Mortal Lessons

Med students, instruments in hand, confront cadavers with with anxiety, awe as they explore the mysteries of the body

By Janice Gaston | JOURNAL REPORTER

A few weeks ago, Meaghan Working, a first-year medical student, dreamed that she held hands with a cadaver.

The dream didn't surprise her. Med students often dream about cadavers when they reach the point of dissecting their heads and hands. That's when they are most acutely aware of the humanity of the bodies that teach them about anatomy.

When medical students dissect wrists and tug on the tendons, the fingers move. The motion is a reminder that those fingers once gripped pencils, buttoned shirts, stroked the cheeks of loved ones.

The male and female cadavers that beginning medical students worked on this year at the Wake Forest University School of Medicine ranged in age from 59 to 96. They included a teacher, a nursing supervisor, a short-order cook. One was a farmer; another, a free-lance writer. They died of heart and lung diseases, strokes and brain disorders. Some bodies showed the emaciation of age; others appeared robust.

During the 13 weeks that the students studied the human body, they cut through flesh and muscle and bone. They traced nerves and tendons, probed the vessels of hearts, touched brains. Some felt nothing but excitement as the wonders of the human body unfolded before them. Others struggled with the reality of slicing into a human being.

On the first day of the students' course in human structure and development, the noisy, milling throng quieted when Dr. James Johnson began to instruct them on how they should behave while working with their cadavers.

"We expect you to treat this individual with the same respect you would a living patient, with the same amount of dignity and privacy," he said. "The dead are preparing you for the treatment of the living.

"Stop for a minute and appreciate the value of this gift."

A moment of silence

The students, 108 of them crowded into a lab with 18 bodies, stood still. Only the whoosh from the lab's air-handling system, designed to remove vapors from embalming fluids, broke the silence. Closed steel containers hid the bodies.

Earlier that day, Johnson and Dr. Craig Henkel had talked to the students about the journey they were about to begin. Henkel is a professor of neurobiology and anatomy, and Johnson is an associate professor. They are co-directors of the course, and Johnson is the director of the school's anatomical bequeathal program.

"People starting medical school are like balloons that are blown up but not tied," Johnson said. "They fly everywhere. They're not focused, but they have a lot of energy."

He warned them against starting out too fast and running out of gas.

"Med school is not a hundred-yard dash," he said. "It's a marathon."

The students garbed themselves for the first leg of the race in pale blue disposable gowns and bright purple gloves that protected them from hazards that the bodies might present.

Then they opened the steel containers.

Group F - Dan Ferguson. Tim Plonk, Laura Godat, Stephanie Rotan, Tayo Majekodunmi and Jeannine Mauney - received a male cadaver. They knew that he was a former paper-mill worker who died at 89 of heart disease. Tattoos marked his arms and legs. Over subsequent weeks, the team would learn more intimate details about him as they dissected his body.

But on this day, it was all about those first few steps.

Smelling the formaldehyde.

Handling dead bodies.

Seeing their faces, their hands, their feet.

Thinking about who they were and how they lived.

Johnson directed the students to envelop their cadavers' heads in plastic wrap to keep the thin skin of the faces from drying out, and to roll the bodies over to expose their backs. No one would cut today.

Three days later, the weekend of anticipation behind them, the students began dissecting the back. Johnson made announcements as they worked.

"If you cut yourself, let me know," he said. "Fortunately, we have a real doctor here."

Plonk held the head of his group's cadaver as Godat made a shallow cut. John Dawkins, a second-year medical student who works in the lab, watched Godat's tentative first cut.

"When they first do it, they're scared they will screw something up, cut through something they shouldn't," he said. "We're here to reassure them."

Johnson came to observe.

"No use delaying all day," he told the group. "If you make a mistake, it's correctable." Then he started quizzing them.

"What are these holes?"

"Hair follicles."

"This layer?"

"Fat."

Once Johnson left, Group F worked more aggressively. Ferguson and Godat took off big chunks of skin and plunked them into a bucket.

As he carved through thick fat to expose muscle, Ferguson said, "I've never wanted to work out more in my life."

One group cut too deeply into the shoulder of its cadaver. No harm done, Henkel said.

"That's why we start on the back. It's hard to damage anything major."

Across the room, Johanna Kielbasa felt queasy and asked to take a break.

"Sorry, y'all," she said to the rest of her group. "I'll be back."

When she returned, she explained that it wasn't the body that bothered her; it was the heat inside the disposable gown. She looked forward to the challenge of dissection.

"It's so interesting to me. I always liked to pick things apart."

Ibrahim Mian, a Muslim, felt hesitant about dissecting the cadaver.

"Some people believe that the body is very sacred, that even after death the body feels pain," he said. "We believe that even touching the body directly will inflict so much pain, as if you were touching a person with fire. What we do is usually put a cotton sheet around the person and only touch through that."

