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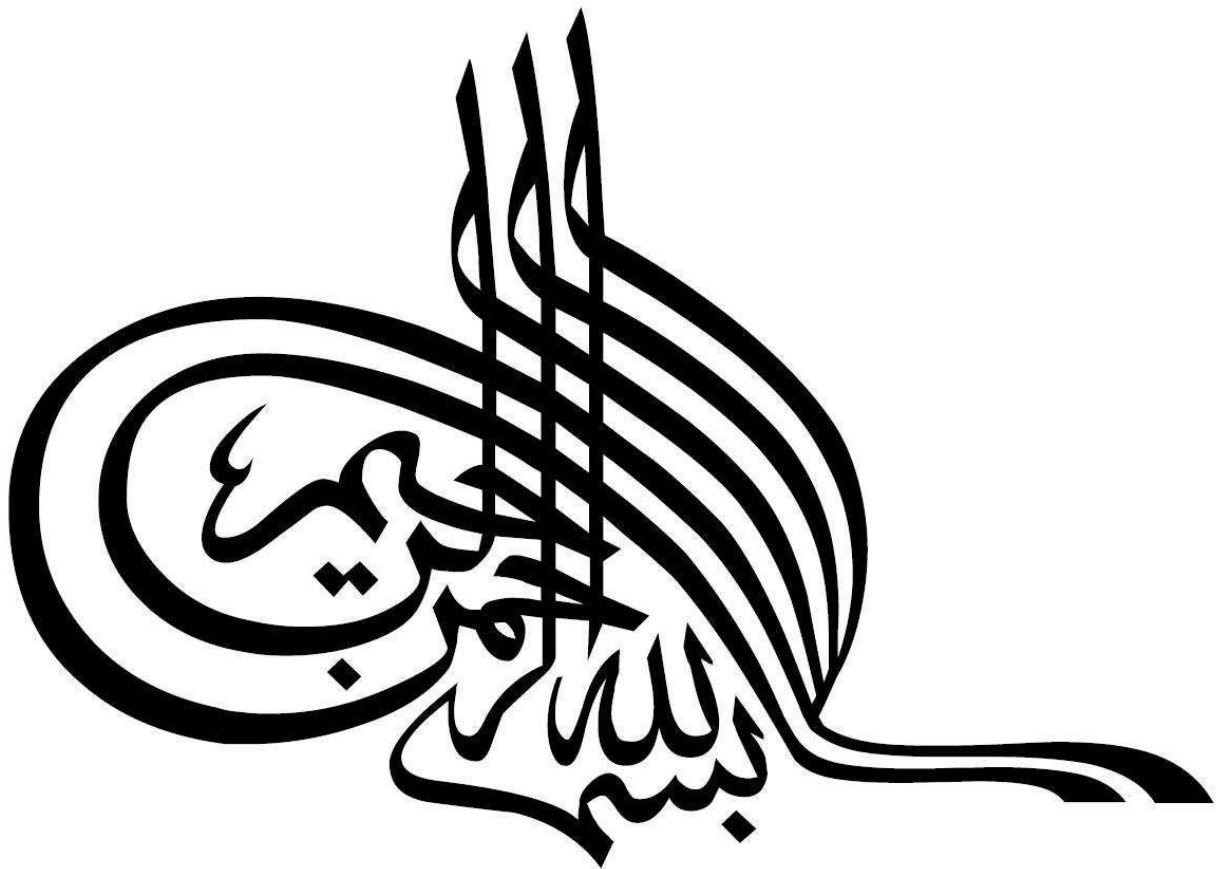
# **2nd Prof UHS Solved Past Papers.**

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*In the name of Allah,  
the Most Beneficent,  
the Most Merciful*

# MED-SOLUTIONS

**“By The students for the students”**

**Teamwork divides task & multiplies Success**

**CEO Med-com: Muhammad Kamran**

**Manager Med-com: Shaista Malik**

**Solved by: Med-com co-ordinators**

**Med-Com**  
(Session 2011-16)

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## **Acknowledgement**

Words don't come easy to us when we think of expressing our humblest regards in Grace of Almighty ALLAH, Whose countless blessings enabled us to present this Book.

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Remember Med-com team in your prayers.

May ALLAH bless them all.

**Med-com CEO: Muhammad Kamran (AIMC)**

**Med-com Manager: Shaista Malik (FMH)**

**UHS 2<sup>ND</sup> Prof TOS Forensic Medicine**

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Autopsy, Exhumation & Forensic Science		01	04
Forensic Sexology	<ul style="list-style-type: none"> <li>Sexual offences &amp; relevant sections of law (Zina &amp; Hudood Ordinance)</li> <li>Pregnancy, Miscarriage Delivery, Newborn, Child Trauma</li> </ul>	01	04
Traumatology	General Traumatology, Special Traumatology, Firearm injuries, Thermal injuries, Electrical injuries, Drowning, Asphyxia	01	09
Toxicology	<ul style="list-style-type: none"> <li><b>General Toxicology</b></li> <li><b>Special Toxicology</b> <ul style="list-style-type: none"> <li>a) Alcohol</li> <li>b) Opiate, Opioids, other narcotics</li> <li>c) Salicylates &amp; paracetamol</li> <li>d) Hypnotics &amp; Sedatives</li> <li>e) Stimulants(cocaine) &amp; cannabis</li> <li>f) Poisonous Plants (Aconite, Belladonna Hyoscyamus, Stramonium, Digitalis, Ergot, Mushrooms, Nux vomica, Oleander, Tobacco)</li> <li>g) Venomous Insects (Snakes)</li> <li>h) Inorganic elements, Antimony, Arsenic, Lead, Mercury, Phosphorus</li> <li>i) Volatile poisons &amp; Corrosive (Carbon monoxide, Hydrocarbons, Cyanides, Sulfuric Oxalic Carbolic Acids, Alkalis)</li> <li>j) Pesticides, Herbicides, Insecticides</li> </ul> </li> </ul>	<b>01</b> <b>02</b>	<b>03</b> <b>12</b> <ul style="list-style-type: none"> <li>a) 2</li> <li>b) 1</li> <li>c) 1</li> <li>d) 2</li> <li>e) 1</li> <li>f) 1</li> <li>g) 1</li> <li>h) 1</li> <li>i) 1</li> <li>j) 1</li> </ul>

# **Forensic Medicine & Law's Med-solutions**

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## **PERSONAL IDENTITY**

**Supply 2003**

**Question no 1: Discuss the following:**

- a) Locards exchange principle**
- b) Medico legal importance of human hair**

**Answer:**

- a) Locards exchange principle**

It states that:

- 1.** Every contact leaves a trace
- 2.** Exchange of trace may be and often is a two way process

When two objects come in contact with each other there is always some transfer of material from one to other object. For example in case of Zina-Bil-Jabar presence of hair of assailant on the victim and vice versa and epithelial tissue etc. This principle is very helpful in investigating the case of sexual offences, murder, road traffic accident and sodomy.

- b) Medico legal importance of human hair**

The hairs resist the destructive tendencies of adverse condition

- 1.** They resist putrefaction
- 2.** Imp. clue is provided when the similar hair is found on the weapon or body of the assailant
- 3.** Cases of sexual assault
- 4.** In road traffic accidents
- 5.** Stains of mud/blood on hair
- 6.** Many poisons can be detected from the hair
- 7.** In burn and close range firearm injury hair shows singeing
- 8.** Age, sex, race can be determined from the hair
- 9.** Nature of weapon like sharp or blunt can be detected by examination of the hair
- 10.** Approximate time of death can be calculated from the growth of hair on the face, the growth rate is 4mm/day
- 11.** Reference sample for DNA
- 12.** ABO and other blood grouping can be determined



13. To match organ and donor-recipient program
14. Personal Identification
15. Mixed up babies
16. Paternity and maternity allegation disputed cases

**(Annual 2005)**

**Question no 2: How Examination of clothes helps in identification of a person?**

**Answer:**

1. People of different races wear different clothes
2. Clothing found at the scene of crime provides valuable clues:
  - I. Name-laundry mark
  - II. age-size of clothing
  - III. sex-male and female dress
  - IV. occupation-uniforms of school children, mechanics or persons in army, navy and air force
  - v. evidence of crime, especially struggle and nature of assault:
    - a) disarranged, torn clothes, missing buttons, mud stains and presence of Foreign hair suggesting **"Struggle"**
    - b) Cuts, holes, burns and blackening of (from firearm) ,odor (of kerosene petrol etc.) ,stains due to poisons, vomitus , fecal matter, blood ,saliva, semen, corrosives etc., suggesting **"Nature of Assault"**

**(Annual 2007)**

**Question no 3: According to W.H.O one has right to be identified. What is third party method of identification? and What is Medico legal importance of TATTO marks.**

**Answer:**

**Third party identification:**

- a) It may be the relatives or friend of examinee so 3rd party is who brought the person to be examined
- b) 3rd party verifies the findings on the examinee
- c) In 3rd party identification system following points about the 3rd party is/are noted down
  - Name, Address
  - I.D Card no.
  - Relationship with examinee
- d) It is used in M/L certificate to establish the identity of examinee.



- e) Also useful in autopsy work.
- f) Police maybe 3rd party. In this case belt no. paiti no of constable is noted.

**TATTO Marks M/L Importance:**

1. Helps in identification as:  
Special designs, one's own name, name of spouse, close relation or friend, date of birth, marriage, service, etc.
2. Race: extensive tattooing of the chest and limbs is common amongst the Japanese
3. Religion: cross or Christ, design of hanuman
4. Profession/occupation: criminals and coal miners have specific tattoos
5. Erotic tattoos: blue bird indicates homosexuality
6. Social status: lower society
7. It indicates behavior and characteristics.
8. Political convictions
9. personal events of life

**(Annual 2009)**

**Question no 4: An absconded soldier was apprehended after 5 years. His appearance was quite different from the previous.**

- a) How can be identified positively?
- b) List various methods of identification.
- c) What are the advantages of dactylography?

