



Review Article

Examination of sudden unnatural death in *kautilya's arthashastra*:

A review

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ABSTRACT:

Kautilya Arthashastra is an ancient treatise for guiding governance of country. It contains fifteen tribunals (parts) which encompasses all components of statesmanship needed by a ruler to manage the affairs in his kingdom. One of the objectives is administration of justice. For this purpose, legal guidance is given in detail in this book. Different aspects of death, examination of dead bodies and various crimes are defined along with their punishments. In this article we are summarizing methodology and findings in dead body which were enumerated in *Kautilya's Arthashastra* during the *Mauryan* period and also the relevance of same in modern era.

KEY WORDS: *Kautilya's Arthashastra*, Death, Post mortem

INTRODUCTION:

Kautilya's Arthashastra is a famous treatise written by *Kautilya*, who is also known as *Chanakya*. *Arthashastra* literally means science of wealth. This book mainly guides for the governance of country. It is divided into 15 tribunals, which are subdivided in 150 chapters covering 180 topics. Administration of Justice, Ethics, Economic Development, Foreign relation, Duties of King (now a days Government) are some of the topics covered in this book.

According to modern science, death is defined as Cessation of life¹. Sudden and unexpected death is a death which occurs within 24 hours of onset of symptoms². It may be natural or unnatural. Unnatural death may be of suicidal, homicidal, and accidental in nature. In part IV: "*Kantaka Shodhanam*" (Resolving the disputes with Artisans) chapter no. VII named as "*Ashu Mrutak Pariksha*" (Examination of sudden death) elaborates examination of dead body in detail³. In this chapter detailed description of various findings in sudden unnatural death has been given with reference to various causes of death.

MATERIALS AND METHODS:

For this review article, data was collected from *Kautilya's Arthashastra*, other books and articles published on this topic. "*Ashu Mrutak Pariksha*" *Adhyaya* from *Kautilya's Arthashastra* was studied in detail. Articles published on examination of death and autopsy findings were reviewed.

AIMS AND OBJECTIVES:

1. To study the ancient Indian text *Kautilya's Arthashastra* especially the chapter "*Ashu Mrutak Pariksha*" *Adhyaya* which is related with Sudden Death.
2. To compare the findings in "*Ashu Mrutak Pariksha*" *Adhyaya* with the relevant modern knowledge.

DISCUSSION:

In the topic "**Examination of Sudden Death**" from *Kautilya's Arthashastra* mainly following points are explained and studied in detail. We have made an attempt to find whether there is any correlation between this ancient treatise and modern science.

1. Preservation of Dead Body –

- a. **According to Kautilya's Arthashastra⁴-** Corpse should be smeared over with oil and examined. Purpose of this process is to preserve the corpse and to visualize the injuries which become more visible.
- b. **According to Modern Science-** Preservatives like Formaldehyde, Glutardehyde, Phenol; Modifying agents like Humectants (Ex- Glycerin), Buffers, Inorganic salts are used for Preservation i.e. Embalming.

Use of Preservatives: In ancient time, dead body was preserved with oil while now days they are preserved with Formaldehyde, Phenol (carbolic acid) like various chemicals. These all are nothing but Hydrocarbons and Oil (i.e. Crude Oil used for preservation) is also Hydrocarbon⁵.

Human cadaver is considered as an educational tool specially for the students of anatomy, to fulfill this task preservation of dead body is essential.

Embalming techniques help in the thorough and complete preservation. The softness of the tissue is retained as in the un embalmed body. The color a brown dark color of the muscles and organs is secured. The distension and the coloring of the arteries is maintained.

Enhancement of Injuries: Hydrocarbons like glycerol and mannitol are used as an optical clearing agents (OCA). They have been used in case of pediatric autopsy. Paediatric dura mater shows increase in the transparency and enhances the post-mortem assessment of infant head injuries, particularly subdural hematomas⁶.

2. Post mortem Findings –

a. In Asphyxial Death –

Asphyxia is defined as a mode of death in which death is due to failure of function of lungs. In the mechanical asphyxia there is lacks of oxygen in body because of some violent mechanical interference with the process of breathing. So, they are known as violent asphyxial death. Violent Asphyxial Death are of common occurrence and classified as Hanging, Drowning,

Strangulation, Suffocation, and Traumatic Asphyxia.

A. Death by Homicidal Strangulation-

I) According to Kautilya'Arthashastra⁷-

External findings- Body is tainted with urine and feces, hands and legs are swollen, eyes remain opened, marking of ligature found on neck.