But the need to learn from his group's cadaver and the value that his religion places on education overrode Mian's concerns about handling a body.

Before he began, Mian thought about a phrase that he says before he eats or reads the Quran: "In the name of God, the most gracious, the most merciful."

"I repeated that in my head, trying to clear out my intentions for helping with the dissection," he said. "After that, usually I would say it before I would do anything."

Meg Stokes, too, had difficulty in the beginning. She had a hard time separating the humanity of the cadaver from the learning opportunity that it presented. She bolstered herself with this thought:

"It is their wish to help people learn something," she said. "That helps me deal with this. It makes me want to learn as much as I can."

Several approaches to anatomy

As the students became more accustomed to working on their cadavers, the excitement of discovery began to blunt emotion.

"You're not desensitized to it," Godat said. "You're starting to see things, and you recognize it, and you really learned. When you come into the lab seeing things you just learned, it all comes together really nicely."

The medical center takes an innovative approach to teaching anatomy. Students not only learn through dissecting cadavers; they also work on computers to do Web-based research and to access video and digital images. Members of each group split the work and teach each other what they have learned.

A few weeks into the course, instructors brought pig hearts to the lab so that students could compare the fresh, healthy hearts to the embalmed hearts of their cadavers, many of which were old and diseased. The hearts are similar in size, and pig valves have often been used to repair human hearts.

By the time the students began working on the heads of their cadavers, they mostly had become inured to the humanity of them.

"I don't know if it's a bad or good thing," Ferguson said. "I don't think of it as a person anymore."

Stokes said, "I think once I got to the point I was able to appreciate that this was here for me to learn, I was finally able to relax. I had no problems except for the face." She was glad that her team didn't dissect the eyes of its cadaver.

"The eyes are the windows to the soul," she said. "We kept them closed. You still obviously observe a person's humanity. That seemed a little too personal."

Lakrystal Warren had earlier said that she didn't want to saw anyone's head open.

"I'll look at it," she said. But she changed her mind. "I was desensitized by the time I got to the head," she said. "I was fine."

As the students worked, the bodies told them stories that their outward appearances could not. Enlarged hearts spoke of having to work extra hard to compensate for stiff or leaky valves. Lungs filled with black dirt spoke of breathing contaminated air or tobacco smoke. Students found tumors, aneurysms and hardened arteries that had gone undetected. They found three pacemakers still firing, attempting to restart dead hearts.

The sights and smells of the lab became as familiar as the corridors of the hospital.

"I can't get that smell out of my mouth, that taste," Ferguson said. "Smells are so vibrant in memory."

By the end of the course, the cadavers lay in pieces, their workings thoroughly revealed to the students. Plonk found the experience of exploring a human body amazing, he said. "That's the one word I would use to describe it. The design of the human body is amazing. To see everything fit together, to see how it all works, it's amazing."

He was one of the students who felt an emotional tug when he began working on his group's cadaver.

"It's been a challenge, just thinking about this person," he said. "Thinking about who he was, separating yourself from him."

"We had a really good body," Majekodunmi said. "It had a lot of variation. You don't expect it to look like the textbook. This one had a lot of differences. It made the learning more

salient."

Mauney, like many of her fellow students, felt gratitude for the people who donated their bodies so that she and her classmates could learn.

Memorial service

Once the learning was done, the students would share one final experience with their cadavers - a memorial service on the last day in the lab. They came up with their own program for honoring those whose bodies had taught them so much. Chaplain Calvin Runnels spoke briefly to begin and end the service.

"There are family members alive who love these people," he told the students. "Remember them today."

Mindy Gensler lighted candles on a table decorated with a pot of yellow mums. Joseph Kim read Bible verses. Shannon Rosati read a poem, "When Death Comes." Mian spoke about his decision to participate in dissection, and read verses from the Quran.

"They gave us this opportunity to seek knowledge," he said. "I pray that God reward them and have mercy on them."

A phone rang on the lab's back wall. Johnson slipped over to answer it, then left it off the hook.

Elijah Bolin read from poet John Donne:

"Any man's death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee."

"We're all going to die," Bolin said. "It's a humbling thing to remember, especially at this stage of vitality. Yet in this place of death, it reminds me of my mortality."

Jillian Foglesong and Lan Coffman blended their sweet voices in song. Gensler blew out the candles. One student crossed himself. Runnels, recognizing the diverse beliefs among the students in the room, said, "If you desire, you may pray with me." Most bowed their heads.

"Thank you for the wonderful gift of life, the wonderful complexity of our bodies," he prayed. When he finished, the students rose and filed out in silence.

As it had on that first day, only the whoosh of air broke the silence.

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