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ANCIENT AYURVEDIC AND MODERN METHODS OF PRESERVATION OF DEAD BODY

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ABSTRACT

In Ancient India (*Bharat*) few pieces of evidence are mentioned in Mythological and *Ayurvedic Samhitas* and *Grantha*'s first evidence of Body preservation is mentioned in the *Ramayana* in the chapter *Ayodhya Kanda* 5000 BC ago[1]. When King *Dashratha* died, *Maharishi Vashistha* advised his Prime Minister *Aaryasumanta* and suggestions to keep the dead body of King *Dashratha* in the wooden boat filled with medicated oil till prince *Bharat* came back to *Ayodhya*. In the *Ayurvedic* treatise insight, accuracy, and detail of the evidence of body preservation are described in *Sushruta Samhita*[2]. *Mahrishi Sushruta* was an ancient surgeon (who was possibly born in the 2nd century BC) and he was the author of the book *Sushruta Samhita*. *Susruta* believes to become the best physician & surgeon, the dissection of the dead body is very necessary. For the dissection of the dead body preservation with a good method is necessary. The Need for Preservation was Long before early practitioners of medicine in India began dissecting cadavers to study the human body. Theoretical knowledge learnt from the teacher & observed in the practical classes should be supplementary to each other. An effort is made by collecting all available literatures on *Ayurvedic* science, how the body is collected, where it will be preserved, and methods of preservation, etc. The modern preservation method is different from the *Ayurvedic* method of preservation.

Keywords: Preservation, Embalming, *Mrita-Sanrakshan*.

INTRODUCTION

The two fundamental texts of *Ayurveda* are *Charak Samhita* and *Sushruta Samhita.* Ancient *Maharshi Sushruta* practiced medicine. There are numerous instances that demonstrate *Susruta* had an extensive understanding of *Sharir Rachana. Susruta* provides detailed information regarding preservation and dissection. Surgery-related topics, such as the usage of particular instruments and sorts of operations, were highlighted in the *Shusruta Samhita*. Additionally, there is strong evidence to support the idea that human dissection and surface examination of the human body were both used to reveal knowledge of human anatomy. Various references can be seen in various ancient and modern texts regarding this:

1) The *Vedic* Period:[3]In the chapter of the Ramayana topic of body preservation was brought up. When King *Dashrath* passed away, *Maharishi Vashistha* gave his Prime Minister *Sumanta* advice to put the remains of the king in a wooden boat filled with medicinal oil until prince *Bharat* returned to *Ayodhya*.

2) The Ancient Egyptians: Also considered that the mummy's preservation gave the soul enough strength after death that it would return to the preserved corpse.

3) 19th and Early 20th Centuries: Arsenic was once a common embalming fluid, but more effective and secure substances have since replaced it. Modern embalming techniques considerably advanced during the height of the British Empire and the American Civil War due to sentimental considerations surrounding foreign leaders, businesspeople, and troops dying far from home and the necessity for their remains to be sent home for local burial.[4]

<u>There are some points that are important to preserve a dead body:</u>

- <u>That all the limbs are intact.</u>
- No injury is present in any part of the body.
- Death is not due to any chronic disease.
- Death is not due to intake of poison.
- Death is not due to any epidemic disease.
- The dead body after the process of postmortem is not preserved.
- A dead body has an age of about 55-60years.

Aims and objectives :

1. To explore the knowledge of preservation of the dead body.
2. To know about the difference between the modern and Ayurvedic methods of preservation

Preservation material(ayurvedic)

- Extreme cold rivers slow flowing water.
- *Bambu cage.*
- *Munja.*
- *Kusha (Dharbha).*
- *chal.*
- *Kshan.*

Preservation material:(modern)

Sr.No.	Nameofpreservative fluidandinstruments	Quantity
1.	CarbolicacidorPhenol	1lt.
2.	Formaline	4lt.
3.	Glycerine	2lt.
4.	Spirit	3lt.
5.	Tarpentineoil	300ml
6.	Water	3lt.
7.	Stainingfluid	–
8.	Redlead	200mg.
9.	Water	2lt.
10.	Pot	1
11.	CanulaThared	1
12.	surgicalblad	1
13.	Scalpel	1

