

Editorial

A Journey in Anatomy: A Road Less Traveled

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My current focus is on three areas; 1) Teaching; as a senior lecturer Department of Anatomy and Cell Biology, 2) Administrative; Director of Master of Science in Medical Science program (MSMS), Division of Educational Affairs and 3) Educational research. My interest in educational research is focused around anatomical education and teaching [1-6]. Furthermore as a classically trained anatomist, an area of professional interest has been a concern that there will be a future shortage of qualified gross anatomists [7]. At Indiana University School of Medicine (IUSM), Department of Anatomy and Cell Biology, we addressed this concern with the development of an education track Ph.D. in Anatomy. I believe one of the exceptional points of the program is participation of faculty from the school of education. My previous basic science research interest evolved from my interest in bone and calcemic hormones and includes; 1) The effects of parathyroid hormone (PTH) and parathyroid hormone-related protein (PTHrP-1-34) on uterine smooth muscle contraction and 2) The localization and effects of neuropeptides in the female reproductive tract. Neuropeptides of primary interest were calcitonin gene related peptide and substance P.

Let me take this opportunity to share my anatomical journey through an academic path that directed me to my current faculty position at IUSM? Let's begin with the end. My current position; I am the Director of the MSMS program, Division of Educational Affairs at IUSM, Senior Lecturer in the Department of Anatomy and Cell Biology at IUSM. Both of my current positions are a result of what I consider or term my "passion for teaching and interacting with students", especially in small groups in the gross anatomy dissection laboratory. My objective has always been to have sessions with students in the lecture format and the laboratory that would be in an interactive atmosphere and allow teaching and learning to be fun.

My initial exposure to the field of anatomy was before I had my driver's license; taking public transportation to work. I had a job washing dishes in a research laboratory at the University of Utah Medical Center, Department of Anatomy. That first summer I also cleaned animal cages and helped graduate students. I was extremely fortunate to have the opportunity to "help" graduate students. This was my first exposure to basic science research. This research involved studying the effects of radioisotopes and corticosteroids on bone modeling and remodeling. Initially I cleaned laboratory rat and rabbits cages and assisted with injections and harvesting tissue samples. *I often think what would I be doing today, if my first job at the*

medical center had been in a biochemistry or microbiology lab cleaning test tubes? Nevertheless these graduate students served as mentors. I continued working during my high school years on weekends and after school and while an undergraduate at the University of Utah.

My "Graduate Student Mentors" (Golden Apple recipients later in their careers) at the University of Utah eventually accepted faculty positions. After finishing college I followed my eventual mentor to Texas Tech University Health Sciences Center (TTUHSC), Lubbock, Texas. Alas the rocky mountains of Utah for the flatlands of West Texas. A cultural shock but once classes began an educational epiphany. I studied bone cells and calcemic hormones. I received my Master's and Ph.D. degrees from TTUHSC. During this time I was in the right place at the right time and had some unique educational opportunities; one summer working in comparative endocrinology research lab in Villefranche, France and summers working in a Pharmacology laboratory at College of Physicians & Surgeons, Columbia University. While working in New York we made the casual observation that parathyroid hormone (PTH) increased urine output in African Lungfish; we extended this observation and I studied the "Effect of PTH on uterine smooth muscle". During my postdoctoral years in the Pharmacology Department at TTUHSC I followed-up on our initial observation that PTH relaxed uterine muscle contraction and further characterized the effects of PTH on uterine smooth muscle.

During graduate school training in an Anatomy Department I received classical training in all of the anatomical disciplines; gross, histology, neuroanatomy and embryology. My graduate obligations included being a teaching assistant in gross, histology and neuroanatomy. Subsequently I taught more in gross anatomy including lecturing. During my post doc I taught in the medical pharmacology labs and was a visiting instructor in Anatomy. *TTUHSC needed gross anatomy instructors; A preview into my future?* My subsequent faculty appointments resulted in tenure as an Associate Professor at Oklahoma University Health Sciences Center, Department of Anatomical Sciences. Again I was privileged to interact and learn from some outstanding and passionate gross anatomy instructors. Subsequently my wife was recruited to University of Minnesota Medical School and I was able to find a position teaching gross anatomy in the Department of Cell Biology and Neuroanatomy and as Research Faculty, Division of Neonatology, and Department of Pediatrics. From an academic perspective moving from a tenured Associate Professor to a Research Associate would appear the "wrong road". Nevertheless I seized the opportunity to work with and learn from some outstanding faculty in both the teaching and research arenas. What actually enabled us to make this transition was *my ability to teach gross anatomy (my classical anatomy training, previous experience teaching gross anatomy, lecture and laboratory) and the need for qualified gross anatomist.*

Subsequently I received an NIH grant as a principle investigator and at the same I assumed the Course Directorship of the medical and dental gross anatomy courses. While I tried to do both at a high level

I was more successful teaching. The time commitment to teaching a dissection course is not necessarily the “road to bench research success”. This time commitment to teaching has contributed to the decline in qualified gross anatomist. Furthermore during this time I begin attending and participating in the American Association of Clinical Anatomist’s annual meetings. I learned something that should have been intuitively obvious; human gross anatomy is at the core of healthcare professional training and gross anatomists play a vital role at nearly every medical school and in particular during the students’ early training.

Eventually we applied to and accepted academic positions at IUSM. We feel fortunate that we were able to find positions that have been beneficial to both of our careers. Once again my ability to teach gross anatomy was one of the major factors that allowed us to make this transition. We have been at IUISM fifteen years. My academic position, Senior Lecturer (non-tenure track) may not have been the ideal academic path, but it has been incredibly rewarding journey. My passion for teaching and being a part of professional student or any student’s training and development, interacting with students has been amazingly rewarding.

In a recent discussion with an anatomy colleague, we would like to think that we make a difference in a medical or professional student’s growth and development, that we are more than an abundant source of anatomical knowledge. The gross lab and dissection is often the first context of death and dying that a student encounters. Thus as gross anatomists we can help students with some self-reflection and during this period of dissecting, provide a supportive educational environment. Students at all levels often approach learning anatomy as rote memorization. In the gross anatomy lab we have a story or an explanation and a teaching partner with the human body, thus learning by association and actively interacting with the students

and integrating didactic information with the dissections. Giving the “memorization” some context and clinical meaning in the end makes the learning easier and more meaningful. As long as I maintain this “passion” I will continue teaching and try to provide guidance and help students.

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