**Answer:**

**a) Identified positively by:**

Parameters of identification are:

1. age
2. sex
3. race
4. religion
5. stature
6. anthropometry
7. identity marks
  - congenital
  - acquired

8. dental data
9. radiology
10. complexion
11. hair and eyes
12. dactylography
13. blood components
14. diseases
15. possessions
16. clothing

At least 2 identification marks of identification must be noted.

**b) Methods of identification:**

- a) Third party method
- b) Subjective method
- c) Objective method

**c) Advantages of the dactylography:**

1. It is applicable to persons of all ages
2. Finger prints can be obtained even from putrefied bodies
3. In this method absolute identification is possible
4. For this method no special training or expensive instruments are necessary
5. The system lends itself to easy classification
6. The print can be transmitted from one place to another place via a coded message
7. The actual print is always available to check any suspected error

**(Annual 2010)**

**Question no 5: A thief was apprehended by the police with in 24 hrs. After the burglary. Leaving fingerprints on a door knob made it possible**

**a. what are various types of fingerprints?**

**b. Briefly mention advantages of dactylography**

**Answer:**

**a) Types of fingerprints:**

1. Arch
2. Loop
3. Whorl
4. Composite

**b) Advantages of dactylography:**

(Mentioned above in previous Question)

**(Supply 2009 & Annual 2011)**

**Question no 6: Police has brought to you a bag containing bones. What info you can furnish to the police and how? what is commingling?**

- A.** A Complete list of bones received for examination is prepared along with the photograph of each bone.
- B.** The bones are cleaned if necessary, then arranged in the normal anatomical manner, and the reconstructed skeleton again photographed.

**C. Scheme for examination of bones:**

An anatomist, dentist, anthropologist and radiologist with M/L experience should be consulted.

**D.** An opinion can be given on the following aspects:

- 1) Source (whether human or animal)
- 2) Belong to one or more individuals
- 3) Age
- 4) Sex
- 5) Stature
- 6) Race
- 7) Identity
- 8) Special features
- 9) Cause of death
- 10) Time since death

**Commingling:**

Mass fatality events can result in intermixing of human remains which is called commingling. It presents an added challenge to all phases of forensic medicine.

**(Annual 2012)**

**Question no 7: Brief note on DACTYLOGRAPHY.**

**Answer: Answer:**

- This refers to method of identification by means of digital or palmer prints

- **PRINCIPLE:** "it is the surest method based on principle that skin of balls of fingers, thumb, palm and foot are covered with characteristic ridges and grooves. The pattern of which makes absolute identification possible"

❖ **CHARACTERISTICS OF RIDGES:**

- They are present on epidermis and dermis since birth
- remain permanent and constant for whole life
- fingerprints of 2 diff individuals do not resemble

❖ **CLASSIFICATION OF FINGER PRINT PATTERN:**

- Arch (6-7%)
- Loop (67%)
- Whorl (25%)
- Composite (1-2%)

❖ **TYPES OF FINGERPRINT IMPRESSION:**

- plain
- rolled

❖ **M/L IMPORTANCE OF RIDGES:**

- They are present from birth, both on epidermis and dermis
- They remain constant for the whole life of the individual and cannot be altered except by destruction of true skin
- They form patterns that have absolute individuality
- For identification of weapons
- For identification of habitual criminal
- As an extra precaution on cheque, bank notes, documents etc.

❖ **ADVANTAGES OF DACTYLOGRAPHY:**

- it is applicable to persons of all ages
- can be obtained even from putrefied bodies
- In this method absolute identification is possible
- For this method no special training or expensive instruments are necessary

- The system lends itself to easy classification
- The print can be transmitted from one place to another place via a coded message
- The actual print is always available to check any suspected error

**Annual 2013**

**Question no 8: What are the surest methods determine personal identity?**

**Answer:**

- Dactylography (already described)
- DNA profiling

**Supply 2014**

**Question no 9: What are various types of toxicology? What is forensic toxicology?**

**Answer:**

❖ **TYPES OF TOXICOLOGY**

- Forensic toxicology
- occupational toxicology
- Environmental toxicology
- Clinical toxicology
- veterinary toxicology

❖ **FORENSIC TOXICOLOGY:**

It is a discipline which combines analytical chemistry with essential toxicological principles in order to deal with the M/L aspects of toxic effects of drugs and chemicals on man.

**Supply 2011**

**Question no 10:**

- a) What is Hess's rule? Briefly describe its forensic importance.**
- b) What is forensic importance of DNA printing?**

**Answer:**

**a) Hess's Rule:**

Hess's Rule is that "squares of months of gestation gives the length of fetus

in centimeters up to the 5th month. After this, no of months should be multiplied by 5, which shall give length of fetus in centimeters"

❖ **Forensic importance:**

- Length and weight of fetus during I/U phase have definite relationship to age. Determination of I/U age is of particular in cases of abortion.

**LEGALLAY** it is:

- ISQAT-E-HAMAL

- ISQAT-E-JANIN

**b) Forensic importance of DNA printing:**

- Parent child VNTR pattern analysis has been used to solve father identification cases.

- Cases of confirming legal nationality as genetic pattern of no two persons is same.

- criminal identification

**Solved by Ayesha Arshad & Arshia Anjum**

**Co-ordinator @Med-com**

**From Fatima Memorial college, Lhr**

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**Med-Com**  
(Session 2011-16)

# **THANATOLOGY**

## **ANNUAL 2004**

### **Question 1: Write short notes on**

- a) Marbling**
- b) Hypostasis**

### **Answer:**

- a) Marbling:** Shortly after the discoloration of skin during the late signs of death has commenced, the veins converging on the root of neck, over the shoulder, and running into the groins become visible as bluish or greenish lines due to the pigments from decomposing blood staining the vessel walls. The course of these veins is thus visible as a bluish network. The condition, owing to its mosaic appearance or arborescent pattern, is known as **MARBLING**. Incision shows gas bubbles and hemolysing blood in these veins. Marbling commences after about 24 hours and is seen prominently in 36-48 hours.
- b) Hypostasis:** It is the appearance of red coloration on the skin after death due to gravitational pooling of blood in the dependent and unsupported portions of the body. Blood accumulates in the capillaries, distends them and makes them show up on the surface of the skin and internal organs as areas of purple red discoloration termed as **POSTMORTEM LIVIDITY** or **HYPOSTASIS**. The shape and depth of this coloration varies with time. Initially there are scattered faint patches within 1-3 hours, gradually they grow in size and color deepens in about 3-6 hours and it is fully developed and fixed in 6-8 hours.

## **Supply 2004**

### **Question no 2: Describe the differential features of bruise and postmortem staining.**

### **Answer:**



**Bruise:**

1. Due to ruptured vessels either superficial or deep.
2. Situated anywhere.
3. Margins irregular, not horizontal.
4. Maybe variegated in color.
5. Swelling.
6. Superimposed abrasion maybe present.
7. Incisions show extravagated blood staining the surrounding tissues which cannot be easily washed.
8. Microscopically blood elements are found outside the blood vessels and there maybe evidence of inflammation.

**Postmortem Staining:**

1. Due to engorged vessels showing through skin.
2. On dependent parts and front and sides of neck in supine position.
3. Margins clearly defined usually horizontal.
4. Uniform in color.
5. No swelling.
6. No superimposed abrasion.
7. Incision shows a few oozing points at the site of severed capillaries. This blood can be easily washed away.
8. Microscopically blood elements are found within the blood vessels and there is no evidence of inflammation.

**Annual 2005**

**Question no 3: What do you understand by following and give one example each:**

- a) Cause of death
- b) Mode of death
- c) Manner of death

**Answer:**

- a) **Cause of death:** Disease, physical injury or intoxication, which finally prove fatal. For example: Hemorrhage.
- b) **Mode of death:** Stoppage or failure of vital system. For example: Asphyxia-stoppage of function of lungs.
- c) **Manner of death:** Way, fashion or circumstances of death.  
Natural, when due to the disease.  
Unnatural, when due to causes other than disease (trauma, intoxication)

1. Accident
2. Homicide
3. Suicide

### Annual 2006

#### Question no 4: What is marbling?

##### Answer:

**Marbling:** Shortly after the discoloration of skin during the late signs of death has commenced, the veins converging on the root of neck, over the shoulder, and running into the groins become visible as bluish or greenish lines due to the pigments from decomposing blood staining the vessel walls. The course of these veins is thus visible as a bluish network. The condition, owing to its mosaic appearance or arborescent pattern, is known as **MARBLING**. Incision shows gas bubbles and hemolysing blood in these veins. Marbling commences after about 24 hours and is seen prominently in 36-48 hours.

