

II. Short Notes

(10 × 5 = 50)

1. Grievous Hurt

Section 320 of the Indian Penal Code/ Section 116 of the Bharatiya Nyaya Sanhita defines "Grievous Hurt". It Includes:

1. **Emasculation** – Loss of male virility (castration or permanent loss of sexual power)
2. **Permanent privation of sight of either eye**
3. **Permanent privation of hearing of either ear**
4. **Privation of any member or joint** – Loss of limb or joint
5. **Destruction or permanent impairing of the powers of any member or joint**
 - Permanent loss of function without complete loss
6. **Permanent disfiguration of the head or face** – Visible, lasting deformity (e.g., scars, burns)
7. **Fracture or dislocation of a bone or tooth**
8. **Any hurt which endangers life, or causes the victim to be in severe bodily pain, or unable to follow his ordinary pursuits for a period of 15 days**

Medico-legal Importance

1. Treatment Planning - Grievous injuries often require Surgical intervention, ICU admission.

2. Issuing disability certificate

3. Medical Documentation & Medico-legal Certification -

- a) Proper documentation protects the doctor from legal liability
- b) Doctor must issue correct wound certificate
- c) Wrong classification may mislead court and harm justice

4. Determines Nature of Offence & Quantum of Punishment

Injuries classified as grievous attract higher punishment than simple hurt which are charged under Section 117 BNS or Section 118 BNS (if dangerous weapons used)

5. Compensation and Civil Liability

- a) Grievous hurt cases often involve higher compensation (Claims under Motor Vehicle Act)
- b) Permanent disfigurement or disability affects Insurance settlement & employment and service benefits

2. Hydrostatic Test

Definition

The hydrostatic test is a test performed on the lungs of a newborn to determine whether the infant breathed after birth (i.e., whether it was born alive).

Principle

- Before respiration, fetal lungs contain collapsed alveoli, making them heavier than water. So, density was more than water. Specific gravity of lungs before respiration is between 1040-1050 (more than water(1000)). So, lungs sink.
- After respiration, air enters the alveoli, reducing lung density and specific gravity of lungs decrease to 940. So lungs float. The presence of air is therefore taken as evidence of respiration after birth.

Procedure

1. Open the thoracic cavity and remove the lung block after tying a ligature on bronchi.
2. Place the whole lung in clean water and observe whether it floats or sinks.
3. Cut the lungs into small pieces and place them in water. Use liver piece as a control.
4. If it floats, squeeze it under water to see if any bubbles come out and float.
5. If it floats again, squeeze by putting weight to remove tidal air, and place them in water.
6. If it floats again, respiration has taken place.

Lung has respired, but sinks	Not respired, but floats	Test has no purpose
1. Atelectasis 2. Pneumonia 3. infections	1. Putrefaction 2. Artificial respiration	1. Foetus is below 180 days 2. Foetus is a monster 3. Milk in stomach

Medical Importance

1. Assessment of Live Birth - Helps to differentiate live birth from stillbirth.
2. Understanding Cause of Death –If child is live birth, cause of death should be found out.
3. Examination of Lung Pathology like Atelectasis, Pneumonia for cause of death.
4. Homicide - Live birth is essential to prove homicide.
5. Guides Framing of Charges- Helps court decide Murder, Culpable homicide, Concealment of birth

3. Autoerotic Death

Definition

Autoerotic death is an accidental death occurring during solitary sexual activity, in which an individual uses devices or methods to enhance sexual arousal by inducing asphyxia, hypoxia, pain, or restriction, and unintentionally dies due to failure of the safety mechanism.

It is also known as Auto-erotic asphyxia; hypoxiphilia; asphyxiphilia. It is a type of Paraphilia-one gets arousal and orgasm with self-induced asphyxia. It is commonly an accidental asphyxia and victims are usually young males. Common method is ligature around the neck to simulate hanging.

Mechanism

Sexual gratification is achieved by:

- Partial asphyxia / hypoxia (most common) leads to cerebral hypoxia causing heightened sexual sensation.
- Bondage, restraint, or pain stimulation

Procedure / Methods Used

Common practices include Partial hanging or ligature strangulation & Plastic bag suffocation

Crime scene findings	Findings supporting autoerotic death
1. Privacy – locked room 2. Scene is not disturbed at all 3. No suicide note is present. 4. Complex arrangements	1. In partial or complete nudity 2. With pornographic material nearby 3. Cross-dressing may be present 4. Failed self-rescue mechanism

Cause and Mechanism of Death

Asphyxia & venous congestion due to hanging or Asphyxia due to suffocation.

Autopsy findings

Findings of partial hanging will be present like ligature material, ligature mark, cyanosis, pale subcutaneous tissues and non-contused muscles on neck dissection.

