



MEDICOLEGAL ASPECTS OF DEATH INVESTIGATION: AN EMPIRICAL STUDY

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Abstract

The death is a definite phenomenon in every living being. Death is certain in all human beings. It can be a natural or unnatural death. In a case of natural death due to ageing process or disease/s, there is no question arise of the death investigations as the cause of death is known. But in the cases of unnatural death which can be due to suicide, homicide or accidental, a medicolegal autopsy or postmortem examination is a special type of scientific examination of a dead body carried out under the laws of the State. It is carried out mainly for the protection of the citizens and to assist the identification and prosecution of the guilty in cases of unnatural deaths.

This research paper is written to prove the importance of death investigations in medicolegal cases in India. Research scholar has chosen this topic as being the post-graduate in medicine, law and management.

Key Words: *Medicolegal, Autopsy, Postmortem, Somatic, Molecular, Cellular, Coma, Syncope, Asphyxia, Vagal, Sympathetic, Putrefaction, Saponification, Mummification.*

1. Introduction

The medicolegal study of death falls within the unit of forensic thanatology. (thanatos = death; logos = science).

Death occurs in two stages namely,

1. Somatic death or clinical death and,
2. Cellular death or molecular death.

The term 'death' is commonly means **somatic death**. It is due to complete and irreversible cessation of the vital functions of brain, followed by cessation of the functions of the heart and lungs.

After the somatic death, tissues and cells survive for a varying period depending upon their oxygen requirements. When these individual tissues & cells die, it is termed as **cellular** or **molecular death**.

Nervous tissues dies rapidly within five minutes, while muscles survive upto about three to four hours. Molecular death is accompanied by cooling of the body i.e skin, muscles and changes in the eye – dilated & fixed pupil etc. It is completed within three to four hours of somatic death.

Transplantation: the viability of transplantable organs falls sharply after somatic death. A liver must be taken within 15 minutes, a kidney within 45 minutes and a heart within an hour.

2. Literature Review

The Various Modes of Death & Their Autopsy Findings

There are three modes of death irrespective of what the remote cause of death may be, these modes are

1. Coma.
2. Syncope.
3. Asphyxia.

1. Coma: This is death from failure of the function of the brain and irreversible damage to its vital centre's. It is due to

1. Raised intracranial pressure from disease of the brain or its membranes and injuries to the brain.
2. Poisons such as opioids and alcohol.
3. Metabolic disorders like uremia.

Autopsy Findings in Coma: oedema and congestion of the brain and its covering membranes is commonly found.

2. Syncope: This is death from failure of the heart resulting in hypo-perfusion and hypoxia of the brain. It is due to,

1. Heart disease.
2. Hemorrhage.
3. Pathological states of blood.
4. Exhausting diseases.



5. Poisoning due to digitalis, potassium, aconite or oleander
6. Reflexes cardiac arrest due to,
 - a. Vaso-vagal shock or neurogenic shock or neurogenic shock i.e. Tenth cranial nerve or vagus nerve stimulation.
 - b. It rarely ventricular fibrillation due to cardiac problems.

Autopsy Findings in Syncope: The heart appears contracted. It contains very little blood if death is due to haemorrhage. The viscera appear pale and the capillaries congested.

An Example of Death Due to Vagal Inhibition

An instance is recorded of a man who attempted to molest a girl. He tried to prevent her from shouting by putting his hands on her mouth. She suddenly went limp and her dead body was in his hands.

An Example of Death Due to Massive Sympathetic Discharge

A 17years old white girl, lifted a small pocket sized snapshot album in a shop. The theft was noticed and a security guard followed her outside the store, then stopped her and asked that she remove the album from her purse. She handed the purse to her accompanying mother and turned to the guard. Then the security guard stated that “she was looking directly at me and the pupils of her eyes became very large and she dropped to the ground”. Mouth-to-mouth artificial respiration administered by the guard was of no use, resuscitation in the ambulance and at the hospital also failed.