### Annual 2007

#### Question no 5: Death is an event which cannot be denied. What do you know about:

- a) Mode of death
- b) Manner of death

##### Answer:

- a) **Mode of death:** Stoppage or failure of vital system. For example: Asphyxia-stoppage of function of lungs.
- b) **Manner of death:** Way, fashion or circumstances of death.  
Natural, when due to the disease.  
Unnatural, when due to causes other than disease (trauma, intoxication)
  1. Accident
  2. Homicide
  3. Suicide

### Annual 2008

#### Question no 6: What are postmortem artifacts due to decomposition/putrefaction?

##### Answer:

**Postmortem artefacts:** "These are the changings brought in the body after

death, not related with the cause of death but they can misguide the doctor during autopsy regarding to cause of death "

### **Artefacts of decomposition:**

1. Bloatment misinterpreted as obesity.
2. Bloody fluid in the mouth and nose misinterpreted as poisoning or violence.
3. Hypostatic, localized discoloration of subcutaneous tissue misinterpreted as bruising.
4. Artefactual hemorrhages in tissue spaces and body cavities misinterpreted as violence.
5. Decomposition gas bubbles in right heart and major blood vessels misinterpreted as air embolism.
6. Rupture of stomach wall due to acid digestion misinterpreted as corrosive poisoning.
7. Separation of skull sutures in infants misinterpreted as violence.
8. Rigor of heart muscles misinterpreted as concentric hypertrophy.
9. Localized or regional flattening of cerebral gyri misinterpreted as cerebral edema.
10. Localized blackish brown staining of liver with bile or sulfides from large Bowels misinterpreted as bruising.
11. Bluish discoloration of intestinal loops in the pelvis due to decomposition misinterpreted as infarction.
12. Shrinkage of facial skin misinterpreted as hair growth.
13. Decomposition blebs (blister), skin slip due to putrefaction as burns.
14. Buttoned shirt i.e. tight collar shirt on neck, due to contact flattening, may mislead to ligature mark.
15. Decomposing pancreas may stimulate hemorrhagic Pancreatitis.

### **Annual 2008**

**Question no 7: How following can help in determination of time since death:**

- a) Rigor mortis
- b) Postmortem staining

**Answer:**

- a) **Rigor Mortis:** It commences in 2-3 hours, takes about 12 hours to develop from head to foot, persist for another 12 hours and takes

about 12 hours to pass off. The presence and extent or absence of rigor mortis helps to provide a rough estimate of time since death.

**b) Postmortem Staining:** Initially there are scattered faint patches within 1-3 hours, gradually they grow in size and color deepens in about 3-6 hours and it is fully developed and fixed in 6-8 hours.

**Annual 2009:**

**Question no 8: A victim of blunt trauma died due to injuries. During autopsy examination an area of skin discoloration was found on back. Write down the gross characteristic features differentiating a bruise from postmortem stasis.**

**Answer:**

**Bruise:**

1. Due to ruptured vessels either superficial or deep.
2. Situated anywhere.
3. Margins irregular, not horizontal.
4. Maybe variegated in color.
5. Swelling.
6. Superimposed abrasion maybe present.
7. Incisions show extravasated blood staining the surrounding tissues which cannot be easily washed.
8. Microscopically blood elements are found outside the blood vessels and there maybe evidence of inflammation.

**Postmortem Staining:**

1. Due to engorged vessels showing through skin.
2. On dependent parts and front and sides of neck in supine position.
3. Margins clearly defined usually horizontal.
4. Uniform in color.
5. No swelling.
6. No superimposed abrasion.
7. Incision shows a few oozing points at the site of severed capillaries. This blood can be easily washed away.
8. Microscopically blood elements are found within the blood vessels and there's no evidence of inflammation.

**Supply 2009**

**Question no 9: Adult body emitting foul smelling and is swollen with protrusion of eyes and tongue and discoloration all over the body.**

**a) What are the stages of this condition and in which stage the above mentioned body is?**

**b) What are the processes responsible for above condition?**

**Answer:**

**a) Stages of Putrefaction:**

- 1.** Color changes
- 2.** Development of foul smelling gases
- 3.** Pressure effects of putrefactive gases
  - Blotting
  - Shifting of postmortem lividity
  - Changes in skin, hair and wounds
  - Extrusion of fluid from nose and mouth
  - Emptying of heart
  - Changes in the appearance of genitals
- 4.** Appearance of maggots
- 5.** Other sequestiol

The above mentioned body is in stage 3.

**b) Two processes contribute to convert soft tissue of the body:**

- Autolysis
- Bacterial Action

The process of autolysis softens and liquefies soft tissue by the digestive action of enzymes released from cells after death. While autolysis is going on bacteria namely E-coli, staphylococcus, streptococcus viridians, and predominantly clostridium welchii in the body invade the tissues. Most of the bacteria come from bowel especially from the cecum on the right side of the abdomen where the contents of the bowel are fluid and full of these bacteria. From here, these gas forming bacteria grow into the adjacent tissues. Warmth, moisture, and a suitable medium like blood are essential for their growth. They invade the main systemic veins through the portal circulation and disrupt blood causing hemolysis and staining the tissues and the skin of the cadaver.

**Annual 2010**

**Question no 10: A dead body was discovered from forest. On initial examination at the site rigor mortis was found fully developed.**

**a) Briefly mention biochemical basis for this phenomenon.**

**b) Write its medico legal importance.**

**Answer:**

**a)** The contractile elements of muscle consist of interdigitating filaments of actin and myosin. In relaxed state they interdigitate only to a small extent but when muscle contracts them interdigitate to a greater extent due to ATP. After death ATP is synthesized for a short time depending upon glycogen available but after this glycogen is used up ATP cannot be resynthesized. This leads to fusion of actin myosin filaments into a dehydrated stiff gel resulting in rigor mortis.

**b)** 1. It is a sign of death.  
2. Helps to estimate time since death.  
3. It may give information about the position of body at the time of death.

**Annual 2011**

**Question no 11: A dead body at the autopsy table is showing stiffness all over. Name the condition. What is the scientific basis of this stiffness? How can this stiffness be related to post-mortem interval?**

**Answer:**

**1.** Condition: Rigor Mortis

**2.** Scientific basis: The contractile elements of muscle consist of interdigitating filaments of actin and myosin. In relaxed state they interdigitate only to a small extent but when muscle contracts they interdigitate to a greater extent due to ATP. After death ATP is synthesized for a short time depending upon glycogen available but after this glycogen is used up ATP cannot be resynthesized. This leads to fusion of actin myosin filaments into a dehydrated stiff gel resulting in rigor mortis

**3.** Post mortem interval: It commences in 2-3 hours, takes about 12 hours to develop from head to foot, persist for another 12 hours and takes about 12 hours to pass off. The presence and extent or absence of rigor mortis helps to provide a rough estimate of time since death.

**Supply 2011**

**Question no 12: What are the current criteria to diagnose somatic death?**

**Answer:**

1. Bilateral fixed dilatation of the pupils.
2. Complete absence of reflexes both natural and to profound pain.
3. Complete absence of respiration.
4. Falling BP needing increasing amounts of vasoconstrictive drugs.
5. Flat ECG for at least six hours.
6. Insensibility and loss of EEG rhythm.

**Annual 2012**

**Question no 13: Briefly describe various modes of death with a few underlying mechanisms for each.**

**Answer:**

There are three modes of death:

- 1- Coma: stoppage of function of brain due to:
  - Raised intracranial pressure
  - Poisons
  - Metabolic disorders
- 2- Syncope: stoppage of function of heart due to:
  - Heart diseases
  - Hemorrhage
  - Pathological states of blood
  - Exhausting diseases
  - Poisoning reflex cardiac arrest
  - Ventricular fibrillation
- 3- Asphyxia: stoppage of function of lungs due to:
  - Pneumonia
  - Opioid poisoning
  - Occlusion of air passages
  - Breathing of irrespirable gases
  - Traumatic asphyxia

**Supply 2013**

**Question no 14: Name the main early post mortem changes occurring in a dead body. Briefly mention medico legal significance of rigor mortis.**

**Answer:**



Early signs: signs of molecular death which follow within 12-24 hours are early signs.

**1-** Cooling of the body (algor mortis)

**2-** Changes in the eye:

- Clear glistening appearance of cornea lost
- Intraocular tension falls
- Blood stream in retinal vessels become dotted first and then segmented
- Pupils dilate first and then later constrict
- Taches noires appear on sclera

**3-** Changes in the skin:

- Skin assumes a pale ashy white appearance
- Loses elasticity
- Lips darken due to drying

**4-** Post mortem staining (hypostasis)

**5-** Rigor Mortis

Medico legal significance of rigor mortis:

- 1.** It is a sign of death.
- 2.** Helps to estimate time since death.
- 3.** It may give information about the position of body at the time of death

**Annual 2013**

**Question no15: How to determine time since death?**

**Answer:**

Estimation of time since death:

- Gross inaccuracies can be avoided
- Careful correlation of all factors observed
- Points to be observed are:

**a)** Physical changes:

**1-** Immediate changes

**2-** Early changes

**3-** Delayed changes

**b)** Chemical changes:

**1-** blood

**2-** CSF

**3-** Ocular fluid

**c)** Contents of stomach and bowl

- d) Contents of urinary bladder
- e) Changes in bone marrow
- f) Circumstantial evidence

**1) Immediate changes:**

- Sign of somatic or clinical death
- Loss of respiration, EEG, circulation, respiration
- Primary muscular flaccidity
- Skin changes
- Contact flattening
- Eye changes

**2) Early changes:**

- Rigor mortis
- Livor mortis
- Algor mortis

**3) Delayed changes:**

- Putrefaction
- Mummification
- Adipocere formation
- Eye changes

**4) Chemical changes:**

- Blood: glucose Inc. , electrolyte imbalance
- CSF: urea and lactic acid Inc.
- Ocular: potassium ions Inc.

