

MEDICAL EDUCATION

Overcoming the Tension Between Scientific and Religious Views in Teaching Anatomical Dissection: The Israeli Experience

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More than three thousand years of Jewish historical and scholarly writings have addressed the problematic relationship between anatomical dissection for the purpose of medical education and Judaism, which values the wholeness and sanctity of the human body. The Department of Anatomy at Tel Aviv University's Sackler Faculty of Medicine has sought to bridge the gap between science and Jewish religious-cultural values. The Department requires students to conduct laboratory dissections on cadavers in an ethical and respectful manner. Student emotions are also addressed by the Department as students are encouraged to share their apprehensions and concerns about participating in dissections in discussion groups. At the same time, the high academic standards of the medical school are strictly upheld, ensuring that each student has a thorough knowledge of human anatomy. Teaching anatomy in Israeli medical school involves reconciling two conflicting approaches to dissection: (1) The scientific-medical approach, which views the human body as inert material and anatomical dissection as a means of studying anatomy and gaining medical knowledge. (2) A Jewish religious point of view, which perceives anatomical dissection as a threat to the sanctity of a human body and leads to the defilement of those participating in the dissection. In this article, the views of major Jewish scholars regarding dissection are presented and discussed in relation to their implementation in the dissection theater. These views are examined in an anthropological light based on observations in the dissection room and interviews with students and faculty members. The findings reflect the emotions and concerns of Israeli medical students at the Sackler Faculty of Medicine in particular as well as those of the Israeli-Jewish population as a whole. In the dissection theater, medical students must gain a comprehensive understanding of human anatomy while dealing with their own personal ethical, cultural, and religious views on death and dying. Confronting these issues enhances both personal growth as individuals and professional behavior as future physicians. *Clin Anat.* 19:442–447, 2006 © 2006 Wiley-Liss, Inc.

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INTRODUCTION

In the state of Israel, rabbinical laws and traditions rooted in Jewish history still govern the country's institutions and policy-making bodies. In modern medical education and research facilities in Israel, professors and students alike are faced with the daily challenge of marrying science and faith. In the anatomy department in particular, Jewish views

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on death and dying are never far removed from the rigorous academics of learning human anatomy. A comprehensive description of the issues inherent to anatomical dissection in Israel is presented in this article from four different points of view:

- i. Religious-Judaic law and traditions and its application in the dissection theater.
- ii. Scientific - why anatomical dissection is the best method of learning human anatomy; elucidated by faculty members of the Department of Anatomy and Anthropology at the Sackler Faculty of Medicine at Tel Aviv University.
- iii. Anthropological - the actual practices implemented by students and staff during dissections, revealed by observations and interviews.
- iv. Professional - the educational benefits of anatomical dissection as stated by the school's medical educator.

In this article, a brief history of Jewish law and tradition concerning autopsy and dissection, as well as various rabbinical teachings on the subject are discussed. A description of the steps taken by the Department of Anatomy at the Sackler Faculty of Medicine to respect Judaic teachings about death while maintaining academic integrity is also provided. How Jewish cultural values influence medical student behavior and practices during dissection is also described. In addition, the role of the dissection theater in fostering ethical conduct and professionalism in medical students is examined.

THE ANATOMY COURSE

The medical school curriculum at the Sackler Faculty of Medicine at Tel Aviv University consists of 6 years of classroom and laboratory work, followed by one year of clinical rotations at various local hospitals. The gross anatomy course is offered to first-year medical students, serving as their initial introduction to the framework and function of the human body. The course consists of ~170 contact hr, equally divided into lectures and laboratory sessions. Related courses such as neuroanatomy, histology, and embryology are taught separately.

Although the number of hours spent in the anatomy lab has been reduced in recent years, laboratory dissection still comprises the backbone of the gross anatomy course. Students are expected to procure an understanding of basic anatomical terminology while introduced to the form and function of the human body and its component systems.

In each cohort, there are 128 students; approximately half of the students are male and half female. Approximately 15% of the students would describe themselves as traditional or observant Jews. In the anatomy lab, students work in groups of eight per cadaver. The department requires each student to actively participate in the dissection procedures in collaboration with the rest of the members of the group. The mission statement of the Department of Anatomy and Anthropology at Sackler Faculty of Medicine indicates that, "The department believes that (anatomical dissection) is the only method that affords the students a three-dimensional perception of anatomical structures and an appreciation of the depths and layers that such structures occupy." It is firm conviction of the teaching faculty that the search for structures is more beneficial to the students than finding them" (Rak, 2005; personal communication). In addition, the anatomy teaching faculty believes that there are more educational benefits to the dissection laboratory. "Moving back and forth between the anatomical atlas, dissection manual and cadaver, and the accompanying debate among dissection group members and the team work promote a learning experience that is even more valuable than the identification and observation of the organ itself. We are certain that alternative modern methods like computer-based anatomy labs and/or plastic dummies cannot substitute for dissection" (Rak, 2005; personal communication).

