ORIGINAL RESEARCH PAPER
Volume - 11 | Issue - 12 | December - 2022 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ROLE OF CADAVERIC DISSECTION IN LEARNING ANATOMY

Ayurveda

Dr. Neha Saini Associate Professor, Divya Jyoti Ayurvedic Medical College, Modinagar.

ABSTRACT

Cadaver dissection has long been used as a method to better comprehend anatomy. There has been much discussion and controversy about the value of dissection in today's medical education. In order to align anatomy education with the needs of the medical industry, numerous improvements have been made. Dissection remains a crucial part of the anatomy curriculum despite the spread of modern technology and the development of more sophisticated teaching methods. Dissection practise can aid in the development of skills vital to today's healthcare system, such as discipline and independence. The study's conclusions suggest that medical students' training experience should include cadaveric dissection, which combines the study of anatomy with the actual dissection of a real body.

KEYWORDS

Anatomy Education, Cadaveric Dissection, Student's Perception

INTRODUCTION

The English word "dissection" derives from the Latin word "dissect," which meaning "to cut into pieces." Ancient Greek physicians spent many decades studying the human body and health, which enabled them to amass a sizable corpus of knowledge. Human cadaver dissection has always been the main way that students of anatomy have learned anatomy. It was in use in Italy by the 13th century, but it wasn't until the middle of the 14th century that it was formally incorporated into the French legal system. Human cadaveric dissection received approval for the first time at the University of Montpellier in 1340, and it was carried out with official approval for the first time at the University of Paris in 1407 [12]. Friedrich Tiedemann believed that the dissecting room was the best place to lay the foundation for learning how to do surgical procedures.

One of the most crucial components of a medical school is the study of anatomy because it not only serves as a foundational science but also enhances the clinical skills of doctors. To perform safe clinical practise, one absolutely must have a thorough understanding of anatomy [5]. The number of medico-legal cases involving charges of surgical negligence has been steadily increasing. Between 1995 and 2000, the number of claims involving anatomical incompetence that were made to the Medical Defense Union in the United Kingdom increased sevenfold. In 32% of instances against general and vascular surgeons, damage to underlying structures was indicated as the main cause of complaint [13]. Cahill and his coworkers showed that a significant number of the 80,000 preventable fatalities that happen each year in the United States may be caused by anatomical mistakes in addition to the treating physician's incompetence. 4 despite the fact that a study indicated that less than one-third of new residents in the field of surgery lack anatomical understanding. Due to the decrease in the amount of time spent teaching anatomy in many medical institutions, students in undergraduate and graduate programmes in medicine and dentistry both have less knowledge of anatomy [10].]

Why don't students seem to understand anatomy well enough to practise safely? Answering this question is challenging. The answers range from shortening the amount of time students spend in class to introducing newly created teaching methods that do not require cadaveric dissection as part of the study plan.

Objective Of The Study

The objective of the study is to access the role of cadaveric dissection in learning anatomy.

CADAVER DISSECTION

Cadaveric dissection is a common educational activity for medical professionals in order to develop a comprehension of the gross anatomy. Anatomy is a foundational subject that is crucial to the study of medicine and other health-related fields. It can be taught through lectures or practical demonstrations (1). Therefore, an integral aspect of the teaching method for disseminating a thorough understanding of the human body is having students take part in a gross anatomy practical utilizing a corpse [8]. It appears that the accepted method of studying anatomy is changing. It has been observed that developing an understanding of anatomy by cadaveric dissection no longer helps an individual advance professionally (2). Students who already know about anatomy may have done so by using alternate instructional techniques, such as diagramming or computer-assisted software (3).

SOURCE OF CADAVER

Historically, anatomists have gotten their bodies from the gallows, prisons, or poorhouses. However, a workable alternative emerged in the 1960s and 1970s in the form of body donation or the deceased person's informed consent during his or her lifetime. The availability of human tissue for medical research and teaching depends on regional laws, programme awareness and willingness, and "unclaimed" bodies. The bodies of people who pass away without living relatives or friends claiming them for burial or without the financial means to pay for burial are considered "unclaimed" bodies. Because there aren't enough readily available bodies, some countries' anatomists must import cadavers from outside [20].

