Human Dissection: An Approach to Interweaving the Traditional and Humanistic Goals of Medical Education

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Anatomy remains one of the core courses of medical school, but the time devoted to it is decreasing. To accommodate the explosion of medical knowledge, educators search to streamline the curriculum. Because it is time-consuming, dissection comes under increased scrutiny. Even in the face of these pressures to reduce course hours, I would like to propose broadening, not reducing, the responsibilities of the anatomy instructor. Anatomy instructors can play a crucial role in helping medical schools meet the critical need to cultivate humanistic values, especially in the arena of end-of-life care. Anatomy can—and should—play an important role in a curriculum-wide effort to address this issue. Just as dissection remains an essential technique to teach three-dimensional concepts, the cadaver dissection lab is an ideal place to introduce concepts of humanistic care. The lab evokes the students’ memories, speculations, and fears about serious illness in themselves, their families, and loved ones. Some programs address these reactions with supplemental activities, such as journaling, essay writing, and small group discussion. Valuable as these activities may be, anatomy instructors can achieve more by recognizing their role as a mentor, who can integrate humanistic values into traditional course objectives in a way that adds little time to the curriculum. The attitude of the instructor in ministering to the students’ needs as they undertake the emotionally charged task of dissection can provide a model for how the students will respond, in turn, to the hopes and fears of their patients—and to their own reactions to dying. This approach will allow students to implement and practice humanistic values immediately, laying a foundation for their clinical training. Anat Rec (New Anat) 269:242–248, 2002.

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KEY WORDS: anatomy; medical education; humanism; death and dying; cadaver dissection; humanistic approach; education; ethics

Although it no longer commands the same number of class hours as it once did, anatomy remains one of the core courses of medical school. Anatomy is where students learn the basic language of medicine, learn to develop understanding through experimentation, and develop skills in solving problems in a three-dimensional space. Despite the value of these experiences, the explosion in medical knowledge creates increased pressure to reduce the length of anatomy courses even further. Because it is laborious and time consuming, the utility of dissection has come under scrutiny. Advances in computer technology and the success of the Visible Human project suggest enticing alternatives (www.nlm.nih.gov/research/visible/visible_human.html). Several authors do defend the role of dissection as a didactic method and emphasize its potential to instill humanistic attitudes toward patient care (Coulehan et al., 1995; Marks et al., 1997; Dyer and Thorndike, 2000; Aziz et al., 2002). Others express concern that the emphasis on values may unnecessarily distract students from more important course objectives (Dinsmore et al., 2001; Mc Garvey et al., 2001). Recently, the National Consensus Conference on Medical Education for Care Near the End of Life recommended that discussion of end-of-life care be integrated throughout the medical school curriculum, including the course in anatomy (Barnard et al., 1999).

In this article, I will advance the view that teaching humanistic values need not conflict with traditional course objectives (Druce and Johnson, 1994). Attention to the issues of end-of-life care in an anatomy class can be a vehicle to emphasize humanistic values without sacrificing the time available for learning the traditional subject matter. In fact, this app-
most schools have re-focused areas of their curriculum on teaching humanism, but humanism is an attitude that the faculty can model in all activities from the first day of medical school. Anatomy can begin this process by focusing the students’ attention on their own attitudes toward the seriously ill and the dying patient.

It is important to realize that students share America’s fear of death. Americans are afraid of dying patients. We are uncomfortable in their presence. We do not know what to say or how to act. Consequently, we abandon the dying when they need us the most. Whether patients survive years, months, or just days with their diagnosis, proper medical care can improve the quality of life for patients as they live their remaining days. With the support of educators, today’s students will learn to provide that care.