Medico-Legal Importance

- Accidental death - Must be differentiated from suicide, homicide, and sexual assault.
- Suspected murder - Helps prevent wrongful criminal suspicion of family members
- Crime scene examination – important to find manner of death

4. Polygraph

Definition

A polygraph is an investigative instrument that simultaneously records multiple physiological responses of an individual while answering questions, with the aim of detecting deception.

Mechanism

Lying produces emotional stress, which leads to autonomic nervous system activation, resulting in measurable physiological changes such as Increased heart rate and blood pressure, Altered respiratory pattern & Increased sweating (galvanic skin response). These changes are recorded graphically and analyzed. So, Fear and emotion are detected via response.

Procedure

Before the test	During the test
<ol style="list-style-type: none">1. Informed consent of the subject2. A pre-test interview is conducted to explain the procedure and formulate questions.3. Control questions are asked in pre-test.4. Sensors are attached to record Blood pressure and pulse, Respiration & Skin conductance	<ol style="list-style-type: none">1. 3 types of Questions are asked<ul style="list-style-type: none">• Irrelevant questions - Neutral questions with no emotional value• Relevant questions - Directly related to the crime• Probable lie control questions - Designed to evoke mild anxiety2. Physiological responses are recorded and interpreted by a trained examiner.3. Test will repeat for 2-3 times

Accuracy

- Reported accuracy: 70–90% (varies with examiner skill and subject cooperation)
- False results may occur due to Anxiety, fear, mental illness, Intoxication or drugs

Medico-Legal Importance

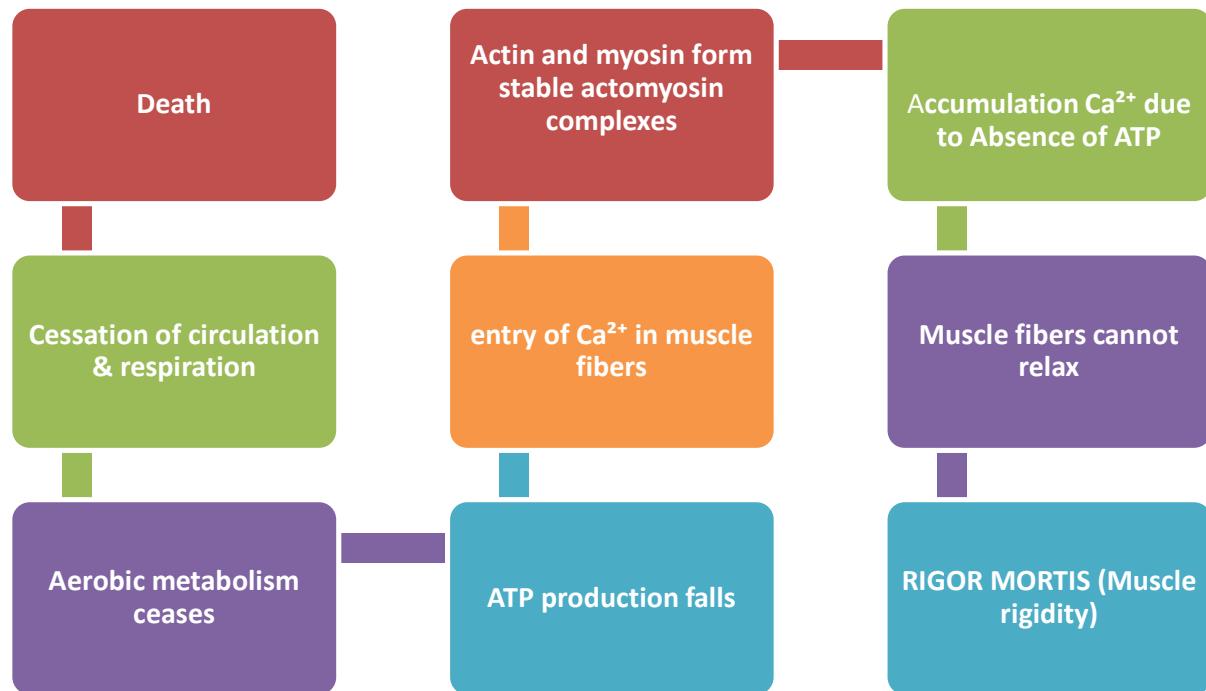
- Used as an investigative aid, not as conclusive evidence.
- Used for National security
- Not admissible as evidence in Indian courts
- Supreme Court has declared that deception detection tests such as narco-analysis, polygraph tests and brain- mapping cannot be done without the consent of the individual. Use of such methods are illegal and as against constitution. As per Article 20(3) of the Constitution 'No person accused of any offence shall be compelled to be a witness against himself'.

5. Rigor Mortis Hastened in Violent Deaths – Reason

Definition

Rigor mortis is the stiffening of muscles that occurs after death. Also known as Cadaveric rigidity/death stiffening.