The International Federation of Associations of Anatomists (IFAA) proposed in 2012 that only donated bodies should be utilized for anatomy training and research. On the other hand, anatomists continue to rely in a large number of nations on the use of bodies that are "unclaimed," meaning they were not donated freely by the deceased. The majority of Asian countries rely on unclaimed bodies as a supply of cadavers, according to the results of a survey that was conducted in 71different countries throughout the world using in-depth literature searches. China, Japan, and Korea are three of these countries that are wholly dependent on organ and body donations [7].

[14] noted that medical colleges in Nepal also buy cadavers from unclaimed remains for the purpose of medical learning; nevertheless, the supply appears to be restricted despite the growing demand. He took part in a competition to determine the sources of cadavers in Nepal. The total cadaver: student ratio, which ranges from 1:10 to 1:25, makes it abundantly clear that many medical students are not getting enough opportunities for dissection, which could impair their anatomical and clinical knowledge. Despite the fact that voluntary corpse donation has not yet established in Nepal in a suitable way, the research also emphasized on the fact that unclaimed cadavers continue to be a crucial educational resource for medical educators. A good law governing voluntary body donation is required in order to promote medical education and inspire people to make this kind of in order to advance knowledge and broaden the scope of medical science. In order to advance medical science, we need this law to encourage people to donate their bodies.

To spread knowledge of the important role that body donation plays in the training of medical professionals, it is essential to engage with the general public through as many diverse avenues as are accessible. Through a range of media, including television, newspapers, testimony, the erecting of monuments, reports on ceremonies, testimonials addressing the dignity of cadavers, and social media, it is possible to raise potential worries about leaving one's own corpse to future generations [2].

CADAVERIC DISSECTION AS AN EDUCATIONAL TOOL

In order to align anatomy education with the needs of the medical industry, numerous improvements have been made. Cacadaveric dissection is the only technique that can give pupils knowledge of the

natural variety of human structures, according to Amadio's results. The usage of virtual cadavers is in contrast to this. 16 Moore outlined the numerous disadvantages associated with a programme that does not use cadavers in his paper titled "To dissect or not to dissect." [9]

[8] emphasises the value of cadaveric dissection in his work, which is important because medical schools are moving more and more toward student-centered, integrated, clinical applicationmodels. This essay aims to assess the merits of technology-based advanced anatomical teaching methods that are currently used in place of cadaveric dissection in contemporary medical school programmes. While this is going on, it aims to draw attention to the justifications given by educators for keeping dissection as the primary method of teaching gross anatomy. It emphasises the growth of abilities connected to instruction based on dissection that are not specific to any one discipline.

[16] discovered that dissection was the most efficient way to learn anatomy, even if it took a lot longer than other approaches. More complex anatomical structures, such limbs, which can be challenging for beginners to understand, may be simpler to study and comprehend due to the sequential nature of the dissection process. His article's conclusion said that practising dissection in medical education has been found to be more helpful in helping students retain the information that was intended. Computer use and other multimedia should support dissection rather than substitute for it.

In actuality, though, very few medical schools have followed this practise, and several of them have already started employing dissection once again in the last few years. There is a common misperception among educators that dissection is no longer a common teaching tool in medical institutions.

20 Studies on medical students have used questionnaires to ascertain their opinions about dissection. When they were in the dissection hall, the vast majority of the pupils were seen to be intrigued and unconcerned. Additionally, these students believed that dissection was a crucial part of understanding anatomy. 21 96.37% of the students agreed that learning anatomy through dissection is the most beneficial method. Medical students that participate in corpse dissection training gain a tolerance for the realities of death and agony, which enhances the likelihood that they won't feel as driven to save actual patients.

The students were able to recognise seven hidden learning outcomes, as per the findings of a qualitative study conducted by [19]
Respect for the human body;
Understanding of the human body;
Integration of theory and practise;
Teamwork;
Application of practical skills;
Understanding of the human body;
Appreciation of dissection;
Understanding of the human body;

STUDENT OUTCOMES RELATED TO DISSECTION VERSUS OTHER LEARNING TOOLS

The effectiveness of cadaver dissection as a teaching tool has been compared to that of other instructional techniques in terms of student learning, test performance, information retention, and other curriculum-related factors. Dissection was judged to be the method that was the most "fit for the purpose" in terms of attaining the required learning goals, despite the fact that no one teaching technique was found to be consistent with all elements of the curriculum [18].

