VIEWPOINT

Why I became a surgical pathologist with interest in breast disease

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Factors that influenced my decision to become a surgical pathologist are presented below. Early childhood experience shaped my interest in epidemiology and public health. Formal education at Johns Hopkins Medical School cemented my decision to become a surgical pathologist and elective time with pioneers in the field of surgical pathology sealed my career choice. As a mentor, I have tried to teach residents and fellows how to practice pathology, not merely how to make a diagnosis.

EARLY INFLUENCES

Experiences in my early life now seem clearly related to later career choices and career satisfaction. I was born in New York City in 1941, the year mammary lobular carcinoma in situ was christened by Drs Stewart and Foote of Memorial Hospital in the same city. This is clearly an early sign of future interests.

My family moved to Dhahran, Saudi Arabia in 1948, where I began the third grade in the Dhahran Senior Staff school of what is now Saudi Aramco. At only 10 years old, I spent some weekends and school vacations closely associated with the entomology and preventive medicine divisions of the medical department, where I initially helped in mounting flies to determine which carry trachoma and also sorting snails carrying schistosomiasis. I went on field trips where I helped relate to the school children who were being surveyed and having peripheral blood smears for malaria. At that time, in the towns of the Al Hasa province in Saudi Arabia, the incidence of malarial parasites in the peripheral blood of children was over 95%. In a few years time, it was reduced to almost nil by preventive measures emphasising the placement of oil briquettes on standing and irrigation water in this dry area. During summer school vacations while in high school, I was involved in trachoma research projects collaboratively with the Harvard School of Public Health. We visited city and Bedouin communities where we gave smallpox vaccinations and did conjunctival smears for trachoma diagnosis and later established tissue cultures of human epithelial cells to grow the intracellular organism. Probably, the many hours I spent surveying Giemsa-stained smears for inclusions, taught me to be facile with a microscope.

It also seems clear that I was impressed with being involved with projects of such broad health importance. My interest in medicine and public

health was strong and continued into medical school. Between the first and second years, I worked with professors in radiation biology, ecology and animal behaviour.

My father was a major influence in many ways, one element which is probably directly related to my career choice, although it did not become evident until much later. He became interested in pathology while training in medicine at Syracuse University, completing a rotating internship in 1934 and pursuing training in pathology, including forensic pathology, before spending over a year in general practice. This last activity was to gain funds to undertake training in surgical pathology at the Mayo Clinic. While there, he published major papers in silver staining of the nucleoli as an indication of malignancy¹ and the importance of polyps in the colon as a “sentinel” indicator of carcinoma.²

He was a man of few words, rendering occasional comments much more powerful. As I was considering post-graduate training while in medical school, my father repeated three thoughts: First, if I were to amount to something, I should go to the Mayo Clinic. Second, that the pathologist was the doctor's doctor. Third, if you write and publish medical studies, it is something that “they can never take away from you”. I was never privy to the complete explanation for the suggested paranoia in the third comment, but he was also the first to explain to me that if you feel paranoid, it may be because you understand the situation.

Apart from the experiences, I will relate in the next section, these thoughts largely focused my decision to go into pathology.

Johns Hopkins Medical School

My attending Johns Hopkins was a happy happenstance and coincidence. I was already accepted at two medical schools and on a waiting list for a third. After my father's suggestion, I had an interview late in December at Johns Hopkins while travelling to visit a friend in Washington, DC. I had a relatively spotty and overall undistinguished record in college. It was only because another more powerful candidate cancelled that I was interviewed by the Dean of the Medical School and the Dean of Admissions. The interview that was scheduled for much less than an hour extended long past 60 min, including questions and comments that I will always remember. I admitted that my flagging grades during my junior and senior years were due to my lack of continuing enthusiasm in taking exams with no linkage to real accomplishment. I was told of the program long present at Johns Hopkins Medical School of

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having sophomores perform autopsies during the latter part of their second year. A medical student was summoned to introduce me to the autopsy room, while an autopsy was in progress. I subsequently had the experience of performing autopsies during my sophomore year, and spent many hours in the surgical pathology laboratory under the influence of gifted residents and the directors, Bill Shelley and Bill Hartmann. Despite my early professed interest in entering public health and exciting experience after my freshman year in ecology and animal behaviour at the School of Public Health, the excitement of intraoperative consultation and frozen sections drove me to surgical pathology. Besides the appeal of the immediate diagnostic challenge, seeing physicians from virtually all the specialties of the medical school in attendance in surgical pathology laboratory made evident the broad relevance of surgical pathology.

During the elective time in the Department of Pathology as a sophomore and the following summer, I spent many hours in the surgical pathology laboratory. While surveying thyroid tumours, I noted that a woman with newly described medullary carcinoma (that had been diagnosed as "small cell") had a sister with a thyroid tumour. My wife and I travelled to Washington, DC and collected the slides of the sister which showed exactly the same tumour type. Subsequently published,^{3,4} the sisters established the first family with medullary carcinoma of the thyroid. The sense of discovery was invigorating. I attended most of the Wednesday surgical pathology unknown conferences while a medical student, and under the tutelage of Bill Hartmann and Bob McDivitt, spent an elective three months at the Memorial Hospital in New York in their department of pathology while a senior medical student. The frequent association with Fred Stewart, Frank Foote, Bob McDivitt and Bob Hutter as well as the ten Fellows sealed by career choice.

My desire was to be an academic surgical pathologist at the centre of a busy academic institution, solving problems of practical and research health importance. The translational research role and opportunities were also established by my 2 years at the National Institute of Health doing research with George Glenner that discovered the basis of immune-derived amyloid.⁵ Familiarity with basic research fostered many collaborative projects. Our resources were broad and many different techniques were available—PAGE, affinity chromatography, scanning EM, electron diffraction, and protein sequencing, in 1970.

FACULTY YEARS

The Vanderbilt years

My first year at Vanderbilt, as a medical intern, was formative in many ways. Most importantly, it presented a wonderfully challenging environment where important clinical decisions were made frequently with open, friendly and constructive criticism. Tom Brittingham and David Rogers gave criticism and praise freely as needed. No one felt they needed to put others down to look good. Absence was the competitive atmosphere of diverse labs and departments fostering non-cooperation and competition that I found at the National Institute of Health, and subsequently elsewhere. I have sought to maintain such a mutually supportive atmosphere within my Division of Anatomic Pathology. This has been fostered by many fortunate recruitments of like minds, to mention a few, Lowell W Rogers, Jean F Simpson, George F Gray, Kay Washington, James Atkinson and Roy A Jensen. All of them have a continuing role

with the surgical pathology fellowship begun in 1973 that has included over 80 fellows.

If you are making many decisions daily to guide clinical management, not just your own gratification, you demand a non-grating supportive environment.

I have emphasised the thrill of discovery combined with pride of practising medicine by making and clearly relating clinically important information to clinicians.^{6–20} One proud achievement and challenge deriving from these is my current role as Chair of the American Joint Committee on Cancer. I would be remiss if I did not mention my wife and children. Lauren has never questioned my clinical and professional role, even while taking my car for inspection and mowing the lawn. My daughter Emily is a gifted teacher of English as a second language. My son, Robert, is a practicing pathologist of excellence who personifies the importance of well-developed interpersonal skills in accomplishing his clinical role.

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