Mechanism



Factors Affecting Rigor Mortis

1. Age

- Infants & elderly → early onset, short duration
- Healthy adults → normal onset and duration

2. Body condition

- Emaciated → early rigor
- Well-built → delayed rigor

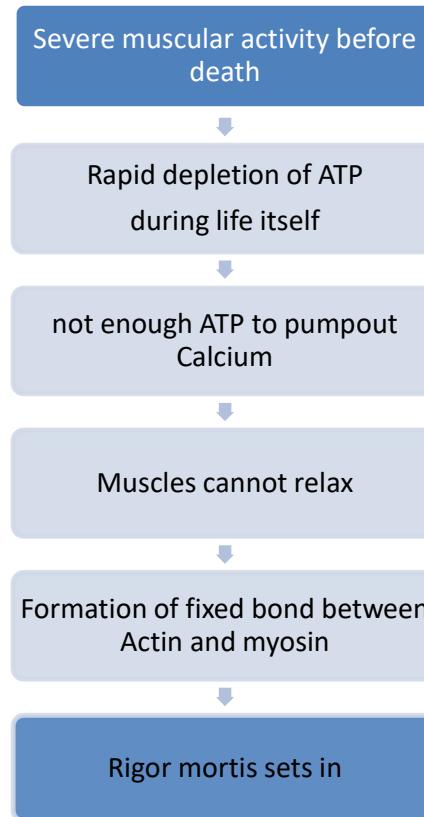
3. Environmental temperature

- Hot climate → early onset, rapid disappearance
- Cold climate → delayed onset, prolonged duration

4. Cause of death

- Hastened due to increased muscular activity in Violent deaths, Convulsive disorders, Septicemia
- Delayed in Sudden cardiac death and CNS depressant poisoning

Rigor mortis appears early and passes off early in violent deaths because of:



Hence, in violent deaths (e.g., strangulation, drowning, electrocution, convulsive poisoning), rigor mortis sets in early.

Medico-Legal Importance

1. Estimation of time since death
2. Posture of body – posture at time of death
3. Cause of death - Helps infer type of death. Early rigor suggests violent or exhaustive death.
4. Sign of death - Distinguishing true death from apparent death

6. Magistrate Inquest

Definition

A Magistrate Inquest is a legal inquiry conducted by a Judicial or Executive Magistrate to ascertain the cause, manner, and circumstances of death in special categories of deaths as mandated under Section 196 of the Bharatiya Nagarik Suraksha Sanhita (Section 176 of the CrPC). It is conducted by District Magistrate, Judicial Magistrate, Subdivisional Magistrate, Executive Magistrate, Sub-collector, or Tahsildar.

Cases in Which Magistrate Inquest is Required

A Magistrate inquest is compulsory in the following situations:

Executive Magistrate	Judicial Magistrate
1. Suspected Dowry Death 2. Exhumations	1. Custodial Deaths 2. Death in prison Death in police custody 3. Death in encounters 4. Death during interrogation Death in mental asylum Death in borstals

Procedure

1. Information of death is given to the Magistrate.
2. Magistrate visits the place of occurrence or conducts inquiry at an appropriate place.
3. Examination of the dead body and surroundings.
4. Recording statements of relatives, witnesses, police, and doctors.
5. Ordering post-mortem examination.
6. Preparation of Magistrate Inquest Report with findings and opinion.

Medico-Legal Importance

1. Ensures independent and impartial inquiry in sensitive deaths.
2. Protects human rights, especially in custodial deaths.
3. Mandatory legal safeguard against police excesses.
4. Provides judicial oversight in dowry-related deaths.

7. True Insanity vs Feigned Insanity

Trait- General	True Insanity	Feigned Insanity
Onset	Gradual	Sudden
Predisposing factors	Usually present	absent
Consistency	Persistent	Variable
Motive	None	Clear motive
Habits	Dirty	Not dirty
Face	Peculiar or worried look	Exaggerated, frequently changing
Skin & Lips	Dry and rough	Normal
Signs & Symptoms	Present and uniform at all times	Present only when being examined
Repeated examinations	Does not mind	Resents for fear of being detected
Sleep	Disturbed	Normal
Mood	Excited, depressed or fluctuating	May Overact

Medico-Legal Importance

1. Medical Management - Requires psychiatric treatment and hospitalization, not punishment.
2. Protection of Rights - Law provides safeguards to protect the life and property of mentally ill persons.
3. Criminal Responsibility - A truly insane person may be exempted from criminal liability under Section 22 BNS (84 IPC) - act done by a person of unsound mind).
4. Avoidance of Punishment - Feigned insanity is commonly attempted to escape criminal liability or obtain leniency.
5. Fitness to Stand Trial - A person with true insanity may be declared unfit to plead or stand trial. Trial may be postponed and treatment ordered.
6. Prison and Custody Issues - Feigning insanity to obtain transfer to mental health facility or better conditions is common.
7. Civil Capacity - Affects competency to make contracts, wills, or consent.