Autopsy Findings: No disease process was discovered at autopsy, all organs & viscera appeared normal. The toxicological examination failed to find any toxic substances in the body tissues & fluids.

The mother of the deceased maintained that the guard had “scared her to death”.

This is typically example of death due to sudden fear, which occurs due to massive sympathetic nerves discharge in the body.

3. Asphyxia: This is death from failure of respiratory functions. Here respiratory functions ceases before that of the heart. It occurs in pathological conditions of the respiratory system. Here respiratory function ceases before that of the heart.

Causes of Asphyxia are

1. Respiratory diseases like pneumonia, bronchopneumonia.
2. Paralysis of respiratory centre as in opioid poisoning, breathing of irrespirable gases, occlusion of air passages in traumatic asphyxia.

Autopsy Findings in Asphyxia: Cyanosis, petechial hemorrhage, visceral congestion, cardiac dilation. Depending upon the type of death.

eg. Local injuries to neck in hanging, strangulation and throttling and color of blood in carbon monoxide poisoning, while certifying the mode of death, it is necessary to mention the precipitating cause of death.

Example: Coma due to meningitis.

Syncope due to hemorrhage.

Asphyxia due to hanging.

Without the cause, the diagnosis is too non-specific.

Sudden Death

These are the deaths which are not preceded or are only preceded for a short period, say about a day or two, by morbid symptoms. They are important from a medicolegal standpoint as they may raise a suspicion of foul play.

Thus, in cases of sudden death, it is usually not possible to certify the cause of death from an external examination of body. In all such cases, an autopsy is necessary to obviate the possibility of unnatural death escaping investigation. A doctor who issues a death certificate in such a case runs the risk of being accused as an accessory to a crime and obstructing the course of justice, should the death be found eventually due to foul play.

Causes of Sudden Natural Death

The causes of sudden natural death are classified as follows;

1. Cardiovascular.
2. Respiratory.
3. CNS.
4. Abdominal.



5. Endocrinal.
6. Iatrogenic.
7. Miscellaneous.
8. Special causes in children.
9. Indeterminate.

1. Cardiovascular Causes

- a. Coronary artery diseases;
 1. Atherosclerosis.
 2. Thrombosis.
 3. Syphilitic infection producing narrowing of the coronary ostia.
- b. Congenital heart diseases; eg. ASD, VSD, PDA.
- c. Vascular heart diseases:
 1. Rheumatic.
 2. Syphilitic.
 3. Other types.
- d. Hypertensive heart diseases.
- e. Infection;
 1. Pericarditis.
 2. Myocarditis.
 3. Endocarditis.
 4. Cardiac tamponade:
 - (i) Ruptured myocardial infarct,
 - (ii) Trauma,
 - (iii) Cardiomyopathy.
- f. Ruptured of aortic aneurism.
 1. Atherosclerosis
 2. Dissecting aneurism
 3. Syphilis

2. Respiratory Causes

- a) Pulmonary thrombo-embolism
- b) Massive haemoptysis from tuberculosis or malignant disease
- c) Severe infections such as fulminating viral pneumonia
- d) Bronchial asthma
- e) Airway obstruction from any cause

3. Central Nervous System (CNS) Causes

- a) Intracerebral haemorrhage associated with cerebral atheroma and infarction or hypertension
- b) Subarachnoid haemorrhage from a ruptured aneurysm
- c) Cerebral thrombosis & subsequent infarction
- d) Cerebral embolism
- e) Infection of the meninges
- f) Tumor of the brain producing pressure or sudden hemorrhage in a tumour
- g) Epilepsy
- h) Functional inhibition of the vagus nerve (tenth cranial nerve)

4. Abdominal (Gastro-Intestinal Tract) Causes

- a) Massive hemorrhage into the alimentary tract from bleeding gastric or duodenal ulcer or colon in ulcerative colitis or diverticulitis
- b) Rupture of abdominal aneurysm
- c) Haemorrhage due to abortion or ruptured ectopic gestation
- d) Perforated peptic ulcer or ulcerative colitis
- e) Acute haemorrhagic Pancreatitis
- f) Fulminant hepatic failure



- g) Infarcted intestine from mesenteric thrombosis or embolism.