Preservation methods(ayurvedic):

***Sushruta samhita* 5th chapter-** Human body dissection-Selection of cadaver, preservation (*Mrita-Sanrakshan Paddhati)* and method of dissection According to *Acharya Sushruta,* who studied Anatomy by dissecting dead bodies, someone who has Anatomical knowledge will undoubtedly perform the surgery successfully because they are aware of the body's vital organs, such as *Dhamani, Siras, Nadi* and *Marma* points, which help them avoid harm during the surgical procedure. *Sushruta* stated that *cadaver* dissection was necessary for medical students to learn the subject of Anatomy practically, which is why he talked about the preservation strategy and dissection procedure.

- *Samasta-Gatram-* According to *Sushruta*, a human corpse (cadaver) contains all of its parts in their original, undamaged states, neither more nor fewer in number is supposed to be taken for dissection.
- *Avisha-Upahatam:* As poison affects different body parts, the body does not remain in its natural state.
- *Adeergha-vyadhi-peeditam*:- According to *Sushruta,* the individual whose body is being preserved should not have died from chronic diseases because these conditions may affect various body parts, such as the skin in leprosy, the bones in the nose and other bones in syphilis, the penis in gonorrhoea, etc. Such a type of body gives wrong information about the study of body parts. Since acute diseases do not cause any damage in the early stages, a dead body that had previously experienced long-term disease should be taken for dissection.
- *Avarsha-shatikam:- Sushruta* declines to accept both the bodies of youngsters and elderly people. Because as people age, many components of their bodies degrade, including the skin, teeth, bones, muscles, and ligaments, and, in the case of older women, the uterus also shrinks. On other hand, in children, their organs, bones, and system are not fully developed as seen in adults. Like milk teeth, bones not formed well, etc.
- *Avarshahatikam*: which means not above 100 years. But in the present era average age level diminished so we can take a body having ages up to 60 to 65years
- *Nisrushta-antra:-pureesham* as there are numerous bacteria in the colon and faeces. *Sushruta* advice, they should expatriate out along with the faeces. The benefit of removing the farces from the gut is that body and intestine will not be bacterially destroyed
- *Avagahnty-amaapgayam*: To keep the body moist and soft and prevent foul odors it is told to put the body consistently in contact with water, tie it securely and place it in a river with a slow-moving stream.
- *Nibadhham*: - As stated earlier, the meaning of the word "*Nibandhham*" is to tie the body properly. So that the body won't sink. Drown, or otherwise, float away.
- *Panjarastham*:- Sushruta advised that dead bodies were enclosed in a cage to protect them from aquatic creatures.
- *Munja-valkal-kusha shanadinam- Anyatam-en-Aaveshtita Anga-pratyangan:-* Dead Body was wrapped either with *Munja, Valkala* (inner barks of trees). *Kusha* (Grass part of *Trina Panchmoola*), *Shana*, or any such material. The purpose of this wrapping was to shield the body from small aquatic creatures. Because it could be thought of as the reason for the post-mortem damage, allowing microorganisms to colonize the body and trigger its decomposition. And the skin of the cadaver also softened for dissection.

Preservation methods (modern):

A. Modern Embalming Techniques[5]

Medical students regularly use cadavers for Anatomical studies because they are a monument to body science. Before doing surgery on actual patients, surgical procedures are commonly tested on cadavers. Despite the fact that many schools now use robotics and surgical templates to train. Cadavers are still necessary for practical hands-on learning. Modern embalming methods are the culmination of decades, of work done for centuries, studies,

experimentation, and research rather than the work of a single pioneer.

The embalming process which is practiced nowadays involves the following various techniques:

1) Arterial Embalming: In most cases, the common carotid artery is used to inject embalming agents into the blood vessels. This solution removes blood and interstitial fluids replacing them with embalming fluids.

2) Hypodermic Embalming: One more technique that involves the use of a hypodermic needle to inject embalming agents into tissue.

3) Surface Embalming: To preserve and restore areas that are immediately on the skin's surface and other superficial areas, there is another additional technique.

4) Cavity Embalming: This refers to the process of using an aspirator and trocar to replace internal fluids in body cavities with embalming chemicals.