**5) Contents of stomach and bowel:**

- Physical state of food alters by gastric juice. Degree of digestion and its appearance is used to measure time since death.
- Ordinary meals leave stomach in 3-4 hours
- Milk, tea, and coffee leave early
- Mixed diet for 4 hours
- Food reaches ascending colon in 6-8 hours
- Left flexure of transverse colon in 9-12 hours
- Pelvic colon in 12-18 hours

**Supply 2014**

**Question no 16: Describe the changes after death in chronological order to time the post mortem interval in the first 24 hours.**

**Answer:**

Within 24 hours there are immediate and delayed changes which are as follows:

**a) Physical changes:**

**1- Immediate changes**

**2- Early changes**

**1) Immediate changes:**

- Sign of somatic or clinical death
- Loss of respiration, EEG, circulation, respiration
- Primary muscular flaccidity
- Skin changes
- Contact flattening
- Eye changes

**2) Early changes:**

- Algor mortis
- Livor mortis
- rigor mortis

**3) Contents of stomach and bowl:**

- Physical state of food alters by gastric juice. Degree of digestion and its appearance is used to measure time since death.
- Ordinary meals leave stomach in 3-4 hours
- Milk, tea, and coffee leave early
- Mixed diet for 4 hours
- Food reaches ascending colon in 6-8 hours
- Left flexure of transverse colon in 9-12 hours

**Solved by Zainub Arif & Saleha Rashid**

**Co-ordinator @Med-com**

**From Fatima Memorial college, Lhr**

## **FORENSIC LAW & PSYCHIATRY**

### **Annual 2004**

#### **Question no1: What is JURAH?**

##### **Answer:**

All the injuries on the body except face which don't come under Itlaf-e-udw and Itaf-i-Salahiyat-i-udw are called JURAH.

It has 2 types

1. Jurah-Jafiah (Stab wound)
2. Jurah Ghair Jafiah

### **Supply 2004**

#### **Question no 2: What is Dying Deposition.**

**Answer:** It is a statement on oath made by adding person to amagsitrate in the presence of accused and his lawyer who has the opportunity to cross examining him (victim). Before the statement is made, the doctor should certify that victim is compos mentis.

It carries more weightage than declaration. Because

1. it is recorded by magistrate
2. it is recorded by accused and his lawyer who has opportunity to cross examining the declarant.

In contrast to declaration, dying deposition retains its full legal value even if victim survives.

### **Supply 2004**

#### **Question no 3: Discuss consent and its role in medical treatment?**

##### **Answer:**

##### **Consent:**

Means "to agree" or "active" will in the mind of a person to permit of doing an act.

##### **ROLE of consent in medical treatment:**

- 1) A doctor can defend him in court of law if he has the written proof of consent.
- 2) Consent is necessary before initiating the any type of treatment and diagnosis.
- 3) Patient should not be compelled for treatment.
- 4) Only in emergency consent is not required where consent is implied.
- 5) Patient should be aware of medical procedures regarding his treatment.

### Annual 2005

#### Question no 4: Classify hurt according qisas and diyat law?

##### Answer:

Kinds of hurt According to qisas and diyat ordinance.

- A) ITALF-I-UDW
- B) ITALF-I-SALAHYAT-I-UDW
- C) SHAJJAH
- D) JURH
- E) OTHER HURTS

### Annual Year 2005

#### Question no 5: Compare and contrast DYING DECLARATION & DYING DEPOSITION.

##### Answer:

##### ❖ Contrast:

Dying Declaration	Dying Deposition
1-Legal formalities of Oath are not necessary.	Oath is an essential prerequisite
2-Can be recorded by any credible person including the attending medical practitioner.	Only justice of peace can record it.
3-Presence of accused is not necessary.	Presence of accused is essential.
4-It should contains the statement of only dying person and nothing else.	It includes the statement of dying witness and cross examination by the accused.

<b>5-</b> After recording it must be sent to the illaqa magistrate sealed.	Formality unnecessary, being recorded by the justice of peace himself.
<b>6-</b> It becomes valid only upon the death of the declarant.	It continues to remain valid even after the recovery of declarant.
<b>7-</b> Case must be the criminal one and circumstances of death are the subject of declaration.	It can be recorded in any case when witness is critically ill.

#### ❖ **Comparison:**

- 1-** Both are statements made for the sake of justice.
- 2-** Both the statements are recorded when a condition of declarant or witness is critical.
- 3-** In dying declaration statement is read over to declarant and may be get signed if possible in dying deposition signature of victim are necessary.

#### **Annual 2005 & 2006**

**Question no 6: What do you understand by PROFESSIONAL MISCONDUCT? Explain by giving examples?**

**Answer:**

Also called **infamous conduct**

Lord Justice Lopes LJ defined it in 1894.

"If a medical man in pursuit of his profession has done something which would be reasonably **regarded as disgraceful or dishonorable by his professional brethren of good repute and competency**, then he is guilty of infamous conduct in professional respect."

#### **EXAMPLES**

##### • **Abuse of Medical Practitioner's Privileges**

- 1.** Issuing false medical certificate.
- 2.** Prescribing drugs of addiction for abuse.
- 3.** Disclosing of patient's secret.

##### • **Abuse of Doctor-Patient Relationship**

- 1.** Indecent assault on patient.
- 2.** Adultery with patient.

##### • **Association with unqualified persons**

e.g. provide them shelter for practice e.g. quacks

- **Abuse of knowledge**

e.g. criminal abortion, addiction to himself

### **Annual 2006**

#### **Question no 7: Define hurt and qatl and its types?**

##### **Answer:**

**Hurt:** whosoever causing pain, harm, infirmity, injury to any person or impairs, disables, dismembers any organ of body or part of the body of a person without causing death is said to cause hurt.

**Qatl:** Qatl is defined according to qisas and diyat ordinance as under

##### **1. QATL-I-AMAD**

In this intention is to cause death of a specific person or harm seriously to cause death

##### **2. QATL-E-SHIBHI-AMD**

Casing death of a person without any intention to take life but intention to harm is there. offender uses a weapon which in ordinary course of nature does not cause death but in this case death occurs e.g. person 's' gives blow on abdomen of 'w' and goes into shock and death occurs. in ordinary course of nature it is not likely to cause death.

##### **3. QATL-I-KHATA**

Death occurs due to mistake of act mistake of fact. no intention to take life. But due to carelessness death occurs. e.g. in hunting when a man is mistaken for an animal, Rash driving.

##### **4. QATL-I-BAESABAB**

To cause death of a person or harm which leads to death without intention by an unlawful act is Qatl-i-baesabab. E.g. if a person 's' digs a pit and person 'y' falls into it while passing over it and dies.

### **Annual 2007**

#### **Question no 8: You are going to be a REGISTERED MEDICAL Practitioner. What are privileges and obligations of a registered medical practitioner?**

##### **Answer:**



### ❖ **Three Privileges :**

#### **1. Employment**

Can seek employment against job or permission for independent practice.

#### **2. Certification**

Can Issue medical certificate for administrative and judicial purposes.

#### **3. Fees**

Can charge fees for medical services rendered.

### ❖ **Two Obligations**

- 1.** To notify to the council change of address on transfer within a period of 30 days of the change.
- 2.** Not using any name, title, description or abbreviation indicating that he possesses an additional qualification, which is not conferred to him.

### **Annual Year 2008**

**Question no 9: Define professional misconduct. What professional activities which a doctor must not do so that he remains an ethical doctor?**

**Answer:**

Also called **infamous conduct**

Lord Justice Lopes LJ defined it in 1894.

"If a medical man in pursuit of his profession has done something which would be reasonably **regarded as disgraceful or dishonorable by his professional brethren of good repute and competency**, then he is guilty of infamous conduct in professional respect."

**And should not:**

- 1.** Issue false medical certificate.
- 2.** Prescribe drugs of addiction for abuse.
- 3.** Disclose of patient's secret.
- 4.** Indecent assault on patient.
- 5.** Adultery with patient.
- 6.** Indulge Personal Tendencies Dangerous to the Patients e.g., Alcoholism and drug addiction.

7. Profiting at the Expense of his Colleagues e.g., Deprecation of other doctors.

### Supply Year 2009

#### Question no 10:

- a) Define negligence.
- b) List types of medical negligence.
- c) What is meant by professional misconduct?

#### Answer:

##### a) Negligence:

##### b) Types of Medical negligence

#### MEDICAL NEGLIGENCE:

Lack of reasonable care and skill or willful negligence on the part of medical practitioner

In the treatment of patient which may endanger patient's life is called medical negligence.

Before a legal action against the doctor, three elements of negligence are to be established.

#### Types:

- Civil Negligence.
- Contributory Negligence.
- Third Party Negligence.
- Criminal Negligence.

#### 1. CIVIL NEGLIGENCE

Failure to exercise reasonable degree of care and skill on part of doctor in the treatment of patient and as a result, health of patient suffers. The negligent act must be proved by claimant.

#### For example:

- Extraction of healthy teeth.
- Failure to give ATT.
- Failure to take X-Ray in case of injury.

Civil mal-praxis results in damages but does not affect life so cases are dealt in civil courts.

## 2. CONTRIBUTORY NEGLIGENCE

In this, patient also contributes to the damage caused by negligent act of doctor. The award of damages will be reduced accordingly. Burden of proof lies on the doctor.

### For example:

Patient tampers with his dressing and induces infection or removes a plaster cast or ignores instructions to return for further treatment / follow up.

## 3. THIRD PARTY NEGLIGENCE

Negligence of paramedical staff, nurses and students working under supervision of a doctor. The doctor is held equally responsible by virtue of doctrine of "**respondent superior**" (let the master answer) or doctrine of "**caption of the ship**" now a day's being replaced by doctrine of "**borrowed servant**".

### For example:

Failure to check swabs, paralysis during spinal anesthesia or failure to check drug and its expiry.

## 4. CRIMINAL NEGLIGENCE

Gross carelessness or gross neglect for the life and safety of patient which may amount to criminal offence. In such cases patient's death may occur. Mere monetary compensation is not sufficient, wrong doer should also be punished. Cases are dealt in criminal courts.

### For example:

Injecting anesthetic drug in fatal dose by an Addict anesthetist.

