

New Skills for Bolivian Doctors

Written by Tzu Chi Foundation
Thursday, 25 September 2008 00:00



Dr. Chen Fu-min (陳復民), 67, a specialist in general and laparoscopic surgery, is the TIMA coordinator in Cleveland, Ohio. He is retired from his private practice but still active in free clinics and medical education. In May and August 2007 and again in February 2008, free clinic and disaster relief missions took him to Bolivia, where he worked with local physicians. Those encounters paved the way for six Bolivian surgeons to attend the annual TIMA conference in Taiwan. There they also learned minimally invasive surgical techniques on a donated cadaver that is respectfully referred to in Tzu Chi as a "silent mentor." Here Dr. Chen, center, and the Bolivian doctors flank the silent mentor, lying on the operating table and pictured on the wall-mounted screen, before they operate on him.

Minimally invasive surgery (MIS) has been around since before surgeon John E. A. Wickham of London coined the term in 1984. Because of the concept's wide applicability, now many diagnosis and treatment procedures are minimally invasive, such as subdermal implants, endoscopy, laparoscopic surgery, endovascular surgery (such as angioplasty), and coronary catheterization.

Instead of making large incisions to reach inside the body, a surgeon makes only small openings and inserts a miniature video camera and special surgical instruments via long, flexible tubes. The video camera transmits images of the interior of the body to an external video monitor which provides the surgeon with information to make a diagnosis or conduct surgical intervention.

Compared with invasive procedures, MIS should have less operative trauma, pain, scarring, complications, and shorter hospitalization for the patient, and the patient should recover more quickly. However, MIS is not necessarily a minor procedure as most MIS procedures still require general anesthesia, nor is it necessarily less expensive.

Although MIS is widely employed in advanced countries, this surgical technique is beyond the reach of most hospitals in Bolivia because of the relatively high cost of the equipment. Consequently, the majority of operations in the country are still done invasively. Few medical practitioners have had a chance to learn, much less practice, hands-on MIS.

How it all started

Built with funds donated by the French government, Hospital Municipal Frances (HMF) in Santa Cruz, Bolivia, opened its doors in October 2006. The modern buildings, however, suffered from a lack of operating funds. Therefore, the hospital was unable to purchase essential medical equipment or recruit enough competent staff.

Bolivia was inundated by excessive rains in 2007 and 2008. The rains brought TIMA to the country. TIMA USA conducted distributions of emergency supplies and free clinics in May and August 2007 and again in February 2008.

The February 2008 free clinic was conducted in close cooperation with Hospital Municipal

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Frances. TIMA surgeons worked with HMF surgeons for three days. The surgical dexterity, expertise, and unconditional love of TIMA surgeons deeply impressed the local surgeons. As a result of that substantive joint effort, TIMA USA promised to equip the hospital for MIS. Dr. Chen Fu-min was instrumental in bringing about the ensuing equipment donation and the transfer of know-how.

The hospital started to gear up for the welcome added capability. First of all, HMF selected six physicians to receive training in MIS in September in Taiwan. Dr. Chen urged the selected doctors to brush up on their English so that they could gain the most benefit out of the upcoming training.

After six months of preparation, the group of six set off in September for the annual TIMA conference in Hualien.



Simulated surgery on a whole cadaver

The Medical Simulation Center at Tzu Chi University in Hualien, eastern Taiwan, utilizes donated cadavers as potent learning tools for medical students, residents, and even experienced physicians. The cadavers, which Tzu Chi people respectfully refer to as "silent mentors," have proven to be excellent tools not just for people who are starting their medical careers, but also for highly skilled surgeons to practice on in preparation for an upcoming liver transplant, for instance.

Basically, a donated cadaver is preserved at 30 Celsius below zero. It is brought out to thaw about three days before it is to be operated on. Then it can be in service for about four consecutive days. Perhaps partly because it is not immersed in formalin for preservation, the cadaver surgically feels and handles like a real living person in many respects. Therefore, it is an excellent tool to help surgeons gain their skills.

During the TIMA conference, many participants were given an opportunity to operate on a silent mentor. First, they participated in a simple ceremony to bring eight silent mentors into service at the simulation center. They pressed their palms together and bowed to thank the silent mentors for giving them this priceless opportunity to learn.

Surgeon Zonia Rodas, one of the six doctors from Bolivia, expressed her gratitude for being able to practice MIS techniques on a silent mentor. "My country has been in economic hard times for a while now. We could not afford laparoscopic surgery. All we could do was read about it. Now here at Hualien, I am most appreciative of this opportunity not only to learn MIS procedures, but also to learn them on a real, whole person. It is going to help me a great deal."