B. Using chemicals

The chemicals used for embalming contain a variety of additives, buffers, disinfectants, and preservatives. Embalming fluid is made up of many substances. Formaldehyde, glutaraldehyde, ethanol, wetting agents, and other solvents are commonly found in embalming fluid.

C. Types of embalming

1) Specialized Embalming: Extra, special care must be taken with decaying remains, trauma cases, frozen or drowned corpses, and those that must be carried across long distances. Embalming autopsy instances are different from typical embalming in that the post-mortem examination's nature affects the circulatory system since the viscera are removed.

2) Gravity-feed Embalming: This technique involves raising the container containing the embalming fluid above the level of the body and gently adding fluid over an extended period of time. The fluid is not being drained. Gradually, the resulting distension disappears, leaving a somewhat typical appearance. The internal organs are not treated separately for cavities.

3)Practical Light Embalming: This technique is used in the lab for the dissection of fresh surgical tissue. With little loss in tissue quality, colour, or smell, lightly embalmed bodies can be kept in a refrigerator for up to 6 weeks.

4) High-pressure Embalming: Using high pressure, an embalming machine injects the fluid into an artery, where it is allowed to saturate and inflate the tissues.

5) Thiel Embalming Technique: Thiel embalmed cadavers "display, a better degree of elasticity and colour retention" when compared to standard formalin-fixed cadavers, making it a helpful technique for microvascular surgical instruction.

D. Plastinated

The preservation of specimens by forceful impregnation with curable polymers. a cutting-edge method for long-term preservation that entails extensively coating anatomical specimens with reactive polymers like silicone, rubber, epoxy, or polyester resin. Plastinated human specimens represent a modern educational milestone in medicine. For teaching anatomy, pathology, obstetrics, radiography, and surgery, they are currently the ideal tool.

DISCUSSION

As can be shown from a variety of facts, *Sushruta* is quite knowledgeable in *Ayurveda* with reference to *Sharir Rachana*. How to preserve and dissect a cadaver according to *Ayurvedic* principles is described in great detail by *Sushruta*. There is also significant evidence that he considered that students who wanted to become surgeons should have a solid understanding of the human body's structure showing that both surface observation of the human body and human dissection was used to discover the details of human anatomy. The steps for scientific preservation and dissection were described by *Acharya Sushruta*. *Sushruta* advised preserving a deceased person's entire body, including all of its organs so that the entire body might be studied by *Sushruta*, Preservation of the corpse through hydration in a river or stream that is flowing, where there is a moderate current and no influence from outside. The corpse needs to be immersed and left to decay for

seven days. The three phases listed below can be used to categorize the embalming procedure outlined by Acharya:

a) *Purva Karma* (Pre-Procedure): It comprises the selection of the body to be preserved. As per Sushruta, it is described as:

- all limbs should be intact
- cause of death should not be due to poisoning
- illness was not of long duration
- a person should not be of elder age

b)*Pradhan Karma*: Main procedure, which entails: They utilised conventional embalming methods that entail removing the intestine and faeces before placing the body in a solid casket and covering it with a mattress made of *kusha* or a closely related substance. A stream with moderate movement and no surrounding obstructions should be used to keep the iron casing submerged. The corpse needs to be immersed and left to decompose for seven days.[6]

c) *Paschata Karma* which is the post-procedure: Every part should be removed once it is loose, examined, and scrubbed with a brush made of bamboo bark, kusha, or any similar substance. This process should start with the skin.

CONCLUSION

Dissection requires the deceased body to be preserved. Modern science and *Ayurveda* both provided distinct explanations of preservation. The *Ayurvedic* method of preservation is straightforward and organic. In *the ayurvedic* method, no chemical is used for preservation but in the modern method of preservation, many chemical agents are used. Despite the benefits of plastination, embalming still has value in light of medical science's advancements. The ancient method of body preservation correlates with modern techniques so this information may be helpful for our society. Morphological study on body preservation is useful for Anatomists, anthropologists, experts in Forensic medicine,[7]and surgeons. The purpose of this work is to contribute to the scientific literature, providing Anatomical data on the similarities and variations. The goal is to preserve the body's health for as long as possible while also clearly presenting each structure and organ.

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