Internal findings- Abdomen is inflated with air.

II) According to Modern Science⁸-

External findings- If the orifices are closed by hand, there may be scratches, distinct nail mark or lacerations of the soft part of the victim's face. Lips, gums and tongue show bruising or laceration. Tongue may be protruded or bitten.

Internal findings - Blood stained frothy fluid present in air passage. Slight acute emphysema and edema of lungs. Atelectasis, Petechiae, congestion are major findings. Internal organs show sometimes congestion, hemorrhage.

It is observed that description of strangulation was elaborated very clearly in *Kautilya's Arthashastra*. Description of site of ligature, along with local injury is mentioned. Relaxation of sphincters of anal orifice and urethra causing expulsion of feces and urine was also described in it. Effect of strangulation on cervical ganglions, which is responsible for effect on eyes is mentioned in it. These all changes are also described in textbooks of forensic medicine.

B. Death by Hanging-

I) According to Kautilya' Arthashastra⁹ –

External Findings- Body is tainted with urine and feces. Eyes are sunken and remain open in such cases. Hands and legs are swollen. Marking are found on neck. Arms and legs are clenched.

Internal Findings- Abdomen is inflated with air and protruded umbilicus.

II) According to Modern Science¹⁰-

External Findings- Most important finding is Ligature Marking. Post mortem staining is seen

in distal parts of both limbs and upper margin of ligature mark. Hands are clenched and relaxation of sphincters is observed.

Face is congested with petechial hemorrhage. Bloody froth may be seen oozing from face, nose. Dribbling of saliva, protruded tongue, eyes remain partially opened, dilated pupils are some of the other findings.

Internal Findings- Lungs are congested, edematous and petechial hemorrhages are found.

Clenching of hand and legs are seen in early stage while protrusion of umbilicus, sunken eyes, swollen limbs are seen in late stages of death because of blood extravasation in dependant body part and because of gravity according to modern science.

From above findings it can be deduced that, in ancient times also detail local and systemic examination was done. Signs of delayed death like distension of abdomen and swelling over hands and legs due to gravity was also observed in ancient time.

C. Death by Drowning –

I) According to *Kautilya'Arthashastra*¹¹-

External Findings- Prolapsed rectum and protruded eye ball. Tongue is bitten between teeth.

Internal Findings- Abdomen is distended (filled with Water).

II) According to Modern Science¹²-

External Findings - Bloody froth is observed in the airway.

Internal Findings - Lungs are edematous, voluminous. Oozing of blood-stained frothy fluid and ballooning of lungs is seen. Water is present in Stomach and Intestine. Hands and feet are wrinkled, bleached, swollen because of osmotic action of water known as “**Washer Woman Hand and Feet**”.

Stiffening of external orifices, numbness, were observed in ancient times. These may be seen because of cold water. These observations are

not explained in modern textbooks. While abdomen filled with water is also seen in autopsy.

D. Envenomation poison –

I) According to *Kautilya'Arthashastra*¹³-

a. By *Visha Hatam* (By Poison)-

External Findings- Blackish discoloration of limbs, nails and teeth. Skin, muscles and hairs are loosened (peeled)of.

b. By *Sarpa, Keeta Hatam* (i.e. By Snake or Other Poisonous Insect) –

External Findings- Blackish discoloration of limbs, nails and teeth. Skin, muscles and hairs are loosened (peeled off). Also mark of cut and bleeding from that wound seen.

c. By *Madan Yoga Hatam* (i.e. By Vegetative Poison like *Dhatura*) –

External Findings- Diarrhea, vomiting, messy clothes of dead person due to soiling.

II) According to Modern Science-

a. In Envenomation Poison¹⁴ –

External Findings- Discoloration of tissue within few minutes and dark, bloody fluid may ooze from the fang wounds. Only one fang mark or many punctures present with pain and swelling. If untreated may result in tissue death.

Discoloration, bite mark, oozing of blood; these signs are described both in ancient as well as modern time. But peeling of skin is not mentioned anywhere in modern text.

b. In Ingested Poison¹⁵-

External Findings- Diarrhea, vomiting, skin rash, scanty urine etc.

Internal Findings - Abdominal pain, difficulty in breathing.

Diarrhoea, vomiting like symptoms are seen nowadays, but messy clothes of dead person may be seen because of struggle during forced poisoning is suggestive of keen observation of deceased during external examination.