Leaving the patient unattended after

Opening abdomen to meet a friend

## c) PROFESSIONAL MISCONDUCT

Also called **infamous conduct**

Lord Justice Lopes LJ defined it in 1894.

"If a medical man in pursuit of his profession has done something which would be reasonably **regarded as disgraceful or dishonorable by his professional brethren of good repute and competency**, then he is guilty of infamous conduct in professional respect."

**Annual Year 2010**

**Question no 11: A man was shot in the chest by a robber .He was rushed to hospital where he succumbed to injury. Before dying he narrated incidence to attending doctor.**

- a) What this statement would be called?**
- b) How such a statement can be differentiated from a deposition?**

**Answer:**

- a) This statement would be called a dying declaration.**
- b) Answered Already**

**Annual 2011**

**Question no 12: What is professional misconduct? What practices are to be avoided to prevent the charges of professional misconduct?**

**Answer:** answered already

**Annual 2011**

**Question no 13:**

- a) Enlist hurt according to qisas and diyat laws?**
- b) Explain shajjah with its tyes.**

**Answer:**

Kinds of hurt According to qisas and diyat ordinance.

- A) ITALF-I-UDW**
- B) ITALF-I-SALAHYAT-I-UDW**
- C) SHAJJAH**
- D) JURH**
- E) OTHER HURTS**

**SHAJJAH:** All injuries on head and face which do not come under italf-i-udw and italf-i-salahiyat-i-udw is termed as shajjah .it has six types.

**1. Shajjah khafifha**

It is the injury on head and face in which bone is not exposed .E.g. bruises

**2. Shajjah Mudiaha**

It is the injury in which bone is exposed but not fractured

**3. Shajjah Hashima**

In this bone is exposed and fractured but not dislocated

**4. Shajjah Munaqlia**

Bone is fractured and dislocated

**5. Shajjah Ammah**

Injuries on head and face in which bone is fractured and dislocated and membranes of brain are exposed but remain intact not damaged.

**6. Shajjah Damigha**

In this membranes of brain are ruptured but person is alive

**Supply Year 2011****Question no 14:**

- a) Define consent.
- b) What are its types?
- c) Write prerequisites of a valid consent?

**Answer:****a) CONSENT**

Means "to agree" or "active" will in the mind of a person to permit doing of act.

**b) TYPES OF CONSENT**

1. Implied.
2. Expressed (oral/written).
3. Informed consent
4. Blanket consent

**Implied Consent:**

Mere action of patient, while he comes to doctor and sits on examination stool with some problem indicate that he is giving permission for treatment without expressing his consent.

**Expressed Consent:**

It is specific permission for complex procedures. It may be verbal or written. Both are acceptable under Law but written is best because if it is kept in record for further reference.

Oral consent is obtained in the presence of third party who is disinterested. May be a nurse or other paramedical staff member.

**Blanket Consent:**

Consent obtained without proper disclosure of the information. Note:

"Blanket consent" is not acceptable in courts.

**Informed Consent:**

In this before taking consent doctor gives reasonable information.

Its components are:

- Disclosure of information.
- Voluntariness.
- Competence.

Requirements:

Understandable communication between doctor taking consent and the person entitled by law to grant consent.

**c) Prerequisites of a valid consent:**

- It must be free from fear, force or fraud.
- Must not be obtained by any sharp practice or blackmail.
- The facts of consent must clearly be stated.
- Possible results and complications must be explained.
- Person must understand what he is consenting to.
- Reasonable time interval between consent and treatment.

**Annual Year 2012**

**Question no 15: A doctor appears before the court of law to record the evidence regarding an autopsy, conducted by him, . Through what procedure he has to go through?**

**Answer:**

Evidence of a witness including medical witness is recorded in the court of law in following three stages

**1. Examination-in-Chief:**

The party who produces the witness conducts it. The facts deposited to in this examination must be within the memory and recollection of the witness. No leading Questions.

## **2. Cross Examination:**

It is conducted by the party who defends the case. Leading Questions are allowed.

## **3. Re-Examination:**

It provides an opportunity to rectify discrepancies that may have occurred due to cross examination.

### **Questions by the judge:**

To remove any ambiguity.

### **Annual 2013**

#### **Question no16:**

- a) What is professional secrecy?**
- b) What is privileged communication?**
- c) What are situations in which communication become a privileged communication?**

### **Answer:**

#### **A) Professional secrecy**

In medical practice doctor comes to know secrets of patient from history taking, on examination and privacy of domestic life must not disclose to anybody. However professional trust and confidence between doctor and patient may be broken under some condition only. Consent of patient for disclosure of information is necessary and it is better to take written consent.

#### **B) Privileged communication**

It is the communication made by a doctor to proper authority that has corresponding legal social moral duties to protect the public

#### **C) Situation**

Following are the situation that makes a communication privileged

##### **1. Absolute**

It is that which applies to any statement made in a court of law and parliament (in course of hearing of a case) by a doctor. All matter voiced in



court of law are absolute privileged communication .Professional dictations are complete ignored.

## **2. Qualified**

It extends to health authorities , information about infection and noticeable diseases

### **Supply 2013**

**Question no 17: Write expectation to criminal responsibility with a brief description of each?**

**Answer:**

General expectation in law in regard to criminal responsibility are as follow

**Immaturity:**

A child who is not sufficiently mature to understand the nature and consequences of an action cannot be considered guilty

**Insanity:**

An adult who is incapable of knowing the nature and consequences of an action due to unsoundness of mind cannot be considered guilty

**Intoxication:**

An intoxicated individual shall also not be guilty provided the administration of intoxicant is without his knowledge or against his will.

### **Supply 2014**

**Question no 18: Describe the role of consent in medical treatment. What are ingredients to make consent legal? What are the essential components to make consent as an informed consent?**

**Answer:**

**a) Role of consent in medical treatment**

- 1)** A doctor can defend him in court of law if he has the written proof of consent.
- 2)** Consent is necessary before initiating the any type of treatment and diagnosis.
- 3)** Patient should not be compelled for treatment.
- 4)** Only in emergency consent is not required where consent is implied.
- 5)** Patient should be aware of medical procedures regarding his treatment.

**b) Ingredients to make consent legal**

- It must be free from fear, force or fraud.
- Must not be obtained by any sharp practice or blackmail.
- The facts of consent must clearly be stated.
- Possible results and complications must be explained.
- Person must understand what he is consenting to.
- Reasonable time interval between consent and treatment.

**C) Essential components to make consent as an informed consent**

- Disclosure of information.
- Voluntariness.
- Competence.

Understandable communication between doctor taking consent and the person entitled by law to grant consent.

**Solved by Shamsa Shafique**  
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**Med-Com**  
(Session 2011-16)

## **FORENSIC SEXOLOGY**

**Annual 2004**

**Question no 1: Discuss medico legal importance certification of a female victim of Zina Bil Jabar with special reference to legal obligations of the doctor dealing with such a case.**

**Answer:**

**Doctors Obligation:**

- Do not begin with the case until the police approaches with FIR
- Always in case of a female victim make sure there is presence of female attendant, nurse or a family member.
- Maintain privacy of the patient.
- Proper equipment proper light proper table for examination
- Examine and observe the victims clothes, behavior and mental status.
- Female victim of Zina bil jabar is emotionally tensed, withdrawn and depressed. She may be reluctant to narrate whole incidence. She requires support and encouragement to overcome this feeling.
- Immediately send specimens for chemical examiner. And convey reports with out
- any changes.

**Supply 2004**

**Question no 2: Fatal hazards of modern washroom.**

**Answer:**

The hazards are

- In modern washrooms electric geysers are present resulting in short circuit or fire.
- High water basins can result in difficulty in washing resulting in a slip.
- The use of tiles makes it slippery which can result in slip or hazardous fall.
- Use of glass doors is dangerous if it cracks resulting into several pieces.

**Supply 2004**

**Question no 3: Write a note on Caffey Syndrome****Answer:**

**Caffey Syndrome:** This term is used to define a clinical condition of young children of usually less than 3 years of age who have received non accidental violence or injury on one or more occasions at hands of an adult in position of trust generally parents or guardians.

**Victim:** It is usually unwanted child e.g. pregnancy before marriage, an illegitimate child.

**Important Features:**

- Child is under 3 years age
- Story told by parents is not confirmed by injuries
- Unexplained delay in reporting to the doctor
- Child is unwanted

**Babies:**

- Isolated family with dominant father
- Poor family
- Low IQ
- History of criminal back ground

**Management:**

- Safety of child
- Advise the family not to beat
- Hospitalize the child
- Warn the parents
  - If hurt is fatal report to police.

**Common injuries:**

- There are abrasions and bruises on skull
- Subdural hemorrhage and fracture of skull
- There are multiple fractures of long bones and hyoid bone
- X ray of whole body reveals multiple fractures in different body areas in different healing stages.
- Injuries on lips, torn frenulum, and whipping sign
- Injuries to eyes and retina.

**Autopsy Findings:****External Examination:**

Look at

- Clothes
- Nutritional status
- Measure weight and height
- Take x rays of whole body

**Internal Examination:**

- Skull fractures
- Petechial hemorrhage
- Injury to hyoid bone
- Traumatic changes in retina
- Injuries at lips
- Fracture of ribs and long bones
- Injuries on abdomen
- Whole body is X rayed.

**Annual 2007****Question no 4: Describe the following****a) Isqat-e-Janin****b) Causes of death in criminal abortion.****Answer:****a) Isqat-e-Janin**

Whoever causes a woman with a child whose organs have been formed to miscarry, if such a miscarriage is not in a good faith is said to cause Isqat-e-janin.

**Punishment:**

- If child is born dead then fine equal to ½ Diyyat
- If child was born live and died because of the offender then full Diyyat.
- If child dies otherwise by any other act of the offender then imprisonment for 7 years.
- If more than one child in the womb then separate punishment.
- Additional punishment if the woman dies.