The preferred method of education to achieve all of the course objectives was students dissecting human cadavers. The study adds to the body of evidence showing that dissection is a useful teaching strategy in modern anatomy classes in medical schools. Because of this, academics have suggested that dissection should remain the main mode of instruction for the study of anatomy. However, there was some disagreement regarding the method of gathering fresh information. 30 The incorporation of 3D learning tools, according to students, affects long-term retention of gross anatomy information and, as a result, should be acknowledged as a preferable alternative to dissection for the goal of anatomy lessons. Researchers have found that teaching pupils the fundamentals of anatomy through a virtual reality simulation could be quite beneficial. Virtual reality encounters must be followed with dissection-based educational approaches, nevertheless. Dissection is the main laboratory tool used in anatomy education. For complex 3D structures, additional techniques like prosecting specimens and computer-aided multimedia can be helpful to improve understanding [3]. The main laboratory instrument used in anatomy instruction isdissection. By using methods like laparoscopy, basic clinical procedures, or surgical procedures carried out on a body, the dissection laboratory can also add clinical significance.

LITERATURE REVIEW

[17] study aimed to examine the attitudes, behavior's, and feelings of female first-year undergraduate preclinical medical students in connection to cadaver dissection. The evaluation was completed in the academic year 2013–2014, or roughly six months after the start of the dissection course. The research revealed that 90% of the students believed that dissecting cadavers was the most effective and efficient approach to learn anatomy. Additionally, 79% of students believed that dissecting a cadaver was ethically acceptable, and 89% of students said that going to the dissecting room for the first time was exciting. Over 90% of the students surveyed concurred that dissecting a cadaver was one of the most useful teaching techniques for facilitating the process of learning about human anatomy. The Saudi female medical students at King Abdulaziz University (KAU) had positive attitudes toward cadaver dissection during their first year of undergraduate education in human anatomy. The findings of this study emphasize the value of future investigation into how views toward body dissection differ between genders.

Dissection has been the cornerstone of anatomy education since the Renaissance, claim Sharma and Gupta (2017). This method has been the main one for teaching human anatomy since the start of the last five centuries. The participants' behaviors were monitored and examined for this particular research project while they were completing their MBBS training. Growing concerns about the potential negative impact that cadaver dissection may have on medical students have prompted recommendations for the use of alternative technological advancements for the benefit of students. This study focuses on the emotional and psychological consequences that first-year medical student's encounter throughout their first year of medical school when they are subjected to corpse dissection. Each of the 100 first-year students enrolled in the MBBS programme at ASCOMS underwent this research. The majority of the students found working with cadavers to be an exciting experience and expressed their appreciation for the chance. The first poll asked respondents to answer 15 yes/no questions about cadaver dissection; the second asked respondents how frequently they performed dissections; and the third asked respondents why they skipped oravoided performing dissections. This study focuses primarily on the teaching of cadaver dissection and the students' responses to it using three different types of well-designed questionnaires.

According to [6], it would be advantageous for a doctor to understand ethics because doctors encounter many of the same moral conundrums and concerns that ordinary people do. Beyond that, there are additional moral issues and considerations that arise due to the nature of their line of work. These include inquiries into the privacy of patient data, inquiries into patient rights, and inquiries into matters of life and death. Knowing ethics can help a doctor to better understand the problem at hand, the numerous courses of action that are possible, and the principles that govern what constitutes the right path of action when confronted with difficult circumstances like these. A growing number of medical schools have come to the conclusion that the donation of cadavers, the teaching of anatomy, and medical ethics are all closely related. We are currently located at the threshold of the bridge that spans the worlds of higher education and the working world in the subject of anatomical sciences. The goal of this literary work was to integrate traditional anatomy lessons with medical ethics. The curriculum is very advantageous to both students and teachers since participants in such a programme are obliged to think ethically about death and other elements of human mortality.