5. Endocrine Causes

- a) Adrenal insufficiency or haemorrhage
- b) Diabetic coma
- c) Myxoedemic crisis
- d) Parathyroid crisis
- e) Pituitary infection (sheehan's syndrome)

6. Iatrogenic Causes

- a) Abuse of drugs
- b) Sudden withdrawal of steroids or beta blockers
- c) Anaesthetic mishaps
- d) Mismatched blood transfusion

7. Miscellaneous Causes

- a) Anaphylaxis
- b) Bacteriaemic shock
- c) Malaria
- d) Sickle cell crisis

8. Special Causes in Children

- a) Cot death or SIDS
- b) Congenital cardiac or cerebral abnormalities

9. Indeterminate Causes

This cause of death cannot be determined. Conclusion should be reached only in a fresh body after exhaustive histological & toxicological examination. In decomposed bodies, this is a mere frequent diagnosis.

Signs of Death

The signs of death are subdivided into three groups, viz; immediate, early and late

1. Immediate signs: Constitute somatic or clinical death
2. Early signs: Follow within about 12- 24 hours after death and denote molecular or cellular death
3. Late signs: Follow after about 24 hours after death and represent decomposition or decay or a modification of this process by adipocere formation and / or mummification.

Signs of Somatic or Clinical Death (Immediate Signs): This Include

1. Insensibility and loss of ECG rhythm
2. Cessation of circulation, that is loss of ECG rhythm
3. Cessation of respiration i.e complete absence of breath sounds for a continuous period of five minutes constitute proof of death.

Signs of Molecular or Cellular Death (Early Signs)

Follow within 12 to 24 hours after death & include

1. Cooling of the body also known as algor mortis (algor means coldness, and mortis means of death)
2. **Changes in the Eyes:** dilated and fixed pupils. The clear glistening appearance of the cornea is lost. The cornea become dry, cloudy and opaque due to the failure of production of tears. The corneal reflex and light reflex is lost and intra-ocular tension falls.
3. **Changes in the Skin:** The skin assumes a pale ashy white appearance, more noticeable in fair skinned persons. It loses its elasticity. The lips tend to darken due to drying.

Postmortem Lividity & its Usefulness in Medicolegal Work

Postmortem lividity also called **aspostmortem staining** means discoloration of the skin and organs after death due to accumulation of fluid blood in the toneless capillaries and small veins of the dependent parts of the body. Being the result of



stasis of blood due to gravitational forces, the staining is of the same colour as that of the blood. The process commences within an hour after death or pronounced shortly after death.

The Medicolegal Importance of Postmortem Lividity

1. It is a reliable sign of death.
2. It may give information about the position of the body at the time of death and if it has since been altered (as many happen in a case of murder)
3. It helps to estimate the time since death.
4. Its color may suggest the cause of death.
5. Its distribution may sometimes suggest the circumstances or position of the body at the time of death. e.g. Hanging, drowning, electrocution.

Changes Which Occur in Muscles after Death

The muscular tissues of the body after death pass through three stages, viz

1. Primary relaxation or flaccidity
2. Rigor mortis or cadaveric rigidity
3. Secondary relaxation

1. Primary Relaxation or flaccidity

Immediately after death, there is a relaxation of general muscular tone with the result that the lower jaw droops, pupils dilate and fixed, muscles become soft and flabby, joints are flexible and the sphincters relax and this may result in incontinence of urine and faeces. Muscles still react to external stimuli, viz, mechanical, chemical or electrical and the tissues are still alkaline.

2. Rigor Mortis

(rigor = rigidity; mortis = of death) is a condition characterized by stiffening and shortening of the muscles which follow the period of primary relaxation. It is due to chemical changes involving the structural proteins of the muscle fibers and indicates the molecular death of its cells.