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ROLE OF DISSECTION

A natural starting point for humanistic education is the anatomy lab. Dissection is among the most profound experiences of medical school. Even though most clinicians fail to recall most anatomical details, nearly all remember their first dissection. They recall their visceral response to the work, even developing an empathetic connection with whom they imagined the donor to be. Their experience with the donor reminded them of family or friends who were seriously ill or had died. It made them think of their own mortality and confront, perhaps for the first time, their view of death and dying. It made them wonder about how the donor lived with the illnesses that were revealed by the dissection and wonder about their ability to become an effective physician. This powerful experience is a potential launching point for the student’s maturation into an effective, empathetic clinician. Paradoxically, faculty often minimize or ignore student reactions to dissection, bypassing a potent teaching opportunity. A growing number of programs encourage students to explore their emotions through self-reflection, art, journaling, creative writing, and group discussion (Coulehan et al., 1995; Marks et al., 1997; Stewart and Charon, 2002). Introspection is valuable. Group discussion gives students the opportunity to learn about the diverse perspectives of their classmates and gives mentors the opportunity to shape attitudes toward patient care. However, it is in the dissection lab where mentors can model attentiveness to students’ needs while accomplishing traditional objectives in the allotted time. In the dissection lab, students can learn to do their work without denying their emotions or becoming detached.

In fact, the dissection lab has more commonly been used to develop an attitude of detached concern rather than as a venue for fostering humanistic values (Lief and Fox, 1963). According to the principal of detached concern, clinicians should show concern for their patients but should detach themselves from their own emotions. The premise is that, when clinicians become emotionally involved, their clinical judgement may become clouded. The problem is that one cannot help having emotions, and the attempt to suppress them can be stressful. Furthermore, detachment interferes with the clinician’s ability to form an empathetic connection with the patient. Without this connection, the clinician cannot fully understand the psychosocial contributions to the patient’s illness (Halpern, 2001). In extreme cases, detached concern leads to a callous attitude toward patients (Lief and Fox, 1963). Detached concern is an unnecessary source of stress for medical students. It is better for students to gain perspective and understanding by discussing and reflecting upon their emotions. This strategy enables them to do their work without denying an integral part of their being. It establishes a life-long approach to professional life.

HUMANISTIC VALUES IN MEDICAL EDUCATION

The national debate on physician-assisted death recently has turned the attention of medical schools to end-of-life care (Whitcomb, 2002), but there has been a longstanding appeal for a more humanistic approach to patient care in general (Pellegrino, 1974; Gorlin and Zucker, 1983; Maguire, 1985; Mermann et al., 1991; Steinmetz et al., 1993; Hill, 1995). Recently, the Medical School Objectives Project of the American Association of Medical Colleges responded by including learning objectives related to altruism and understanding patients in the context of their beliefs and their family and cultural values (http://www.aamc.org/meded/msop/). The value of the humanistic approach was illustrated in a recent study that demonstrated that geriatric patients, their caregivers, clinicians, and social workers all have different, and sometimes conflicting, treatment goals. Reconciling these differences into a coherent treatment plan requires attention to the psychosocial issues surrounding patient care (Bogardus et al., 2001; Rockwood, 2001).

Attention to humanistic values in the medical curriculum becomes a challenge as medical care has become more technical and medical education has become more focused on procedures. Furthermore, as financial pressures make clinicians more cost conscious, they attempt to provide patient care more efficiently. When these factors lead harried attendings and house staff to appear uncaring, or even callous, students may come to believe that the psychosocial issues surrounding patient care are unimportant. A similar message is sent by anatomy faculty when, in the pursuit of course objectives, they ignore the emotions and concerns of students. The educator’s role is to help students—who choose the profession as an expression of their compassionate, empathetic natures—to transform their good intentions into effective care. Under the guidance of the Liaison Committee on Medical Education, the approach strengthens our ability to teach and illustrates the essential role of dissection in the curriculum.
A METHOD FOR INTEGRATING HUMANISTIC VALUES INTO AN ANATOMY CURRICULUM

The topic of end-of-life care is an excellent vehicle for examining humanistic values. Anatomy can initiate a curriculum-wide approach to end-of-life care by helping students strive toward two goals: (1) to become comfortable with the topic of death and dying, and (2) to broaden their perspective on the diverse cultural and religious attitudes of their future patients. The first goal is to enable students to discuss with their future patients the nature of the patient’s disease and end-of-life care, because clinicians are often uncomfortable with the topics (Steinmetz et al., 1993; Mermann, 1999). The second goal is to help students develop insights into their future patients’, and their own, attitudes toward disease, death, and dying.