JEWISH LAWS AND TRADITIONS REGARDING THE HUMAN BODY

Throughout Jewish history, there have been two opposing views on whether autopsy is permissible under Jewish law. Jewish concern for the sanctity of the body and prohibitions against desecrating it by autopsy derives from the Bible, *Deuteronomy* 21:22–23, which states: "Do not let his corpse remain on the stake overnight, but you must bury him the same day." This passage and others from the *Talmud* insist on immediate burial of a body.¹ Any action that would delay burial (anatomical dissection, for example) violates scriptural law and would therefore be considered a desecration of the body. A second possible infringement derives from a wider interpretation of Jewish law. Judaism asserts that at burial, the wholeness of the physical body must be preserved. Keeping the physical body whole complete ensures the deceased person admission to a future

¹Talmud Bavly passages: in T.B. Hullin11b, and Bava Batra 154a.

world-to-come, which is to be ushered in by the appearance of the Messiah.

The *Talmud* also states that any contact with a body defiles a person, making them ritually impure and separate from the rest of the community. The Bible (Numbers 19:11) explicitly says that “Whoever touches the dead body of anyone will be unclean for seven days.” A person would also be considered unclean if they were in the same tent as a person who died (Numbers 19:14). A high priest was also not allowed to enter a place where there was a dead body (Leviticus 21:11), while other priests were considered unclean if they even touched “something defiled by a corpse” (Leviticus 22:4). In any case, under Judaic law, defilement resulting from contact with a body required elaborate purification rituals to restore a person to cleanliness and acceptance into the community. Thus, many scholars have argued that performing anatomical dissections on cadavers would inevitably cause a person to become ritually impure.

In contrast, other Jewish scholars have argued that anatomical dissection is valid, since its ultimate goal is to preserve human life. Medical students must be equipped with a thorough understanding of human anatomy to become competent and effective physicians. When undertaken with the intention of helping others and preserving human life, anatomical dissection could thus be allowed under Jewish law (Rosner, 1986; Preuss, 1993).

HISTORY OF RABBINICAL RULINGS ON AUTOPSIES

Despite the scriptural edict to immediately bury the body of a deceased person, historians of Jewish medicine have shown that as early as the Talmudic period (300 B.C.–600 A.D.), autopsies were being performed in Jewish communities. As reported by Rosner (1986) and Preuss (1993), the legality of autopsies is discussed extensively in the *Halacha* (Jewish law). From the 18th century on, rabbis began to recognize autopsy as a valid means of studying human anatomy for benevolent purposes. This is reflected in a large volume of the *Responsa* literature (answers to questions on Jewish law given by leading rabbis in response to various halachic or legal questions) devoted to the issue of anatomical dissection.² A well-known rabbinic authority, Ezekiel

Landau (1713–1793) only permitted autopsy in cases where there would be direct benefit to another living person.³ Another 18th century rabbinic figure, Jacob Emden of Altona, was also questioned about the lawfulness of autopsy under Jewish law. He was asked whether a medical student could perform an autopsy on the Jewish Sabbath (Saturday) as part of his medical studies. Emden forbade the procedure on the grounds that “one may not benefit from the dead.”⁴ The fact that these questions were even posed by practicing Jews and that Rabbis Landau and Emden responded without expressing surprise or consternation suggest that autopsies were known and accepted in Jewish medical communities.

In the 19th century, most rabbis followed Rabbi Landau’s original ruling, along with such leading rabbinical figures as Chatam Sofer.⁵ They consented to an autopsy being performed to save the life of someone immediately present with the same illness. However, autopsies were not permissible simply for the potential benefit of future patients or for the advancement of medical science. One exception is given in the *Responsa* by Rabbi Ettinger, who permitted autopsy if the deceased had willed his body for that purpose (Rosner, 1986).

In 1948, the country of Israel was declared independent. By then, several universities had already been established and had begun to launch medical schools. With the organization of these medical institutions, the question of the legality of autopsy under Judaism reemerged. Hospital staff became keenly aware that good medical practice as well as research necessitated post-mortem dissections. In the course of time, organ transplantation would also sharpen the debate between the Jewish edict of not benefiting from the dead and Jewish reverence for the preservation of human life.

In 1944, the first Chief Rabbi of the State of Israel, A.Y. Kook, had forbidden the use of bodies for medical research and autopsies. Rabbis Herzog (Arielli, 1963) and Uziel (Arielli, 1948), who also achieved Chief Rabbi status, were more liberal. Eventually, they issued rulings that permitted autopsies under specific conditions, including the requirement of signatures from three certified physicians before proceeding. The Knesset (Israeli Parliament), subsequently promulgated the Law of Anatomy and Pathology in 1953 that allowed a physician to conduct an autopsy to determine the cause of death or to

²*Responsa*: a body of literature encompassing questions addressed to Rabbinic authorities on points of law, and the answers given by the Rabbis written in Hebrew. The dating of the early *Responsa* is not known and often is a subject of academic inquiry.