The manner that medical education is taught has unquestionably been changed by the rapidly advancing technology, and the anatomy lab is no exception, claim [15]. Medical educators are left questioning what students learn during their time spent looking at human remains during the course of human dissection as there has been a recent shift away from traditional cadaveric dissection and toward learning approaches based on technology. In light of the recent, significant changes that have been made to the way that medical education is provided in this

new era of a global pandemic, we have a duty to ensure that students do not miss out on educational opportunities that are crucial to their development as future medical professionals. What is the key learning's that students gain via cadaveric dissection that they wouldn't otherwise be able to gain from technology-based learning alone? Following a line-by-line categorization of the surveys, topics representing particular learning experiences only obtained from human dissection were organized into themes. Surveys that were gathered over a two-year period from four anatomy classes were examined using thematic qualitative analysis. Importantly, several students showed a change in perspective, viewing their cadaver less as a tool and more as a patient, allowing them to apply their labknowledge to their potential medical professions. These topics showed indications of the development of a professional identity, self-reflection, and teamwork abilities. These unique educational possibilities cannot be duplicated using simply technology-based learning. Even if cadaveric dissection may not be as important in medical education in the future, we must continue to give students the learning opportunities that are crucial to their development as medical professionals. This is especially true if the encounters involve more complex anatomical concepts.

According to [4] research on cadaveric dissection has been used for ages to understand anatomy. There has been much discussion and controversy about the value of dissection in today's medical education. In order to align anatomy education with the needs of the medical industry, numerous improvements have been made. Dissection remains a crucial part of the anatomy curriculum despite the spread of modern technology and the development of more sophisticated teaching methods. Dissection practise can aid in the development of skills vital to today's healthcare system, such as discipline and independence. Another sign of the usefulness of dissection is students' perceptions that it provides them with a foundation upon which to develop clinical skills. These students think that dissection gives them such a foundation. Due to opposition to the use of cadavers, other possibilities, such as the virtual dissection of computer models, have become accessible. Under the subject of anatomy, the practise of dissection is currently in decline. The goal of the current study is to assess the value of traditional methods like cadaveric dissection in the process of teaching and learning anatomy at a time when medical schools are moving more and more toward the integrated and clinical application of learning methods.

According to research study of [1], medical students at the undergraduate level should be made aware of the ethical and humanistic values connected to cadaveric dissection. As a result, the "Cadaver as a Teacher" (CrAFT) module, which explores the ethical ramifications of cadaveric dissection, was developed, put into practise, and then evaluated for effectiveness for the sake of this study. The following concepts emerged as the most significant ones: the cadaver as a teacher; gratitude and acknowledgment; connection and empathy; and In total, 316 students, or 94.32 percent, scored better on the test than a five out of 10. The lesson significantly increased the students' awareness of the moral and humanitarian issues surrounding dealing with cadavers, in the students' opinion. Teaching medical students about cadavers as part of an instructional module is a cutting-edge method for raising their awareness of them. Early sensitization, according to thestudents, would have helped them create a practise based on professionalism, human values, and empathy earlier in their professions.

Anatomy is still regarded as a crucial fundamental subject in the realm of medicine as well as in other health-related scientific disciplines, according to [11]. There are two ways to teach this subject: lectures or demonstrations. As a result, for the students to fully understand the anatomy of the human body, doing a gross anatomy practical using a corpse is a necessary step. The goal of this study is to discover more about how medical students and students in other health-related areas feel about the value of cadaver dissection in the process of learning anatomy. According to the results of the descriptive statistical study, the majority of students deal with cadavers in practical assignments. They find cadaveric dissection thrilling and do not feel any anxiety or strain when executing it. Many of them did not react emotionally when they first saw the cadavers, which made it possible for them to accept the moral practise of cadaveric dissection. The students expressed their support for including corpse dissection in the health sciences curriculum. Cadaveric dissection can be used to get a better understanding of anatomy. This activity will enhance and help students' psychomotor skills develop. The study's findings suggested that learning about anatomy through dissection is fun and interesting.

CONCLUSION

The study's conclusions suggest that medical students' training experience should include cadaveric dissection, which combines the study of anatomy with the actual dissection of a real body. It should not be surprising that dissection has a major impact on students' overall performance after reviewing the pertinent literature. A considerable number of medical institutes worldwide include dissection in their anatomical lectures, according to the different studies that have been done. As a result, cadaveric dissections are a must for individuals who work in the medical and surgical fields, as well as those who teach anatomy and conduct research in the subject of anatomy.

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