How can anatomists help students achieve these goals, given the pressures to reduce course hours and the limited expertise and comfort of the faculty to teach about this? The clinical correlate of this question is how physicians can find time in their schedules to spend a few extra moments with patients to learn more about their concerns and living situations, despite the pressure to see more patients per day. By solving the first question, we model how our students might solve the second. We send a message that humanistic concerns always merit our attention.

The problem of limited faculty expertise can be addressed by helping faculty develop their skills as discussion moderators with the ability to ask open-ended, nonjudgmental questions and to facilitate, not dominate, a discussion. This enables two things. First, students will teach each other, as well as faculty, about their needs, concerns, solutions, and coping strategies. This approach allows students to bring their own cultural and religious heritages to the discussion and to learn about the heritages of others. Second, faculty will learn not only from students but also from guests invited to participate. Many professionals in the medical school community welcome the opportunity to meet informally with first-year students, including chaplains, social workers, and clinicians. Because the discussion of medical issues would be premature, the discussion will focus on the psychosocial issues surrounding patient care. The broad mix of disciplines will expose students to the allied health care workers who will be their future colleagues and will allow students to learn about patient concerns from a variety of perspectives.

BECOMING COMFORTABLE WITH THE TOPIC

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The first step in becoming comfortable with the topic of death and dying is to create an atmosphere in which discussion is encouraged and students’ feelings and concerns are given their just due. Unfortunately, the reactions of students to dissecting a human body are often treated as though they are abnormal or inappropriate. Absent any guidance, students imagine they must toughen up if they are to act professionally (Lief and Fox, 1963). At worst, faculty encourage them to become emotionally detached. After all, the donor is gone; these are only the remains. The paradox is that the students’ reactions are normal and healthy. The normal inclination is to talk about their feelings to relieve their stress, but they are afraid to expose weakness to faculty or peers and fear family or friends will not understand. Often, students hide their anxieties behind a false bravado or gallows humor lest they appear weak or unprofessional. By establishing trust, we can alleviate these fears.

Yale University’s course in Human Anatomy and Development includes 100 medical and 36 physician associate students. There are 4 to 5 students per donor. The core of the faculty includes four research scientists, two of which have medical degrees. Additional, part-time faculty includes three retired surgeons, one practicing surgeon, and one or two surgery residents who are in their research year.

To set the tone for the course, we use our orientation session to acknowledge the anguish and joys that accompany dissection. After a discussion of how the donors come to us and Anatomy’s contribution to teaching end-of-life care, second-year students share their experience of the previous year’s course. Students then meet their dissecting partners and, as a team, their donor. To allow students time to absorb this experience, dissection of the donor is reserved for another day.

I purposefully avoid the term cadaver, because it is too impersonal. Some call the donor the student’s first patient, but many will not accept this. Students will not cure or ease the suffering of this “patient.” They will disassemble the body without making it whole again. I like the term donor, because it emphasizes the gift that the donor made and the trust that the donor placed in the students. The donor never met these students and yet trusted that the students would make good use of his or her remains. The term “donor” emphasizes the donor’s individuality and this individuality will lead to a unique experience for each student.

Despite student efforts to depersonalize the donor’s remains, these donors find many ways to reassert their individuality. Beyond anatomical variation, they display distinctly human adornments such as nail polish or a Band-Aid. Laboratory specimens lack such embellishments. Donors reveal a portion of their histories by means of pacemakers, chemotherapy ports, and surgical alterations of the anatomy. Disease is no longer a theoretical con-
cept when students observe enlarged and scarred organs or the ravages of cancer. Students bring a history of their own and interpret their findings according to their own experiences and their own religious and cultural backgrounds. The task is to create an atmosphere in which students routinely compare, contrast, and challenge their interpretations of their experience.

