was an Associate in Cancer Research and Instructor, l938-42, an Assistant Professor of Surgery l942-48, an Associate Professor of Surgery l948-68, a Clinical Professor of Surgery l968-80, and an Emeritus Clinical Professor of Surgery 1980-2002.

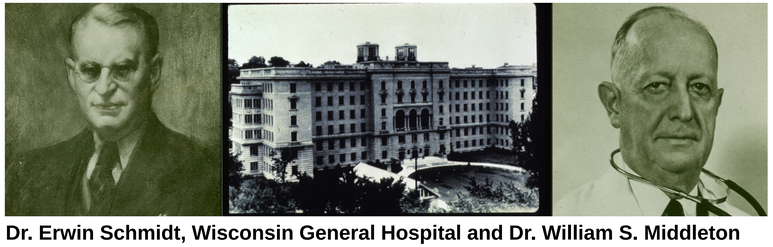
As a UW undergrad and medical student, Fred Mohs was the Brittingham Research Assistant to Professor Michael F. Guyer, a geneticist and the long-time head of the zoology department. During their first collaborative research project, they became interested in comparing the leukocytic infiltration in cancerous and normal tissues due to the chemical irritants. They observed that the leukocytic infiltrate that developed at the edge of the necrotic tissues of their rats was dense in normal tissues but almost non existent in the cancer tissue. One of the chemical irritants, zinc chloride, had the additional benefit of preserving the tissue architecture while killing it. A keratolytic of dichloracetic acid, synthesized by UW chemistry professor Louis Kahlenberg was used to make the skin permeable to the zinc chloride.

Drs. Fred Mohs, Michael Guyer and their early cancer test subjects.

The Brittinghams

From his days of delivering photos to various drugstores, Dr. Mohs remembered seeing men with large facial cancers. He had the idea of killing off these skin cancers with an escharotic and then, just as he did with the rat tissues, removing tissues layer by layer, and then sectioning and microscopically examining the entire undersurface of each successive layer until a cancer-free plane was reached.

Using an escharotic paste of zinc chloride and powdered bloodroot to treat tumors was not an entirely original concept but the application of this paste had several advantages, the first being that it killed the tissue but preserved the histology for microscopic examination. Hemostasis in 1936 was also a bit sketchy so by using the zinc chloride paste, Dr. Mohs was able remove the tissue without having to control bleeding during surgery. Additionally the dense leukocytic infiltrate in the healthy tissues stimulated the production of granulation tissue and allowed the wounds to heal by second intention with surprisingly good cosmesis. It was the microscopic control of the surgery along with sketching what was being seen in the microscope that contributed most greatly to the cure rate success of the microscopically oriented histographic procedure. With his scientific research background, it's no surprise that Dr. Mohs also kept meticulous records to document his remarkable results.



Dr. Erwin Schmidt, Wisconsin General Hospital and Dr. William S. Middleton

At the suggestion of Dean William S. Middleton, Dr. Mohs began treating skin cancer patients in July of 1936. Although Dr. Otto Foerster was the chief of the dermatology clinic, Dr. Roscoe McIntosh took care of the daily operation of the dermatology clinics. Because of the chemical fixation that preceded excision, Drs. McIntosh and Mohs called the method "chemosurgery". The transference of the chemosurgery clinic from dermatology to the department of surgery in 1940 was prompted by Dr. Erwin Schmidt, the hospital's chief of surgery. Chemosurgery was a surgical procedure and so it logically fit into the department of surgery where it stayed until 2004 when it once again, (now known as the Mohs surgery clinic), returned to the department of dermatology.

Timeline of Mohs Events

1936: Dr. Fred Mohs opens his clinic for micrographic surgery at UW-Madison as a subspecialist in the Department of Medicine at the recommendation of Dean Middleton, head of cancer research.

1940:After the death of his mentor, Roscoe McIntosh, Dr. Mohs is offered and accepts a position in the Department of Surgery.

1941: Dr. Mohs publishes the first series of 440 skin cancers treated by chemosurgery in the journal *Archives of Surgery* but is humiliated in the hometown press and censured by his own medical society.

1953: Dr. Mohs begins to use local anesthesia and excision of fresh tissue instead of removal of tissue fixed with zinc chloride in his micrographic surgery.

1956: Chemosurgery in Cancer, Gangrene and Infections is published.

1967: The American College of Chemosurgery is established.

1982: After treating thousands of patients, and training hundreds of physicians in his method of treatment, Dr. Mohs retires in 1982 and leaves his practice in the capable hands of two of his trainees; Drs. Paul O. Larson and Stephen N. Snow.

2002: Dr. Mohs passes away on July 2.

2004: Mohs surgery becomes part of the new Department of Dermatology.

2006: Mohs surgery celebrates 70 years of continuous practice at the University of Wisconsin.

2010: Mohs surgery continues as the world wide gold standard for the treatment of skin cancer.