Medicolegal Importance of Rigor Mortis

1. It is a sign of death
2. It helps to estimate the time since death
3. It may give information about the position of the body at the time of death and if it has been altered after rigor has set in.

3. Secondary Relaxation

With the disappearance of rigor mortis the muscles become soft and flaccid once again but do not respond to mechanical, chemical or electrical stimuli. Their reaction again becomes alkaline. This stage is synchronous with the onset of putrefaction.

Late Signs of Death

These are the changes that take place in a dead body after about 24 hours since death. They represent the decomposition and decay. These signs include

1. Putrefaction (Decomposition of body by autolysis and bacterial action)
2. Saponification or adipocere formation (Fatty tissues of the body may become converted into fatty acids)
3. Mummification (Body tissues may become dehydrated)

3. Research Methodology

3.1 Objectives of the Study

1. To study the recent scenario of death investigations in medicolegal cases in India.
2. To study the importance of medicolegal autopsy in management of medicolegal cases.

3.2. Type of Research

This is an applied research or action research. Applied research aims at finding a solution or certain conclusion for an immediate problem facing a society. The researcher will discover a solution for some pressing practical problem.

3.3. Hypothesis

In death investigations of medico legal cases of criminal nature need a strong and scientific autopsy findings and legal evidences to find out the exact cause of unnatural death.



3.4. Sources of Data Collection

a) It is a **Desk research or Secondary research** which involves the summary, collation and/or synthesis of existing research where data is collected from the orders or judgments in medico legal cases by Session Courts, various State High Courts and the Supreme Court of India.

b) Secondary Data

The researcher has collected the secondary data from

- I. Information gathered from medico legal cases decided by the competent courts of law in India and medicolegal & forensic books, medical magazines, newspapers, Published data from various research journals, law journals & internet.
- II. Availability of previous statistical data of medico legal cases.
- III. Data collected, will be analyzed and produced scientifically.

3.5. Limitations of the Study

The study is restricted only to five case studies or case laws decided by the Indian courts related to the death investigations in medicolegal cases. It covers only those medicolegal cases related to criminal nature.

4. Research Data / Materials

Five medico legal cases related to the unnatural death are studied in detailed for the purpose of research. All the data collected for the research purpose is mainly the secondary data obtained from the judicial decisions / judgments from the various medico legal cases of criminal nature tried in court of law mainly various session courts, High Courts and Supreme Court of India.

Recent Case Laws on Medicolegal Aspects of Death Investigations

4.1. Balwinder Singh @ Billu Son of Amrik Singh & others Vs State Of Punjabⁱ on 14th January, 2013 in the **High Court Punjab and Haryana at Chandigarh.**

Here in this case all the appellants were convicted by the judgment of conviction and order of sentence dated 14.10.2005, passed by the learned Additional Sessions Judge(Adhoc), Amritsar in Sessions Case No. 33 of 2004/FTC, trial No. 42/2004/FTC, emanating from FIR No.175 dated 30.11.2002, under **Sections 302/148/149/120-B** of the Indian Penal Code and 25 and 27 of the Arms Act of Police Station Sadar, Taran and were convicted for commission of offences punishable under Sections 302 read with 34 IPC and sentenced to undergo imprisonment for life each and to pay fine of Rs. 2,000/- each and in default, thereof, to further undergo rigorous imprisonment for two months each. The High Court of Punjab and Haryana at Chandigarh confirmed the punishment due the availability of death investigations by the prosecution and the post-mortem report of Balwinder Singh.

4.2. Hans Raj Vs. State of Haryanaⁱⁱ on 9th February, 2015 in **The High Court of Punjab and Haryana at Chandigarh.**

By instituting the present appeal, appellant has impugned the judgment of conviction dated 29.11.2002 and the order on quantum of sentence dated 30.11.2002 passed by the learned Additional Sessions Judge, Rohtak whereby appellant has been convicted for the offence under Section 302 IPC and sentenced to undergo RI for life and for a fine of Rs.8,000/-, in case of default of payment of fine, he shall have to further undergo RI for a period of two years.