Discussions that promote comfort with feelings and reactions can be integrated into every day teaching. Two stories illustrate this. Early in the year, two students, let us call them Judy and Bill, were dissecting the gluteal region. The donor was an elderly woman whose knees were bent and the hip that was being dissected was rotated laterally. To better observe the tendon of obturator internus, I asked Bill to rotate the hip medially. A loud snap took your breath away. Judy, startled, covered her mouth. Bill sheepishly declared he broke her knee. I reassured them that they did not ruin anything, the trust the donor placed in them had not been compromised, and thankfully, she was not there to feel it. Judy did not buy this. She saw a patient whom she has just harmed. I said it was OK to react this way; it was a gut-wrenching sound, so why not talk about it? Judy said this felt like mutilation. She wondered about future patients that she might harm. The goal was not to solve the issues that she had raised, but to acknowledge and bear witness to her concerns. I suggested her donor was a teacher who might help guide her training. With this, we returned to the dissection, discussed the lesson we just received about osteoporosis, and speculated that we might later find a radial torsion fracture of the femur. Bill did not participate directly in the conversation. Perhaps, he was afraid he might expose further weakness after his initial embarrassment. But even if he did not need to pause, he observed a model for professional behavior. This interaction took only moments, but it accomplished several things. It acknowledged and respected the student's feelings and the donor's role as an instructor. It refocused the students on their dissection so that they could complete their work without being distracted by the emotions they continued to feel, as demonstrated the following day.

After lecture, I asked Judy how she was doing. She began to make small talk, but I redirected the conversation by noting the upsetting nature of yesterday's experience. Judy described how she called her mother to implore her to take her calcium pills but that she was unable to explain to her mother the stimulus for this sudden concern. Another student who joined the conversation intellectualized the event by noting how many years post-menopausal the donor had been. This student had not heard the "snap." We discussed the visceral response to the sight and sound of it. This brief interaction acknowledged and encouraged the need to revisit and reflect on the events of the day. It helped establish that it was safe to discuss such things with the faculty and with each other. It promoted the idea that it is unnecessary to suppress or ignore our feelings to do our work.

The second story occurred later in the year. The students started to dissect the perineum. One group was struggling, because they could not find the clitoris. The men were embarrassed; the women frustrated. I explained this is a difficult region and began to demonstrate a new dissection technique. As I cut the vagina, the students winced. "Pretty brutal, huh?" "Yes," "Kind of like female circumcision, you know, mutilation of the genitalia?" "Yes!!!" One student had never heard of this. We discussed it a few moments, and I shook my head saying, "This is a heck of a way to make a living." It only took a few minutes, but we returned to the work with the students focused on my instruction. Afterward, the group expressed their appreciation and their wish that more instructors were attentive to student emotions.

These two stories suggest to me that a significant amount of laboratory time is wasted when students are too distracted to hear what we are saying. They may appear to watch as instructors demonstrate and they may nod as explanations are offered, but are they paying attention? Their body language often suggests their minds are focused elsewhere, and this can often be confirmed by suggesting to them what they might be feeling. They will explain how the suggestion was right or wrong and will feel relief as long as the instructor listens respectfully and without prejudice. After this simple exercise, students focus on their instructor's comments on the dissection. Noticing, acknowledging, and addressing students' concerns may take a minute or two, but it does not shortchange traditional anatomy instruction; it creates more productive time.

**BROADENING PERSPECTIVE**

The dissection experience serves naturally as a springboard for discussions of psychosocial issues that in turn help to broaden student perspective on patient care. The back and forth transition from dissection to patient care is easy. Their donor reminds them of family and friends who are ill or have passed away. Their donor represents their fears of what will happen with time to their loved ones and themselves. The students have given a life to their donor, and this feeling is renewed when they dissect the hands, the face, and the genitalia or uncover further evidence of disease. Their lives as medical students are stressful, and their schedules are too busy. By taking time to discuss psychosocial issues, we sanction their importance and give them a forum. The experience of dissection introduces many is-
issues relevant to clinical care without the pressure that comes with caring for their first patients.