**b) Criminal abortion**

Complications that can lead to death are:

- **Immediate :**

1. Hemorrhage followed by shock
2. Increased vagal stimulation
3. Air/Fat embolism

- **Intermediate :**

1. Acute general infection
2. Bacterial Septicemias
3. Continuous hemorrhages due to Rupture of uterus, Rupture of placenta, Rupture of fetus.
4. Renal failure
5. Tetanus

- **Late :**

1. Pyrexia
2. Cellulitis
3. Pulmonary embolism
4. Pelvic gangrene
5. Meningitis
6. Tetanus
7. Sepsis
8. Poisoning

### Annual 2008

**Question no 5: What are the steps of examination while dealing with victim of Zina Bil Jabar in examination room. Enlist the specimens you will take for this.**

**Answer:**

- **Protocol of examination:**

- ✓ Consent
- ✓ Bio-data
- ✓ Identification
- ✓ Female attendant
- ✓ Proper equipment
- ✓ Same doctor should examine the victim and the suspect.

- **HISTORY**

- ✓ General History,
- ✓ Obstetric in females.

- **General Impression**

- ✓ Dress
- ✓ make up
- ✓ mental status.

- **Examination of clothes**

Take **specimen** of clothes if case is fresh.  
The clothes removed by female herself.  
Trace evidences.

- **Examination of body**

- ✓ **General** : Built, stature, vitals
- ✓ **Systemic**: All organ systems
- ✓ **Genital** : Condition of genitalia and anal canal
- ✓ Bruises
- ✓ Abrasions
- ✓ Bite marks
- ✓ Stains
- ✓ Loose hair
- ✓ Inspection
- ✓ Bilateral traction
- ✓ Specular examination
- ✓ Anal examination

- **Collection of specimens:**

- ✓ Clothes entire lot
- ✓ Loose and matted hair
- ✓ **Swabs from:**
  1. Body
  2. Seminal stains
  3. Salivary stains
  4. From vagina
  5. From lower vagina
  6. From higher vagina
  7. From anal region
  8. From posterior fornix
- ✓ Scraping from undersurface of nails
- ✓ Urine for screening

- ✓ Control specimen
- ✓ Blood
- ✓ Plucked hair

Send for reports. Reveal the results without tapering the reports. The medical certificate must contain both positive and negative findings.

### **Annual 2010**

#### **Question no 6: Define Sudden Infant Death Syndrome.**

##### **Answer:**

It is also called as Cot death or Crib death.

This is a condition in which apparently a healthy infant is found dead without any signs or symptoms that would have enabled such an event to be predicted and on Post mortem examination; there is insufficient pathology to explain the death satisfactorily.

### **Annual 2010**

#### **Question no 7 : Write various risk factors for SIDS.**

##### **Answer:**

- Hypersensitivity to cow's milk
- Respiration infection
- Hyperparathyroidism
- GIT infections
- Spinal hemorrhages
- Cardiac arrhythmia

**Question no 8: Dead body of a female is being examined on autopsy table. The uterus is enlarged, bulky , congested , containing soft tissues and skull bones of the fetus. There are multiple bruises and lacerations of endometrium and cervix. What are the likely causes of death?**

##### **Answer:**

The cause of death is Criminal abortion. The implications of abortion can cause death.

Causes are explained already



**Annual 2011**

**Question no 9: A female victim of rape is brought for examination. Describe steps of examination for such victim in OPD.**

**Answer:** Already Answered

**Supply 2011**

**Question no 10: A young female dead body was brought for autopsy. Police suggest for criminal abortion. What are various complications of criminal abortion which may lead to death?**

**Answer:** already answered

**Supply 2011**

**Question no 11:**

**A) What is Hess's Rule? Briefly describe its forensic importance.**

**B) What is forensic importance of DNA finger printing?**

**Answer: (Also explained in personal identity portion)**

**A) Hess's Rule:**

It is the method to determine into uterine age. It determines the age by the length.

**Up to 4 months:**

Square root of length of fetus in cms = age of fetus

**After 5 months:**

Length of fetus in cms/5 = Age in months

**B) DNA finger printing:**

DNA finger printing is a technique which is used to differentiate two individuals of same species. Everyone has a different DNA except identical twins. The difference lies in sequence of base pairs.

**Application:**

**Identification of**

1. Putrefied body
2. Mutilated body
3. Headless body
4. Limbs of a body

5. A criminal in rape cases
6. Paternity/ maternity dispute
7. Human remains

**Annual 2012**

**Question no 12: A victim presented to medico legal clinic with multiple abrasions. In general, what information can be gained by examination of abrasions?**

**Answer:**

**(Also explained in traumatology portion)**

**Abrasions:** Abrasions are due to friction against hard surfaces and are usually on the back of the female body and on the back of the elbows and in front of the knees in victims of sodomy. Nail scratches are usually seen on the body of the assailant on the face and around genitals.

**Annual 2012**

**Question no 13: Write briefly about various drugs and their mechanism of action which are used to procure abortion.**

**Answer:**

There are two types of drugs.

**A. Directly acting drugs      B. Indirectly acting drugs**

**Directly acting drugs:**

- **Ecbolics:** They increase the contraction of uterus, e.g. ergot, quinine, histamine, pituitary extract, cotton wool bark.
- **Emmenagogues:** They increase the menstrual flow through the cervix, e.g. Synthetic estrogen, borax, apiol etc.

**Indirectly acting drugs:**

- **Emetics:** These violently stimulate GIT which causes increased uterine contractions resulting in abortion. E.g. Tartar Emetics, Syrup of IPECAC.
- **Purgatives:** These stimulate the intestinal peristaltic movements resulting in abortion. E.g. Castor oil , Croton oil , Aloes
- **Essential oils:** These irritate the genito urinary tract and reflexly increase uterine contractions E.g. Turpentine oil, Apiol oil.

- **Heavy metals:** They have poisonous effects on various body systems i.e. Lead causes contractions of uterus and also has toxic effect on epithelium. For example Lead, Arsenic, Mercury, Copper.
- **Poison :** Canthrides, Madar

### Annual 2013

**Question no 14: Briefly describe the salient features of paediatric trauma at the hands of adult.**

**Answer:**

This term is known as Battered baby or Caffey syndrome. It is a clinical condition in young children of usually less than 3 years of age who have received non accidental violence or injury on one or more occasions at hands of adult in a position of trust generally parents or guardians.

**(Already answered in detail)**

### Supply 2013

**Question no 15: Describe the steps of examination of victim of sodomy.**

**Answer:**

**Definition:** It is defined as sexual connection between two males and possibly un natural connection between male or female. It is of two types.

**A. Homosexual sodomy:** Sexual connection between two males.

**B. Heterosexual sodomy:** Sexual connection between a male and a female. It is called Buggery.

### Examination of victim of Sodomy

**Passive agent:** A passive agent is on whom the act is performed.

- Preliminary data: Note the name, Age, occupation, address time and date of arrival, time of examination, id marks , name of examiner.
- Consent
- History
- Behavior
- Finding in the clothes: See for stains of blood or semen. Collect evidences.
- **Examination of body:**
  1. **General Examination:** Asses the height, weight, age, sex.

**2. Special Examination:** It is done in knee elbow position. It has four steps.

- ✓ Inspection
- ✓ Bilateral traction
- ✓ Digital Examination
- ✓ Instrumental/ Specular examination.

## Findings

### In Habitual Catamite:

- Manner of lying down is suggestive
- Shaving of anal canal
- Skin around anus is smooth
- Muscle tone is lost
- Anus is of funnel shape
- Loss of anal folds
- Prolapse of anus
- Piles anal fissures common
- Presence of semen in anal canal
- Presence of a lubricant

### Non-Habitual Catamite:

- Anal orifice is found dilated
- There may be bruising and abrasion between the anus and coccyx
- Gait send defecation may also be painful
- Semen present in anus
- Radial fissures of mucous membranes of anus will be found due to forcible over stretching.

### Specimens to be collected:

**Site:** Buttock and periphery of anus, From the inside of anal canal , Biological evidence from the clothes.

**Specimen:** Hair, Nail scrapping, blood for grouping, anal swab. Presence of semen necessary.

## Supply 2014

### Question no 16: Examination of a child victim of rape case.

#### Answer:

The examination begins with:

- Requested by the examinee himself or any agency such as court or police  
Then comes the proper protocol. Beginning with proper equipment's availability.
- Consent. In case of a child consent is given by the parents or the guardians.
- Name age sex address all information given by the attendants.
- Establishment of personal identity.
- Presence of a female attendant or mother is necessary.
- Physical examination of cloths.
- **Physical examination of body:**
  - ✓ **Physical status:** Asses heart rate, Character of pulse , respiration, blood pressure, skin color, sweating, nausea.
  - ✓ **Mental status:** Consult a psychiatrist as a child may not express completely the pain.
  - ✓ **Systemic examination**
  - ✓ **Local examination:** It includes any portion of body that has pathology or wound caused during physical assault.
    1. Site
    2. Shape
    3. Size
    4. Direction
    5. Foreign material
    6. Characters or margins is very important in case of child. Vaginal tear, Tissue tear and Abrasions are an extra damage due to weak tissues in a child.
    7. There will be less signs of struggle as the child is un aware of the act.
- **Examination of body openings:**
  - ✓ Inspection
  - ✓ Bilateral Traction
  - ✓ Digital examination
  - ✓ Instrumental Examination
- **Clinical investigations :**
  - ✓ X rays of the body to know the site and type of fracture.
- Collection of specimens
- Formulation of opinion
- Documentation and certification.