The High Court of Punjab and Haryana at Chandigarh ordered the dismissal of the appeal made by the appellant and cancelled his bail bonds and ordered to be taken in custody for serving the remaining period of sentence by the appellant. It was possible for the judiciary to convict the Hans Raj due to proper death investigations and post mortem report submitted by the prosecution.

4.3. Delhi State Vs. Vipin Kumarⁱⁱⁱ on 16th February, 2016 in **The Delhi District Court.**

Briefly, the facts of the case that in Delhi city on 16.09.2008, at about 8 AM, driver of some blue line bus of route no 118 stopped near Red light of Lal Qila and complainant Sulekha and her mother Shanti Devi tried to get down from the bus. In the meanwhile, the driver of said bus had started running all of sudden, due to which Shanti Devi fell down on the road and received injury in the head. The driver of said vehicle had run away towards bus terminal (Adda) and accompanying daughter of injured i.e Sulekha had taken her mother to LNJP Hospital. Later on 21.09.2008, the injured Smt. Shanti Devi had expired and postmortem was conducted on her dead body. Thereafter, after completion of investigation, the Investigation Officer filed final report under **Sec. 304-A of IPC** and **Sec.173 Cr. P.C** (Criminal Procedure Code) against accused Mr. Vipin Kumar Gupta for cognizance and trial.

Delhi District Court held accused Mr. Vipin Kumar Gupta for committing offence punishable u/s 279/304-A of IPC for rash



and negligent driving and thereby causing death of deboarding passenger Shanti Devi. Thus, the judiciary convict the Vipin Kumar due to proper death investigations and post mortem report submitted by the prosecution.

4.4. Swaran Singh Vs. State Of Punjab^{iv} on 26th April, 2000 in The Supreme Court of India.

The Trial Court convicted Swaran Singh under Section 302 IPC for the murder of Shamsheer Singh and under Section 302/34 IPC for the murder of Amar Singh. Jagjit Singh was convicted under Section 302 IPC for the murder of Amar Singh and under Section 302/34 IPC for the murder of Shamsheer Singh. Both the accused were sentenced to life imprisonment and to pay a fine of Rs.5,000/- or in default to further undergo rigorous imprisonment for one year in respect of each of the offences. Being aggrieved by the decision of the High Court, Swaran Singh and Jagjit Singh have preferred appeals before this Supreme Court.

But The Supreme Court of India having found no lacunae in the reasoning of the High Court either on facts or law, dismiss the appeals and ordered if the accused are on bail, they shall be taken into custody forthwith to serve out the sentences imposed on them. It was possible for the judiciary to convict the Swaran Singh due to the proper death investigations and post mortem report submitted by the prosecution.

4.5. Vitthal Tukaram Atugade Vs.The State Of Maharashtra^v on 14th March, 2016 in the High Court of Judicature at Bombay, Criminal Appellate Jurisdiction.

- a. Criminal Appellate Jurisdiction Bombay High Court passed the following order: The conviction of the accused under Section 302 and 376(2) (f) of IPC is maintained. The sentence of death awarded by the Trial Court under Section 302 of IPC is commuted to life imprisonment and fine imposed there of i.e. Rs.2000/- is maintained. In default of payment of fine, the accused to undergo simple imprisonment for one month;
- b. The sentence of imprisonment for life under Section 376(2)(f) of IPC is maintained.
- c. The accused is acquitted of offence punishable under Section 363 and 366 of IPC;
- d. The conviction of the accused under Section 201 of IPC awarded by the Trial court is maintained;
- e. The conviction of the accused under Sections 4, and 6 of the Protection of Children from Sexual Offences Act as awarded by the Trial Court is maintained;
- f. The sentences awarded under Section 201 of IPC and under Sections 4 and 6 of the Protection of Children From Sexual Offences Act to run concurrently with the sentence of life imprisonment awarded under Section 302 of IPC;
- g. The sentences of life imprisonment awarded for the offence punishable under Section 376(2)(f) of IPC shall run consecutively i.e. after the accused serving life imprisonment under Section 302 of IPC;
- h. The accused is entitled for set off as contemplated under Section 428 of Cr. P.C. for the pre-conviction detention undergone by the accused from the date of his arrest i.e. from 7.11.2013 till the date of his conviction by the Trial Court i.e. upto 18.4.2015.
- i. The Reference is answered accordingly and the appeal preferred by the accused is partly allowed.