³Landau E. *Responsa Noda Biyehuda*, Yoreh Deah pt.1 no. 41.

⁴Emden J, *Responsa She’elatz yavets*, pt.no.4.

⁵Schreiber, *Responsa Chatam Sofer*, Yoreh Deah, no.336.

harvest donor organs. This was eventually superseded by the Pathology Law of 1980, which required the permission of the deceased's family before the body could be autopsied.

In summary, a careful reading of the *Responsa* literature from the 18th century on indicates that mainstream rabbinic legal decisions sought to respect traditional beliefs and sensibilities while still allowing autopsy for the purpose of training physicians. Consequently, most modern-day Israeli medical schools permit anatomical dissection. These dissections are performed under specific conditions: that the honor of the dead be strictly upheld and that all organs that are not necessary for educational purposes be given a proper burial in accordance with Jewish law.

RECONCILIATION OF SCIENTIFIC AND RELIGIOUS VIEWS IN THE DISSECTION ROOM

Since its inception, the Department of Anatomy at the Sackler Faculty of Medicine has stressed to medical students the ethical concerns surrounding dissection and the need for appropriate conduct in the dissection theater. The department has created a learning environment, which has enabled all students, both observant and nonobservant Jews, to resolve the conflict between religious/traditional viewpoints and medical obligations.

First, faculty members explain to incoming students that a cadaver is donated to the medical school in accordance with the donor's wishes and in consultation with the family after death. From the family's point of view, the donation is seen as important for the advancement of medical science and for the training of future physicians.

Tel Aviv University has a commitment to maintain the highest respect for the dead in accordance with traditional Jewish customs. Laboratory dissections are carried out in a dignified and proper manner. Students are provided with strict guidelines regarding hygienic handling of cadavers. Faculty members provide suitable answers when students express difficulty in dealing with the emotional aspects of dissection or when students inquire about the cause of death.

In addition to the laws requiring immediate burial of a dead body, another encumbrance to dissection arises from rules related to *tuma*, or ritual impurity, and the tainting of anyone or anything that comes in contact with a dead body (Abramovich, 1998). To overcome this, at Israeli medical schools, the dissec-

tion laboratory is considered a cemetery. That is, the dissection room is physically separated from the rest of the building to prevent the defilement of the entire structure. At the Sackler Faculty of Medicine, the dissection laboratory is located in an isolated area of the basement of the medical school. This partitioning of the dissection facility from the rest of the medical school is also seen in how the body is received. Special care is taken to ensure that the general public will not see the body being transferred from the ambulance to the dissection theater.

CULTURAL SENSITIVITIES DEMONSTRATED IN THE DISSECTION ROOM

In addition to the effect the Jewish *Halacha* (religious law) has had on anatomy students, Israeli culture has also influenced students' perception of death. A six-month anthropological study observed students in the dissection laboratory; interviews were also conducted with resident faculty members. This study revealed a high degree of awareness and sensitivity among the students towards the sanctity of the body, in life as well as in death. This was true irrespective of whether the students came from a traditional religious background or not (Oz, unpublished paper).

According to the *Halacha*, "the blood is the soul" and all remnants of blood should be collected in cloth to be buried with the body and any other tissues (Weiss, 2002). At our facility, students are meticulous about cleaning up any blood, which was not retained in the body during the preservation process. Under Judaism, this act is seen as a religious obligation to preserve the sanctity of the dead body; secular students as well as religious students both carefully observe this practice. Collecting blood and tissues also serves a psychological need, easing students' anxiety about performing dissections (Shalev and Nathan, 1985). This also has a practical purpose of maintaining the cleanliness of the work surface, allowing for a clearer examination of body parts. Working with a fluid-less body may also give students the impression that they are dealing with an innate object, relieving some of the discomfort associated with performing dissection on a human body (Oz, unpublished paper).

Another rule in the *Halacha* prohibits looking in a dead man's face (Abramovich, 1998). Thus, we often find students, particularly religious ones, covering the face of their cadavers. To avoid ritual impurity associated with touching a dead body, students wear white robes and gloves and clean their hands before

and after dissection. Great care is also taken to return all body parts to the cadaver before burial as required by Jewish law. Concern for this practice has been particularly highlighted in recent years, as Israel has suffered from numerous terrorist attacks. After such attacks, it has been important to make sure whether all body parts are collected and properly buried in accordance to Jewish law. Medical students, in turn, have been careful to mirror this practice in conducting their own dissections.