She was enthusiastic enough about this rare opportunity that she was willing to put off her honeymoon for it. She got married on September 6 and took the trip to Taiwan for the

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conference the next day. Five colleagues came with her, including Fernando Lacoa Mendoza, superintendent of HMF, who specializes in obstetrics and gynecology, Edil E. Toledo Avalos, deputy superintendent, Jerjes Torrico Azurduy, chief of surgery, Francisco Rodriguez Blacud, chief of the emergency department, and Hans Coca Aguilera, an anesthesiologist.

One-of-a kind training

Before they could work on the silent mentor, the six needed to gain proficiency by working with the laparoscopic surgery training device. It is a box about the size of a suitcase with a built-in monitor screen. Various objects like real oranges, grapes, plastic beads, and plastic sheets with holes are placed inside the box, hidden out of view, for students to practice on.

Instruments at the front of long fiberglass tubes are controlled by handles that a practitioner holds, mostly with three fingers (the thumb, index, and middle fingers). Instead of holding a scalpel, a surgeon now holds the handles of the tubes. A video camera on another tube transmits images to the monitor screen, which is the only view that the surgeon has of the objects that he/she is working on.

Compared with normal sight, the views on the monitor are somewhat unrealistic. Imagine looking at things from just a couple of inches away with a super wide-angle lens. You probably can't see the whole organ any more than you can take a photo of the entire Taipei 101 building from a few feet away.

Another obstacle to overcome is a matter of motor skills. Initially, a surgeon might feel like he's trying to pick up a needle while wearing winter gloves. The six Bolivian doctors practiced picking up, putting down, separating, putting together, peeling off, and stitching together the objects in the box mentioned above. All this was to help them learn the motor skills needed to take full control of the small surgical instruments to work with a patient's tissues, blood vessels, and organs.

It takes some experience to manipulate things that you can't touch with instruments that you can't directly hold. One of the first assignments was to stitch two sheets of plastic together. While Zonia was still trying to make and tie her first laparoscopic stitch under the direction of Dr. Chen, Dr. Avalos had completed his first stitch. But the stitch was not satisfactory enough. Dr. Chen told him to trim back the excess suture. Drs. Azurduy and Blacud soon completed their stitches with a smile and a sigh of relief. "His is a little hard. I need to practice much more," said Azurduy.

Later on, the six of them successfully performed a laparoscopic operation to remove the gall bladder from their silent mentor, Jian Shun-xing (简顺兴), who had died at 41 of esophageal cancer-induced respiratory failure and donated his body to the Medical Simulation Center. The team's efforts were broadcast live to the conference hall, a few hundred feet away, for all to see and share their pride. Dr. Chen followed his students act with a demonstration of a minimally invasive hernia operation in which he delivered a piece of mesh into the patient's body and stretched it open.

Epilogue

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"I am thrilled to be here," said Dr. Avalos. "This is a dream come true for me." Many people and factors contributed to the success of this large hands-on training workshop. Through the joint efforts of the silent mentors, their families, who actually carried out their will to donate their bodies, Dr. Chen, other surgeon instructors, many volunteers who worked behind the scenes, and many program administrators, Dr. Avalos, his colleagues, and all the other physicians were able to reap the immeasurable benefits of the process.

After having finished their training tasks, the participants carefully and respectfully sutured each silent mentor back into a whole person again, much as it had been at the outset of the program. In a solemn ceremony under a light drizzle, the trainees, TIMA conference attendees, and many others accompanied the family members to lay the silent mentors to rest. Their ashes, together with their photos and brief biographies, were placed in a hall in the same building as the Medical Simulation Center for all to view, pay respect to, admire, and ponder. They indeed had had a full life and a half. "I have learned much surgically, and I have also learned to treat the silent mentor as though he were part of my family," Dr. Azurduy reflected.

In the presence of Master Cheng Yen, Superintendent Mendoza vowed to found a TIMA branch in Bolivia. "We will join forces with TIMA members in Argentina and Paraguay and do our best to extend a helping hand to the poor and the sick," he said.

"Dr. Chen, we will cherish all that you have given us," the Bolivian doctors all promised.

"Go back and use what you learned here at your hospital and your communities." The six Bolivians and Dr. Chen said good-bye at Hualien. Hopefully, they will take their newly acquired medical skills, as well as the Tzu Chi humanitarian spirit of compassion and unconditional giving, back to their country and use them to benefit more people.

By Ye Zi-hao
Translated by Tang Yau-yang
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