Punishment given to the suspect will be different in the case of the child rape.

**Solved by Maliha Mujeeb**  
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## **TRAUMATOLOGY**

**Supply 2003**

**Question no 1: write down the factors modifying the appearance of rifled**

**Fire arm wound of entry?**

**Answer:**

### **FACTORS AFFECTING THE APPEARANCE OF FIREARM WOUND:**

- The weapon which fired the projectile
- The nature of projectile
- The velocity and stability of the projectile
- Ricocheting of the bullet
- The distance of the firearm
- The angle at which projectile struck
- Time elapsed since discharge

(You can manage the answer depending on marks, as if their detail is required or not)

#### **1) THE WEAPON WHICH FIRED THE PROJECTILE:**

The rifled firearm entry wound has its own characteristics, different from those of smooth bored weapons.

#### **2) THE NATURE OF PROJECTILE:**

Various projectiles have varying effects regarding severity. Non jacketed bullets are dangerous than jacketed as they can expand in the body. Large bullets or rounded ones produce greater damage than small or cylindrical/conical ones.

#### **3) VELOCITY OF THE PROJECTILE:**

High velocity bullets fired at close range results in fragmentation n greater damage to the body and if it encounters bone, bone may be shattered into

pieces resulting in secondary missiles. While a medium speed bullet cut a clean hole through the bone n the bone may change the pathway of the bullet at a low speed. Shock waves production and cavitation are the effects dependent upon the speed of bullet.

#### **4) RICOCHETING OF THE BULLET:**

A ricocheting bullet is the one that deviates from its course by striking an intervening object in its way before striking the body. It may even ricochet inside the body by striking some hard tissue.

- The abrasion produced by a ricocheted bullet that only pass tangentially to body surface just rubbing the skin is called Graze abrasion/ Kissing firearm wound.
- When ricocheted bullet passes tangentially without entering the body, And produces gutter like wound on the body, this wound is called Gutter firearm wound.
- Such a bullet may enter the body with 'side on' and produces an elongated wound of entrance looking like keyhole called Keyhole entry wound.

#### **5) DISTANCE OF FIREARM:**

- Contact shot: it shows the blast effect of gases n particles within the body.
- Entries from distance 6-18 cm: various amount of light charring n a dark circle of carbonious material.
- Entries from 15-30 cm: heat effect begins to disappear. Discrete particles make their appearance in a circle of spread which increases with the distance.
- Entries from beyond 45cm: target residue become scattered and finally not seen.

#### **6) THE ANGLE STRUCK:**

At right angle: circular, collar of abrasion

#### **7) TIME OF DISCHARGE:**

Effects such as inflammation, pus, healing and scar may be helpful in determining time of discharge. These effects may alter with the passage of time.

### **Supply 2003**

**Question no 2: Elaborate classical injuries sustained by a car driver during road side accident?**

**Answer:**



**INJURIES SUSTAINED BY A CAR DRIVER:**

Driver may sustain following injuries depending upon the manner of clash:

**1) Deceleration injuries:**

Due to strike with a fixed object, vehicle is suddenly halted; driver may be thrown upwards, forwards and outwards.

- **FORWARD THROWN:** results in sudden n forceful strike of chest with steering wheel. This causes fatal injuries to intrathoracic structures. Aorta and heart may be ruptured. Fractured ribs, fractures of lower limb n hip bone are also present. Abdominal viscera like liver, spleen and kidney are also severed.

- **UPWARDS THROWN:** head strikes with windscreen resulting in damaging injuries. Head injuries may result in transient dysfunction like post traumatic amnesia. Fractures of legs and knee joint dislocation due to strike with the dashboard. Head striking roof may sustain fracture of skull n sub arachnoid hemorrhages. Driver may sustain whip-lash injury or jack-knife injury.

**2) Acceleration injuries:**

When vehicle is hit from back by another vehicle, there is sudden acceleration produced. Body tends to remain stable but is pushed forwards by the seat. As in cases, driver was leaning forward, there is over extension and backwards movement of the head resulting in fracture of cervical vertebrae (jack-knife injury).

**3) Lateral impact injuries:**

Injuries due to windows, roof of vehicle. Victim may be thrown out of the window and run over by another vehicle.

**4) Run over injuries:**

When driver is ejected out of the vehicle and is run over by another vehicle.

**Supply 2003**

**Question no 3: write a note on:**

**a) Dry drowning**

**b) tail wag effect.**

**Answer:**

**a) DRY DROWNING: (Atypical drowning):**

This is also called hydrocution or immersion syndrome.

This is due in two cases:

**1) Vagal inhibition:**

This results from sudden entry of water into nasopharynx or larynx. This may happen when somebody falls feet first into water during diving. It may also follow a blow on abdomen, any surprise, over eating and intoxication are considered to be contributing factors. Loss of consciousness is immediate and death occurs soon after this. Instantaneous rigor mortis may be present. Examination of body discloses none of the usual signs of drowning.

- There is no foam
- Emphysema aquosum is absent
- Right side of heart and veins are not engorged
- Skin is pale and no asphyxia hemorrhages are present.

## **2) Due to laryngeal spasm:**

In all cases of drowning, laryngeal spasm is present to a variable extent. In rare cases, it becomes the primary cause of death. The signs in this case are of mechanical asphyxia.

- The body is cyanosed
- Petechial hemorrhages present beneath conjunctiva, pleura and pericardium.
- The heart and greater veins are engorged.
- The lungs are not water logged
- No water or foam in air passage.

## **B) TAIL WAG EFFECT:**

When a projectile is passing through the barrel, it has lateral support of barrel. Only when it leaves the barrel, it gets a new medium and under the effect of gravity, it gets unstable. So the tip follows the axis or trajectory while tail of the bullet starts performing circular movements around the axis of bullet. This is called tail wag. After wagging the bullet acquires stability.

### **TYPES OF TAIL WAG:**

- Initial tail wag: when the bullet just leaves the barrel
- Intermediate tail wag: when it strikes some objects in its way i.e. wall, door etc.
- Terminal tail wag: when the bullet starts losing velocity.

Tail wag presents in bullets fired from

- Pistol for 60 yards
- Rifle for 200 yards

**ANNUAL 2004****Question no 4: Enlist autopsy findings in Drowning?****Answer:****Postmortem appearance of a drowning case:****1) External appearances:**

- Clothes are wet and muddy.
- Body is cold, face is congested and livid or pale eyes are half opened, conjunctivae congested, pupils dilated.
- **POSTMORTEM LIVIDITY:**  
Mostly on dependent parts of body especially on neck, head and front of chest.
- **RIGOR MORTIS:**  
Appears early (due to muscular exhaustion) & lasts longer (due to coldness of water)
- **FINE FROTH:**  
It is an important sign of drowning. It is white or rarely blood stained, lather like, abundant n increases in amount with compression of the chest. This indicates an edematous state of lungs. If it is wiped away, more does appear. This appears due to accumulation of air, water n mucus in the lungs.
- **CADEVERIC SPASM:**  
Resulting in clasping of objects e.g. sand, mud or grass in the hands.
- **GOOSE SKIN:**  
It is the elevation of hair follicles due to the contraction of erector pillae muscles in the skin. It is also called cutis anserine.
- **WASHER WOMAN'S APPEARANCE:**  
The skin becomes wrinkled, bleached and sodden specially on the palmar aspects of the hands and soles of feet. This usually takes 12-18 hours in water to develop.

**2) Internal appearances:**

- Asphyxial changes are seen in the body. Water may be found in the middle ear due to violent respiratory efforts. Aspiration with a pipette helps to determine its presence.
- **RESPIRATORY TRACT:**  
Fine, white froth n some foreign material such as algae, weeds, mud, sand and regurgitated particles.
- **LUNGS:**

Provides the best evidence of drowning. Lungs are water logged, voluminous and bulge out of the chest. The show impression of ribs on them, their surface is pale n pity. Blood stained frothy fluid is seen.

- **STOMACH N DUODENUM:**

Presence of water from drowning media, by peristaltic movements. This water enters the small intestine and provides absolute proof of death from drowning.

- **PRESENCE OF DIATOMS:**

It is the class of microscopic unicellular algae of a size 10micro-80micrometer. Having a siliceous cell wall which resists acid digestion, heat n putrefaction. Found in fresh n sea water. Only a live body with an intact circulation can transport diatoms from lungs to brain or bone marrow.

- **BRAIN:**

Congested

- **HEART:**

Flabby, right side full of dark fluid blood, left side empty.

- **TEMPORAL BONES:**

A significant number of victims show hemorrhage in the temporal bones.

### **3) BIOCHEMICAL CHANGES IN BLOOD:**

In typical drowning, an interchange of water and electrolyte occurs between blood in the lung capillaries and water in lung spaces till an equilibrium is reached.

In fresh water drowning, haemodilution occurs as water crosses the alveolar membrane and enters circulation. Water enters lungs reaching pulmonary circulation and eventually gets entry into left side of the heart. The Chloride level of left side of the heart reaches 420-480mg/dl of blood from the normal level of 600mg/dl of blood.

In sea water drowning, there is hem concentration as water from circulation enters lungs. The chloride content raises up to 800-990mg/dl of blood.

### **Annual 2004**

**Question no 5: When a bullet hits human, how do you determine:**

**a) Distance of fire**

**b) Direction of fire**

**c) Manner of death****Answer:****a) DISTANCE OF FIRE:****❖ CONTACT WOUND**

- There is extreme mutilation of tissues due to expansion of gases
- There are linear splits in the skin extending from the margins of the main entry (giving the splits in the skin shape of a star called Stellate wound)
- Effects of the discharge are dissipated on the skin surrounding the main hole, produced due to en-mass entry of pellets. So here we can find blackening, burning, tattooing etc around the main wound.
- Muzzle imprint, black spatter, grease mark and absorption of CO and the presence of wad in the wound are also found.