E. Death caused by Mechanical Trauma¹⁶ –

All types of external impacts which causes disease are called ‘Trauma’. ‘Mechanical trauma’ is an injury to any part of the body from the impact of kinetic force which damages the normal anatomy and physiology of organ or tissue. It may be blunt or sharp or firearm trauma.

I) According to *Kautilya’s Arthashastra*¹⁷-

a. Beaten by Wooden Stick/ Chabuk (Leather belt) –

External Findings- Dead body is tainted with blood.

Internal Findings - Multiple fractures are found.

b. Accidental (Killed due to fall of house etc. Over body of person) –

Internal Findings - Multiple fracture.

I) According to Modern Science-

External Findings- Signs of abrasion and contusion is observed. Oozing of blood from wound, reddish-blackish discoloration, mark of blunt instrument is seen on the body.

Internal Findings -Multiple fractures, edema.

External and internal autopsy findings are same in ancient and modern text. These all observation are suggestive that though in ancient time modern diagnostic tools, investigation tests were not available but their observation skill, study of human anatomy, physiology and pathophysiology was remarkable

F. *Visha Mishrit Anna Parikshan* (Examination of Suspected Poisoned Food) –

I) According to *Kautilya’s Arthashastra*¹⁸-

a. **Collection of suspected samples of food-** Some guidelines are given for collection of samples of suspected food, drinks- Sample should be collected from residual food and drinks which were consumed by the diseased. If this sample is unavailable, then sample of undigested or partially digested food from intestine can be used. Food

sample retrieved from the scene of crime should be mixed with milk and its examination should be done. Details regarding examination in milk are not given in the text.

b. **Agni Parikshan (Examination with the help of fire):** Suspected food is then thrown in the fire for examination. Following findings confirm adulteration of food with poison.

Shabda Parikshan: There is ‘Chitchit’ (Crackling) sound when such food is thrown in fire.

Rupa Parikshan: Flame appears to be of rainbow colored.

After cremation, if body is completely burnt but heart remains unburnt it indicates death by poisoning.

II) According to Modern Science¹⁹-

It is also known as “Post Mortem Forensic Toxicology”. In case of suspected food poisoning tissues or samples of organs for e.g. stomach, small intestine, liver, spleen etc. are collected during autopsy. Blood, vomitus, feces etc. also collected when needed. Sample is collected with preservative (Anti coagulants) and sent for chemical analysis afterwards. Stomach content are collected by stomach wash and later on examined by chemical analysis for presence of various poisons.

Now a day, in case of suspected food poisoning, suspicious food is sent for chemical analysis, because trial of poisoned food on animal or bird is unethical and cruelty to the animals. Instead of this sophisticated modern techniques and assays are done, which is need of present era.

G. Investigation Process –

I) According to *Kautilya’s Arthashastra*²⁰-

a. **Detail Personal History of Dead Person –** To find is there reason of any dispute of dead person with other people? or infatuation of Love? Or Anger? Etc. Because anger may be the cause of death.

b. **Enquiry of People Present at Crime Scene -** Questions were asked by Investigation Officer like- Who informed cops? By whom

the dead body was brought there? Whether they (the witnesses) saw any armed person (means a person with weapon) at that or surrounding place and showing signs of troubled appearance? Who killed that person (means any known Suspect i.e. person)? Such types of above questions are mentioned in the text.

c. **Medical evidence –**

- i. **Collection of personal property:** dress, jewels, shoes, etc. should be collected from the body of dead person or from the scene of crime.
- ii. **Search for murder weapon:** murder weapon should be searched at the or near the scene of crime.

II) According to Modern System²¹-

a. **Duties of Investigation Officer-** Scene investigation, Scene photography, Preservation of traces of evidence, Identification of deceased, to obtain detailed information of person to rule out death cause, circumstantial identification etc.

Detailed personal history of dead person, enquiry of people which were present at crime scene and medical evidence; all these steps of investigation are followed now days like ancient time. Along with these now a day examination of crime scene, collection of suspected samples etc. done by forensic experts to avoid any negligence regarding evidence collection.

CONCLUSION:

1 The knowledge regarding examination of sudden unnatural deaths, handed over to us in *Kautilya's Arthashastra*, seems to be relevant in modern era also; though the modern knowledge of Thanatology is much more advanced and practically applicable. Therefore, the steps which we are following in examination of sudden unnatural deaths are very much in accordance to those explained in the ancient treatise of *Kautilya*. Also, the explanation of in-depth mechanism of inquest suggests of well-developed system of investigation in death and administration of justice in that era. This can be said to be a pioneer application of principles of laws for maintaining the social harmony.

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