

Review article:

Body donation –A noble cause

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Abstract

Cadaveric dissection is part and parcel of teaching and research in human anatomy. With the surge in number of medical institutions with each passing day, paucity of cadavers is one of the main problems we are facing today. To conquer this situation, Body donation is the utmost necessity. Donation of human body to medical discipline gives a chance to master the skills that will aid the future generations to come. In this article stress is given on the paramountcy of body donation and the sensitization of people towards it.

Key Words: Body Donation, cadaver, dissection

Introduction

Human anatomy is the foundation of medical science. It is one of the fundamental branches assimilated by medical students when they embark on their medical journey. It is the basic prerequisite to medical education. Cadavers are indispensable unit of human anatomy.¹ Cadavers are the great teachers² and best simulators. They remain the principal teaching tool for health care professionals. One cadaver can teach many budding doctors who ultimately can treat thousands of patients. Cadaveric dissection is a gateway to learn anatomy. Studying anatomy by dissection of cadavers is the finest way to study anatomy. Hands-on experience of cadaveric dissection is far superior than just reading books. Cadaveric dissection imparts unique freedom to study the human body in detail, to practice surgical skills, to conduct various workshops for the undergraduate, postgraduate students and researchers.³

To be able to dissect is the privilege not available in many medical colleges. Day to day cadaver student ratio is increasing. Ideally cadaver student ratio should be 1: 10 which is nowadays 1:25. Rising demands of cadavers for teaching and research purposes due to the increasing number of medical students did not match the supply of cadavers. Scarcity of cadavers is one of the major problems we are facing today. To overcome this situation, Body donation is the need of hour.⁴ Body donation is an informed and free act of giving one's body after death for medical education and research. Term body donation, Body bequests are synonymous. Body donation is the excellent source of cadavers apart from unclaimed dead bodies.¹

History

Body donation is a gracious act and it is being practiced since ancient times. First body donation of the world was the sacrifice made by great Rishi "Dadhichi" who left his body by the art of yoga. His bones were used to craft the weapon called "Vajra" Devas used this Vajra to get rid of asura "Vrutrasor".⁵ Sushruta, 'Father of Indian surgery' dissected human body in 600 B.C. His theory was that before practicing handiness on patients one must

first learn anatomy.⁶ShriShankarcharaya postulated “Idam sharirum paropkarum” means the body is for use of others and death is not the end, it is the beginning.⁷

Hippocrates (400 B.C.), ‘Father of medicine’ made some earliest anatomical description. Herophilus (300 B.C.), ‘Father of human anatomy’ was one of the first to dissect the human body. Galen’s (AD 130-200), ‘Prince of Physicians’ work was mainly based on nonhuman animals;Leonardo da Vinci (1452-1519) would dissect human remains and then draw anatomical sketches from what he sees during dissection. Andreas Vesalius (1514-1654), ‘Reformer of Anatomy’, due to his vision that Anatomy could be learned only through dissection is regarded as ‘Father of Modern Human Anatomy’.⁸

Concept of dissection started in 15th century in Europe.⁵Murder act 1752 (UK) permitted the use of dead bodies of executed criminals. In 18th-19th century popularity of hands on dissection and thereby cadaveric demand increased - initially met by grave robbers and slave bodies.⁹African Americans and poor were the victims of grave robbing.¹⁰Mutalik (2015)in the article reviewed the history of body donation from body snatching.⁶ The anatomy act was passed in US in 1831 and UK in 1832 which permitted the donation of the body of deceased by the kin and the use of unclaimed bodies for dissection. In 1832, Jeremy Bentham, philosopher donated his body to science.^{5,6}

In India, Anatomy Act was implemented in 1948 which has been uniformly adopted in all states.¹¹ In Maharashtra, Anatomy Act was adopted as Bombay Anatomy Act (1949), amended (2000) allowed pledge for donation before death of one’s body.¹² Delhi Anatomy Act (1953) provides for supply of unclaimed bodies to teaching medical institution and its disposal. Mysore Anatomy Act (1957) later amended as Karnataka Anatomy Act (1998), defines unclaimed body.^{11,1}Rajasekhar et al (2016) in their case series examined the Anatomy act of individual states of Union of India and other countries with respect to the consent for body donation by persons other than near relatives.¹³

The body of Pandurang Sridhar Apte was India’s foremost body donation to BJ medical college, Pune in 1956.⁵ Slowly and steadily importance of body donation recognized. The first cadaveric skin donation of North India was done in the Department of Anatomy in collaboration with the Department of Burns and Plastic Surgery of Safdarjung Hospital in May 2017.