The students’ perspectives on psychosocial issues can be broadened by comparing their experiences in group discussions. Although the class may not be as diverse as the patient population it will come to serve, the students will represent a diverse array of religious and cultural viewpoints. With the aid of the medical school community, these discussions can encompass the psychosocial aspects of patient care. The students’ lack of clinical knowledge is an advantage, because they are not distracted from the psychosocial issues.

One such discussion in our course takes place after the first dissection, when a historian delivers a lecture on the history of human dissection. At a luncheon co-hosted by the Departmental Sections of Anatomy and of History-of-Medicine, we break into small groups to discuss the lecture and first dissection. The discussions are lively, with active participation by most students. Students raise the topics of discussion, which include the nature of informed consent (just how informed were the donors?), the sanctity of human remains, what happens after death, the need for dissection given modern technology, and a host of emotions. Many students are reluctant to think of cadavers as human remains. Some students wonder how they can learn to become unfeeling enough to do their work, and they justifiably fear what such detachment would make them become. It is unnecessary for the moderator to justify dissection or to provide answers. Instead, the moderator’s goal is to encourage students to probe multiple points of view freely. This time is a wonderful venue for those who object to dissection to air their views. Although instructors may fear dissenters, I have found that, with time, even the most vocal critics come to value dissection. There is much that has clinical relevance here, such as issues of informed consent and our ability to relieve anxieties about the dying or seriously ill patient. There are issues of how to do our work within the context of our emotions, manage our stress, and relieve stress in our patients. This discussion only scratches the surface, but it serves as an enticement for the elective luncheon series that follows.

Approximately 10–20% of the class participates in the ensuing brown-bag lunches. Although we continue discussions about dissection (especially when the face, hands, or genitalia are dissected or unusual pathology is revealed), the discussion gradually shifts toward clinical vignettes. We explore the gray zone between following a patient’s wishes and making paternalistic choices. This topic does not require medical knowledge, because it is really a discussion about people’s attitudes toward disease, power, and medical care. It is an opportunity to explore how grief, depression, and suffering might compromise a patient’s ability to make autonomous decisions (Halpern, 2001). We begin to discuss the many factors besides pain that contribute to suffering, and ask

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how hope might mean different things to different patients. We explore the role that clinicians and allied health professionals play in helping dying patients live the rest of their lives.

After a few meetings, we invite guest discussion leaders. I have found that chaplains, social workers, hospice nurses, and some physicians are enthusiastic about discussing the psychosocial issues that attend end-of-life care. Guests bring the story of a recent or current patient. Nothing holds the students’ attention more than hearing the patient’s story and the passion in the speaker’s voice. The previous, somewhat abstract, discussions come alive as students recognize their application to actual care. Students discover parallels in their reactions to dissection and the reactions clinicians, patients, and family members have to disease. Sad as death is, the guests describe the joy and satisfaction that comes from helping patients and families through trying times. Students learn from these first-hand accounts about the stresses of professional life and how these professionals manage their stress. Although their methods of handling stress vary, a common element is that these professionals have established a support network of some sort with whom they discuss and process the events of the day.

The dissection lab gives students experience in managing conflicting emotions. At one moment they feel disgust as they hemisect the pelvis, but in the next, they feel joy and awe at the incredible view that is exposed. The guests at the noon discussions demonstrate that conflicting emotions are natural and need not interfere with work or compromise objectivity. On the contrary, they explain how making an empathetic connection with the patient enhances the delivery of care.

Certainly, these topics are also addressed in required lecture courses devoted to the doctor–patient relationship. The difference here is that questions and concerns inspired by dissecting a human cadaver feel less abstract and more personal than issues raised in a lecture hall. The discussions that occur in the luncheon group, and the informal discussions that occur in and out of lab, cultivate an attitude of humanistic care. The anatomy faculty can be among the students’ first role models for compassion within their professional duties. Unlike most basic science coursework, here the students put the lessons into immediate practice, as they manage the stresses of the first year and the emotions of the dissection lab. As part of a 4-year program on end-of-life care, anatomy can help set a positive tone for clinical training and lay the foundation for the greater challenge of patient care.