8. Ecbolics

Definition

Ecbolics are drugs that stimulate uterine contractions to induce or augment labor. They can be misused for criminal abortion. Examples are Oxytocin, Ergometrine / Methylergometrine, Quinine, Hydrastis canadensis, Oestrogen & Lead.

Mechanism of Action

- Act on uterine smooth muscles to induce rhythmic contractions.

Complications	Cause of Death
<ol style="list-style-type: none">1. Uterine hyperstimulation leads to uterine rupture2. Fetal hypoxia and distress3. Hypotension4. Shock5. Cardiac arrhythmias	Cardiorespiratory failure secondary to uterine rupture, hemorrhage, or fetal distress

Findings in living	Autopsy Findings
<ul style="list-style-type: none">• First trimester – signs are minimal. Patient may be pale and shows slight softening of external os and vaginal wall with mild hemorrhage.• Second & third trimester - Patient will be pale and shows softening of genital area with marked hemorrhage. Tags of membrane may be found in uterus.	<p>1. Maternal findings</p> <ul style="list-style-type: none">• Uterine rupture or hemorrhage, Tags of membrane may be found in uterus. Bleeding and Secretions or fluid present from genital region• Stomach shows congestion with submucosal hemorrhages because of irritant action.• Injection sites (if parenteral ecbolic used)

Medico-Legal Importance

- Can be used to induce or augment labor
- Misuse of ecbolics may be criminal (illegal abortion or homicide)
- Crucial in maternal death investigations
- Punishment for criminal abortion – Sec 312-316 of IPC – Doctor, mother and persons involved for criminal abortion are liable for imprisonment.

9. Ichthyotoxicosis

Definition

Ichthyotoxicosis is a poisoning caused by ingestion of toxic substances produced or present in certain fish. It is also called fish poisoning. Ingestion of fish causes two types of poisoning- toxicity by eating fish containing neurotoxins and due to bacterial growth in partially decomposed fish. Common forms include ciguatera, scombroid, and tetrodotoxin poisoning.

Types of poisoning

- a) **Ciguatera Poisoning** - It is the most common fish poisoning. It is particularly seen in bass, snapper. Ciguatoxin is found in certain algae which are eaten by fish which become poisonous. It affects the gastrointestinal tract and nervous system. Symptoms include abdominal pain, vomiting, profuse watery diarrhoea, diaphoresis, headache, trembling, dizziness, paraesthesia, tingling and numbness of mouth, myalgias, arthralgias and weakness. Death is rare. Treatment is symptomatic.
- b) **Scombroid Poisoning** - The species involved are mackerel, tuna, sardines. The poison is formed in their dark meat which is converted to histamine. Symptoms include headache, red face, upper body flushing, nausea, belly pain and diarrhoea. Death is rare.
- c) **Tetrodotoxin Poisoning** - Includes blowfish, toad fish, puffer fish and sunfish. They affect the gut and nervous system. They cause neurotoxicity. Muscles become weak, then paralysed. The muscles used in breathing are affected, leading to respiratory paralysis.

Cause of Death

- Respiratory paralysis (tetrodotoxin)
- Cardiac arrhythmias or shock (histamine/scombroid type)
- Severe neurological or cardiovascular collapse

Autopsy Findings

- Often **non-specific**, may include Congested internal organs
- **Fish remnants** in stomach

Medico-Legal Importance

- Important in foodborne death investigations
- Common manner is accidental.
- Differentiates natural death vs. poisoning
- Can establish criminal liability in cases of intentional poisoning or negligent food handling
- Obscure autopsy - Toxicological confirmation is crucial for diagnosis. If it fails, opinion as to cause of death could not be furnished.

10. Difference between Human and Animal Hair

Feature	Human	Animal
Texture	Fine	Coarse
Cuticular scales	Short, thin and irregularly annular	Large, have step like wavy projections
Cortex	Thicker (4-8x than medulla)	Thin cortex
Medulla	Thin & fragmented (May be absent)	Medulla is broad and continuous
Medullary index	<0.3	>0.5
Pigment	Usually uniform; pigment evenly distributed	Mostly in medulla

Medico-Legal Importance

- Identification of Biological Evidence** - Hair can link **suspects, victims, or crime scenes**.
- Differentiation in Crimes Involving Animals** - Distinguishes between **human assault vs. animal attack**.
- Poisoning – Metallic poisons can be detected**
- Source Verification** - Determines whether a hair is **from the victim, suspect in case of sexual offence cases**.