Importance of body donation

- ☞ “The Brave Heart Serves Life Even After Death”.
- ☞ Donated bodies are basic device for learning Anatomy
- ☞ Each cadaver is a contemporary source of knowledge with variations and anomalies.
- ☞ Donated bodies being fresh can be effectively preserved for the purpose of hands-on workshops for surgeons.
- ☞ Organ retrieval requires a skillful hand which can be trained on donated bodies.
- ☞ Body donation serves as a key input for cadaveric skill labs which are gradually being established all over the country

Saritha et al (2012) conducted a cross sectional analysis to assess the importance of voluntary body donation.¹⁴

Procedure for pledging body

- ☞ A Body Donation Programme exists in the Department of Anatomy of all medical colleges
- ☞ Procure Voluntary Body Donation form from the Department of Anatomy of the nearest medical college

- ☞ Submit the duly filled form with signatures of two close relatives as witnesses with one Passport size Photo, an affidavit and proof of identity.
- ☞ After verification of Documents by Departmental Head, a donor card is issued in the name of the individual which can be collected from the Department.
- ☞ After donor's death, next kin or near relative should bring the body to approved medical institution.
- ☞ On arrival 2 mins mourning is performed with department.
- ☞ "EMBALMING" is done.
- ☞ Once body is fixed, it will be stored in formalin tanks and used for academic purpose.
- ☞ After complete dissection, body is buried with due respect and if few parts remain they are sent for incineration.

Even after filling the donation form execution of donation may not mandatory for both the donor as well as recipient. Bose et al (2017) made an attempt towards creating a database of human bodies donated in medical college.¹⁵

Criterion

Who can donate the body?

- ☞ One can pledge for body donation after completing 18 years of age
- ☞ Body of a person can be donated after death by legal heirs.
- ☞ Unclaimed bodies can be donated (Anatomy act) by law.

Who can accept the body?

- ☞ Medical institution approved by state and central government for medical education & research

Body unsuitable for donation

The medical institute has a right to reject the body for any other reason and the decision for the same is to be taken by medical institution at the time of donation.

- ☞ Body of a person having contagious diseases like HIV, AIDS, Hepatitis B & C, and Gangrene
- ☞ Body of a medico-legal case
- ☞ Postmortem bodies
- ☞ Highly decomposed body
- ☞ Highly emaciated and cachectic bodies
- ☞ Body with organs removed (except eyes).¹⁶

Donor's attitude towards body donation

- ☞ Donors donate their bodies primarily to aid medical science and teaching
- ☞ Reasons cited by prospective Indian donors for body donation are
 - ☞ Make the most of the use of body rather than being burnt after death
 - ☞ As a way to express gratitude towards society
 - ☞ Wish to avoid funeral ceremonies
 - ☞ To evade funeral expenses⁵

Body Donation Myths

Myth: Organ donation is against my religion.

Myth: Only hearts, livers, and kidneys can be donated.

Myth: If you agree to donate your organs, your family will be charged for the costs.

Myth: Organ donation disfigures the body and changes the way it looks in a casket.

Myth: I don't need to donate my body because thousands of others do.

Dombeand Anitha T (2016) in their prospective study mentioned the myths and misconception about body donation.¹⁷

Causes of unwillingness

- ☞ Lack of awareness – most important reason in India
- ☞ Spirituality and regional beliefs
- ☞ Love for one's own body
- ☞ Fear that body may not be treated with respect and dignity
- ☞ Medicos can't accept the concept of dissection of their own body⁷

Dope et al (2015) evaluated the willingness and assessed the awareness of public about concept of body donation. ⁷Survey conducted by Hiwarkar, Kulkarni (2016) concluded about lack of awareness of body donation among medical faculty.¹⁸

How to improve

- ☞ Body donation programmes must be implemented
- ☞ The donors and their families must be facilitated.
- ☞ Due assurance should be given to prospective donors that their bodies will be treated with respect and dignity.
- ☞ Awareness should be spread through different mass media with greater impact like television, newspapers, radio, hoardings and posters.
- ☞ The NGOs and social workers should play key role in this field.⁵

Paul D et al (2017) described the Indian and international scenario of body donation with special emphasis on multi focus awareness programme.¹⁹Prakash et al (2006) reviewed the body donor's programme in various countries.²⁰

Conclusion

Body donation is the noble gesture. "Service to mankind is the best form of worship". Donating your body to science is one of the greatest gifts one can give to make a lasting contribution to the education and training of our current and future health professionals and to advance science through research. Body donation is a generous and unselfish act to serve the humanity even after death. It is the supreme and ultimate gift one can give back to society. Your decision to donate your body to science will make a difference and you will be remembered for ever.

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