CLOSURE

Our students close their experience with a service of gratitude. Many programs conclude their course in a similar way, and some invite the families of the donors (Marks et al., 1997; Tschernig and Pabst, 2001). Our service is entirely organized and pro-
duced by an organizing committee the students establish midway through the course. Although the last several classes have considered inviting families of the donors, none have chosen to do so. The concern has been that participants in the service might feel inhibited from fully expressing their angst and frustration along with their joy and gratitude. We offer only one bit of advice before leaving the committee to do its work: the service should be as diverse as possible to be as inclusive as possible. Some students are articulate public speakers; others express themselves better through music or art. The service honors all means of expression, because no single means adequately expresses the depth of the experience. Even here there is a lesson to learn. We often do not have direct knowledge of what our patients experience, but we can gain a sense of what they might feel through art and literature.

We found that giving students a long lead-time increased the number of students interested in participating and encouraged them to reflect more deeply on their experience, as the course proceeded. They obviously devote considerable time to their evocative, eloquent presentations. Of interest, this activity often attracts a different subset of students than do the lunchtime discussion groups. The success of this service is readily demonstrated. Previously, the service was organized at the end of the course with minimal preparation, and only 15–20% of the class attended. In the past 5 years, the ceremony has evolved into one of the most important events of the First-Year Calendar, and is attended by deans, faculty, staff and virtually the entire class.

CONCLUSION

Ideally, clinicians enjoy the trust of their patients, which enables patients to share their deepest confidences. This places a heavy responsibility on clinicians to demonstrate that they are worthy of that trust. Students first experience this in the anatomy lab where a total stranger has entrusted them with his or her remains. We build on this trust by modeling professional behavior for our students. Just as students express gratitude when we as faculty members acknowledge their feelings and address their concerns, so do the students come to appreciate how their patients desire the same courtesy. By virtue of our attentiveness to their feelings even as we teach anatomy, they learn to be attentive to the psychosocial issues of their patients despite the demands on their time. Making an empathetic connection with patients promotes the communication that enables clinicians to obtain complete histories, to address patient concerns more effectively, and to obtain better compliance with treatment plans.

Overworked students vote with their feet. The strong participation in extracurricular activities such as the luncheon discussion groups and the Service-of-Gratitude demonstrate that an important need is being satisfied. On reflection, fourth-year students reported that they still recalled the impact of the orientation session, and the course in general, as setting the tone for medical school. They appreciated that they were given permission to feel regardless of what their emotions were and that they could choose from a variety of outlets to discuss their experience. One student noted that, even though she only attended a few lunch discussions, it was reassuring that the meetings were available. She further noted that the atmosphere promoted informal discussions among classmates. Another noted that nothing fully prepared her for the death of her first patient but that the open discussions about death-and-dying during anatomy certainly helped. Several students said that the course cultivated awareness and respect for their patients and that they valued caring professors who could serve as role models. When coordinated with a curriculum-wide program on care of the dying or seriously ill patient, anatomy can play a valuable role in cultivating student attitudes. In return for our efforts, we enjoy enthusiastic, dedicated students who consistently exceed the anatomical goals we place before them.

ACKNOWLEDGMENTS

I thank Dr. Frank Bia for encouraging me to initiate this project, Dr. Nancy Angoff for patient advice and extensive discussion, and Mrs. Margaret Bia, Richard Belisky, Thomas Duffey, Cyrus and Shanta Kapadia, Scott Long, Alan Merrman, Michael O’Brien, and William Stewart for continued advice and support. The assistance of Cathy Shufro in editing the manuscript is greatly appreciated. I especially thank my students who helped shape and mold this program. Support for this work was provided by the Donald W. Reynolds Foundation.

LITERATURE CITED