Thus, the learned Additional Sessions Judge, Islampur convicted the accused for the offences made by him has been confirmed by Bombay High court.

This was possible to the court of laws due to strong legal evidences collected by the prosecution & autopsy report from the medical officer conducting the postmortem examination. The court of law convict the accused, Vitthal Tukaram Atugade due to systematic and scientific death investigations.

5. Data Analysis

Research Scholar's practical knowledge of Medicine, Law and Management Studies has helped a lot in this research as the research scholar is a post graduate in Medicine, Law and Management Studies. This is the only reason; this research topic has been selected by the research scholar for doing research as he can give a justice to this research topic.

This is a qualitative research where the research scholar has studied about five case studies or case laws of medico legal nature related to death investigations in India. All the secondary data and necessary information for the research is provided by indiankanon.org. The judgments or orders given by different courts in different case laws or case studies have been analyzed keeping in the mind, the main objectives of the study.

Thus, this desk research is based on secondary data available till date from the various courts in India i.e. Session Courts, various High Courts and Supreme Court of India.



Data is analyzed by studying the various judgments given by the Hon'ble Judges of the different courts of law in five case laws/case studies related to death investigations of medicolegal cases of criminal nature existing till date in India. For analyzing the case studies, the Research Scholar has used "Within Case Analysis and Between Case Analysis or Across Case Analysis."

6. Findings and Discussion

Research Scholar has viewed and studied in details, five case studies already decided by various courts of laws in India including session court, High courts and The Supreme Court on death investigations of criminal medico legal cases.

It has been found that in all the cases that,

- i. Legal evidences collected by the prosecution should be proved in the court of law during the court trials.
- ii. Autopsy or Postmortem Report is considered to be the strong evidence before the court of law especially in the medicolegal cases of criminal nature.
- iii. Society believes on the judiciary to get the justice in the medicolegal cases of criminal nature.

7. Conclusion

Research Scholar has viewed studied and analyzed five case studies/case laws on medicolegal aspects of death investigations and arrived on the following conclusions:

In handling the medicolegal cases of death investigations in our country, it is very important to collect all the evidences related to the medicolegal case/s to be proved in court of law by doing the proper panchanama's with the appropriate witness/s by the prosecution. The Autopsy reports or Post mortem reports also plays a crucial role in death investigations of medicolegal cases of criminal in nature. Even Injury certificates issued by a concerned medical officer or doctor plays vital role in the decision of medicolegal cases. All these evidences have to be placed before the court of law by the prosecution in order to convict the offender or accused person. Our Indian legal system is based on the Indian Evidence Act. You can not punish an offender without appropriate evidence/s against him.

The deceased person will not get his life back again but his soul may rest in peace once the accused person is punished or convicted by the court of law. Thus, a hypothesis "In death investigations of medico legal cases of criminal nature need a strong, scientific autopsy findings and legal evidences to find out the exact cause of unnatural death." is thereby proved.

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ⁱ <https://indiankanoon.org/doc/119004467/>

ⁱⁱ <https://indiankanoon.org/doc/93469976/>

ⁱⁱⁱ <http://indiankanoon.org/doc/5759319/>

^{iv} <http://indiankanoon.org/doc/489802/>

^v <http://indiankanoon.org/doc/5102225/>