Sensitivity to Jewish culture has also been seen in the dissection room in issues of modesty and gender identity. Jewish tradition requires that men handle male bodies and females handle female bodies during the preparation for burial. However, Jewish law does not prohibit male and female physicians from managing patients of the opposite gender, although there is a preference for physicians to treat patients of the same gender whenever possible. In the dissection room, the solution is that religious female medical students who are prohibited from dissecting male bodies work exclusively on female cadavers.

Through discussion groups held in the dissection room, students have had the opportunity to freely express their feelings regarding death. Many students, both secular and religious, when seeing their cadaver for their first time have articulated how they are reminded of terrorist attacks that have taken place outside the school. Working with cadavers has also provoked Holocaust imagery of piles of bodies for many of the students. These discussion groups are important in easing students' emotions about performing dissections (Oz, unpublished paper).

Again, the motivation for students' behavior may not necessarily derive from religious devotion, but from the Israeli cultural environment, since both nonobservant and observant students equally insist on such practices.

EDUCATIONAL VIEWS-DEVELOPING PROFESSIONALISM

The Anatomy Department regards the dissection room as a forum for translating medical knowledge to medical students and instilling in them the proper behavior expected of professional physicians. The time spent in the dissection room provides the student the opportunity of leveraging first medical encounters into core values. During the anatomy course, students are expected to conduct themselves with dignity, show empathy towards donors' families, and respect for the values and traditions of fellow students. For many students, the dissection room is

the first place where they will be faced with reconciling their faith with their studies, where they first think about how their core beliefs influence their professional behavior. In this manner, the anatomy course prepares them for how they will conduct themselves as future physicians with their patients when religious or ethical matters arise. In the anatomy laboratory, students learn the relevancy of ancient Jewish ethical codes and traditions to the world of medical science.

The best method of teaching professionalism and its place in the curriculum is still debatable (Notzer et al., 2005). However, requiring students to exhibit appropriate and ethical behavior in the dissection room serves as their first initiation into the medical profession.

SUMMARY

Israeli medical schools are faced with the challenge of effectively teaching anatomy while still respecting Judaic traditions and beliefs. This article has explored the tension between scientific and religious views of the human body with respect to anatomical dissection. The practices adopted by the Department of Anatomy and Anthropology at Tel Aviv University have successfully reconciled these opposing views. High academic standards are upheld via rigorous anatomy course-work and laboratory sessions; medical students are equipped with a thorough knowledge of human anatomy. At the same time, a deep consideration for traditional religious and cultural sensibilities is maintained. The result is that even though most students are not Orthodox or particularly observant of Jewish law, many gain appreciation for the Jewish-cultural approach to death and for concern for the living. Medical students also begin to see death as an inevitable part of the human life cycle. By integrating their own core beliefs into their professional behavior, medical students acquire the empathy necessary to become compassionate, ethical, and capable physicians.

REFERENCES

- Abramovich H. 1998. Funeral in Jerusalem: Anthropological perspectives. In: Abuhav O, Herzog E, Goldberg H, Marx E, editors. *Israel: A local anthropology*. Tel-Aviv: Cherkover. p 553–570 (Hebrew).
- Arieli I. 1963. Noam report 6, Jerusalem: Rabbinical office in Israel, p 82–103 (Hebrew).
- Arieli I. 1964. *Torah sh b'al peh*, Jerusalem: Rabbinical office in Israel, p 44–60 (Hebrew).
- Herzog I. 1947. *Kol Torah*, Vol. 1, Report No. 7, Jerusalem: Rabbinical office in Israel (Hebrew).

- Jakobovits I. 1959. Jewish medical ethics. New York: Bloch. p 132–152.
- Jakobovits I. 1964. Torah sh' b'al peh. New York: Bloch. p 61–66 (Hebrew).
- Notzer N, Abramovitch H, Dado-harari R, Abramovitz R, Rudnick A. 2005. Medical students' ethical, legal and cross-cultural experiences during their clinical studies. *Isr Med Assoc J* 7:58–61.
- Preuss J. 1993. Biblical and Talmudic medicine. In: Rosner F, editor. New Jersey: Jason Aronson Publishers.
- Rosner F. 1986. Modern medicine and Jewish ethics. New York: Ktav Publishing House. p 278.
- Shalev A, Nathan H. 1985. Medical students' stress reactions to dissections. *Isr J Psychiatry Relat Sci* 22:121–133.
- Uziel BZ. 1985. Mishpatay Uziel, Yoreh Deah, Jerusalem: Rabbinical office in Israel. *Numbers*:110:218–219 (Hebrew).
- Weiss M. 2002. The chosen body: The politics of the body in Israeli society. Stanford, CA: Stanford University Press. p 60.