

## **China: A Summer of Research in Myelomeningocele**

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Going abroad to study medicine has been an interest of mine for a number of years preceding medical school. I have always been an avid student of languages, and I felt that practicing abroad was the perfect hybrid between culture and medicine. I also knew that cultural experience could do no harm in my relationships with patients someday. Case Western Reserve University SOM's dedication to helping students find research projects outside of the United States was an instant attraction when I first visited. In undergraduate I studied four semesters of Mandarin Chinese. After coming to the School of Medicine I felt that studying in China would be an excellent opportunity. After making that decision, I began taking an undergraduate course at CWRU on medical Chinese—a class focusing on learning and using medical terms in Mandarin Chinese. Through a little investigation and a lot of support from the Center for International Studies, I discovered the Crile scholarship for students interested in studying outside of CWRUSOM. Finally, I had to find a hospital that would take me as a student in China. Jakon Torjeson, from the Center for International Studies, introduced me to Dr. Maohe Yan, a physician working in Rainbow Babies Children's Hospital in Cleveland. Dr. Yan was originally a physician at the Children's Hospital in Taiyuan, China. With a lot of help from him, I was able to set up a summer research project studying the epidemiology of neural tube defects with Dr. Cheng Qian, a neurosurgeon at the Taiyuan Hospital. Through my language preparations, the support I received from the Center for International Studies and the Crile scholarship, I was on my way to studying medicine in China for the summer.

I spent almost my entire summer break doing research in China. I arrived on June 6, 2002 and returned home on August 3, 2002. The time difference was exactly twelve hours, so I spent the first three days with friends in Beijing. Shortly thereafter, I hopped onto a train heading for Taiyuan (about an 8 hour train ride). When I arrived to the Taiyuan train station, there were three people waiting to pick me up—the vice president of the hospital and two administrators. They welcomed me warmly and loaded my things into a small bus where they proceeded to give me a tour of the city, check me into a hotel, and then show me around the hospital.

The hospital looked considerably different from those you would see in the United States. The walls, stairway and ceiling were all concrete. The building itself stood about fourteen stories high, and there were only three elevators for the entire collection of hospital staff, patients and visitors. Around the medical campus were dormitories for the residents, an administrative building, and a separate hospital for Chinese medicine. In the center was a small courtyard with some green vegetation and flowers which added a little appeal to the very conservative-looking area. However, just like hospitals in the U.S., there was ongoing construction.

Despite the differences in appearance, the hospital was run similar to those in the U.S. Each floor had about two specialties. For example, our floor contained the neurosurgery unit as well as internal medicine. Just below us were general surgery and

OB/GYN. Most floors in the hospital had a similar layout. Next to the neurosurgery unit was the physicians' lounge and conference room where I spent most of my downtime.

In a normal day, we would begin by having a morning report. This would usually consist of the nurses and physicians on call the night before discussing the conditions of the patients they saw. When they were finished, I would give a short lecture in English about the United States. These lectures were an idea of Dr. Qian and mine to give the physicians and nurses some practice in understanding English, in which everyone had an interest. Following the lecture, the physicians and I would do rounds. We would go from bed to bed observing the patients and discussing our plan for their care. Dr. Qian would frequently quiz me, however, the atmosphere among physicians and students was very friendly. He was not as concerned with what knowledge I came with as much as the fact that I was learning it as I went along.

After rounds we would go into surgery. The operating rooms were located on the fourteenth floor of the hospital. The first thing you would do to prepare for surgery was turn in your shoes. They would give you a pair of sandals, surgical cap, and scrubs in return. After changing you could enter the operating rooms. There were about eight operating rooms, and it seemed like they were always busy. For neurosurgery, there was a specific operating room that we would always use. Overall, the operating rooms were bare compared to those in the United States; however, the necessary equipment was still there. As you entered, you would see an operating table with an adjustable lamp above it. Close to the bedside would be the anesthesia equipment. On the other side of the bed, connected to the wall, were X-ray boxes. And off in the corner were the surgical instruments, gauzes and sutures. There was even a window in the room, but it was specially made so that germs could not penetrate it, which made for an ineffective view. That was it—no fancy suctioning devices, no super technical ventilation system for the room, nothing. It was about as basic an operating room as you will find in a non-war setting, but it was still effective for surgery to improve neural tube defects.

After the surgeries I would spend the rest of the day doing research. I was recording the frequency of neural tube defects in the county of Shanxi, where Taiyuan is located. This included searching all of the hospital records of neural tube defects dating back to 1993. This was more difficult than it sounds because all of the hospital records are written out, and they are not computerized. Searching hospital records and reading them in handwritten Chinese proved to be a slow, formidable task. I took the information that I gathered and made it into a computerized database from which we could analyze the possible causes of the neural tube defects. Our research uncovered a predominance of neural tube defects among those children with parents of lower income, providing evidence for the theory that nutritional deficiency might be a cause of these defects--specifically a deficiency in folic acid.

The final element to my visit in China was my experience in Chinese medicine. My internship with Dr. Qian, my research, and the new relationships I was developing everyday kept me quite busy, limiting the amount of time I had to dabble in Chinese medicine. I focused on acupuncture when I did get the chance to visit. It was interesting, because I think of acupuncture as being a very delicate art, requiring a masseuse's bed, soft music performed by Yanni and incense burning in the background—at least that has been my American impression of acupuncture. In China acupuncture is in demand. There would be lines of mothers holding their children, waiting for the treatments. The

physician, a man who had practiced in France for three years prior to joining the Taiyuan hospital, would consider the ailment, and without a moment wasted, would strategically place the needles in just the right places. Some children were receiving treatment for Bell's palsy, thoracic outlet syndrome, migraines, and others for illnesses that I couldn't identify. Each individual had their own treatment regimen as determined by the physician. For example, one little boy with Bell's palsy was receiving treatment for 30 minutes, three times a week for five weeks. After the acupuncture treatment, every child received an injection of nerve growth factor (NGF).

My experiences in China were fulfilling in many ways. In one respect, I was able to complete the requirements established in the Crile scholarship. I was able to practice medicine by following a trained physician in neurosurgery. I was also able to perform research and develop my investigational skills. However, the richest experience for me in China stemmed from the cultural activities in which I participated. I was able to hone my language skills to a degree far greater than I can as a student in the United States. Furthermore, I had the opportunity to live in China, and immerse myself in its culture. I made friends in China I will never forget—and quite possibly will work with in a clinical setting in the future. I truly believe that my research in China has helped me to develop divergent perspectives, which will make me a better physician.