**❖ CLOSE RANGE WOUNDS: (distance >6inches)**

- Burning of skin and singeing of hair.
- Blackening
- Tattooing/peppering
- CarboxyHb giving cherry red discoloration to the tissues.
- Wad is found in the wound
- A central en-mass entry which is circular in shape, with a few peripheral pellets holes. The wound shows nibbling of margins.

**❖ INTERMEDIATE RANGE WOUNDS: ( range within 18 inches)**

- The wound inflicted is outside the range of flame n smoke but within the range of powder particles thus tattooing is produced.
- A zone of blackening
- Wad is present in the wound as it can travel 16feet.
- The wound produced is irregular, circular or oval, with contused n lacerated margins. Few stellate pellets perforating the adjacent area are seen.

**❖ DISTANT RANGE WOUNDS: (beyond 18 inches)**

- No evidence of burning, blackening, charring of skin, singeing of hair and tattooing
- Wad is present only up to 6 feet range.
- As the distance b/w firearm n target increases, the spread of pellets increases while the size of central en-mass entry decreases proportionately. With increasing distance, penetration power of pellets diminishes.

- **RAT HOLE PHENOMENON:** beyond 3 feet gunshot pellets start spreading, at this distance a pattern of embedment of pellets resembling rat hole is formed. (a central hole surrounded by few perforations).
- In distant range wounds, where there is no burning, blackening, singeing of hair n tattooing effects, the distance is determined by following way:  
test shots.
- From dispersion of shots on the body: the distance between two most distant pellets on the body measured in inches is equal to muzzle target distance in yards. This formula is applicable up to 5 feet. Beyond this distance, distance b/w two maximally apart pellets on the body is measured in inches then 'one' is subtracted from the value.

#### **b) DIRECTION OF FIRE:**

##### **❖ IN CASE OF GUNSHOT FIRE:**

- When the discharge is at the right angle to the body, the wound is almost circular and in all other situations, an elliptical wound is found. And its elongation increases as the angle of fire goes on horizontal to the body surface.
- Also soot, burning n tattooing patterns follow the above pattern.
- The direction of spread of pellets is of primary importance in determining the direction of fire. At one side of the wound, they will be hitting compactly while on the other side they will be showing a spreading pattern. most probably the side of compactness of pellets is the direction of fire.
- X ray examination is of considerable help according to position of pellets.
- The angle struck: the bullet makes a trajectory under the action of gravity, similarly it traverses the body in curved fashion and when the entry n exit wounds are joined through a line, the direction of fire can be determined, keeping in view the posture of victim.

#### **C) MANNER OF DEATH:**

<b>FEATURES</b>	<b>SUICIDE</b>	<b>HOMICIDAL/ACCIDENTAL</b>
Victim	Generally adult male	any
Site	Side of temple, center of forehead, roof of mouth, under the chin, front and left	Any part of body

	side of chest n occasionally epigastrium.	
Distance	Contact or close shot	Usually distant shot but occasionally close
Direction	Consistent with self-firing	Any
Number of shots	Generally one. Hesitation shots may have been fired at random	Any
Cadaveric spasm	Weapon may be firmly grasped, which is difficult to be stimulated by a murderer to give an impression of suicide.	Weapon may be missing or not found, so no cadaveric spasm.
Scene of crime	No evidence of disorder generally.	Evidence of disorder and struggle may be there.

**Supply 2004****Question no 6: describe differentiate features of:****a) Ante mortem and post mortem burns.****Answer:**

Refer to the annual paper of 2006

**Supply 2004****Question no 7: Write a note on traumatic asphyxia.****Answer:****TRAUMATIC ASPHYXIA: (mechanical, crush asphyxia):**

Pressure from outside the body, prevents the respiration. It includes external compression of the thorax or abdomen preventing the respiratory movements e.g. burial under earth, train accidents and crushing under the crowd.

**Specific findings:**

Crushing injuries of chest and abdomen. Specific lines of demarcation are apparent between the zones of findings and no findings. It marks the level of crushing force.

**Supply 2004**



**Question no 8: Discuss specific and nonspecific pathological findings in death due to throttling.****Answer:****Throttling:**

It is the type of strangulation affected by hand (manual strangulation).

Using one hand, thumb is placed on one side and fingers are on the other side.

**NON SPECIFIC FINDINGS:**

- 1) Cyanosis:** when deoxy Hb level is 5g/dl or more
- 2) Congestion:** vascular walls dilate due to ischemia resulting in engorgement of blood in veins
- 3) Edema:** permeability of micro circulation increases as a result of hypoxia. This causes generalized edema e.g. lungs and brain edema.
- 4) Petechial hemorrhages: Tardieu's spots:** presence of petecial hemorrhages immediately above the ligature mark strongly indicates that some compressive force has been applied. i.e. on skin, conjunctivae
- 5) Fluidity of blood:** blood becomes fluid due to increased fibrinolysis component of the blood.

**SPECIFIC PATHOLOGICAL FINDINGS:****1) On external examination:**

- Injuries on chest, face showing signs of struggle
- Tongue may be swollen, bruised, bitten by teeth and protruded
- Bleeding from ears due to rupture of blood vessels of tympanum
- Body temp may be raised
- Injuries on neck like marks of bruises and ecchymosis, which are found below larynx and above it, nail marks can be present, concentric abrasions, bruises relative to position of fingers. When one hand is used to throttle, a wider bruise caused by thumb is found on one side with obliquely directed multiple bruises on the other side, may be in a row.

**2) On internal examination:**

Blood drain out through cephalic vessels, after taking brain out for examination

Hemorrhages in subcutaneous tissue underlying nail marks are scanty as compared to external injuries

Fracture of hyoid bone is very common

Fracture of laryngeal cartilage is usually present in person above 40

Bruising at base of tongue may sometimes only the evidence of throttling.



**Annual 2005****Question no 9: Write a note on Traumatic asphyxia?****Answer:****TRAUMATIC ASPHYXIA: (mechanical, crush asphyxia):**

Pressure from outside the body, prevents the respiration. It includes external compression of the thorax or abdomen preventing the respiratory movements e.g. burial under earth, train accidents and crushing under the crowd.

**Specific findings:**

Crushing injuries of chest and abdomen. A specific line of demarcation is apparent between the zones of findings and no findings. It marks the level of crushing forces.

**Annual 2005****Question no 10: Classify mechanical asphyxia. Give five autopsy findings in case of death due to Traumatic asphyxia.****Answer:**

Blockage of respiratory tract mechanically either internally or externally is called asphyxia.

**Classification of mechanical asphyxia on the basis on level of obstruction:**

	<b>Types of mechanical asphyxia</b>	<b>Levels of obstruction</b>
<b>1</b>	Suffocation (smothering and gagging)	Nose and mouth
<b>2</b>	Hanging	Glottis
<b>3</b>	Strangulation, throttling	Larynx and upper trachea
<b>4</b>	Choking	Trachea or main bronchus
<b>5</b>	Traumatic asphyxia	Muscles of respiration

**Specific autopsy findings:**

- Acute congestion of face, conjunctivae and skin of chest showing a clear demarcation between the areas above the level of pressure and the one below it
- Ribs fracture at mid-axillary line or at the point of union with costal cartilage
- Intercostal muscles get bruised at the site of pressure on the chest
- Pneumothorax may occur
- At the site of fracture of rib, the lung may also show tear.

**Annual 2006****Question no 11: what are different types of drowning?****Answer:****Drowning:**

"A form of death resulting from defective oxygenation of blood in lungs due to presence of fluid in air passages after entering through mouth and nose"

Complete submersion of body is not necessary. Sufficient fluid to cover the nostrils n mouth is enough to cause death.

**CLASSIFICATION:****1) Typical/ wet drowning:**

There is aspiration of drowning fluids into respiratory tract resulting in severe chest pain. Chances of survival are reduced after the entry of fluids into lungs. It can be either:

- Fresh water drowning
- Sea water drowning

**2) Atypical / dry drowning:**

The moment water enters the pharynx there is reflex laryngeal spasm due to irritation. This results in asphyxia and death without entry of water into respiratory tract. About 20% cases of drowning are of dry drowning.

**Annual 2006****Question no 12: What are modes of death in dry and wet drowning?****Answer:**

It can be any of the three modes:

**Homicidal:**

Is rare except in children, infants, stupefied adults.

**Suicidal:**

Commoner in woman. Findings of tied hands, attaching of weights on person, tentative cuts on wrist, throat, presence of poison, absence of vital reaction.

**Accidental:**

Is quite common in fishermen, children, bathers, non-swimmers, dock workers, intoxicated persons, epileptic women who fall into well while fetching water.

**Annual 2006****Question no 13: Enlist mechanical asphyxia death.****Answer:****Mechanical asphyxia:**

Blockage of respiratory tract mechanically either internally or externally is called asphyxia.

**Classification of mechanical asphyxia on the basis on level of obstruction:**

	<b>Types of mechanical asphyxia</b>	<b>Levels of obstruction</b>
<b>1</b>	Suffocation (smothering and gagging)	Nose and mouth
<b>2</b>	Hanging	Glottis
<b>3</b>	Strangulation, throttling	Larynx and upper trachea
<b>4</b>	Choking	Trachea or main bronchus
<b>5</b>	Traumatic asphyxia	Muscles of respiration

**Annual 2006****Question no 14: what are the differences between the ante mortem and post mortem dry burns?****Answer:**

## DIFFERENCE BETWEEN ANTE MORTEM AND POST MORTEM DRY BURNS:

PARTICULAR	ANTE MORTEM BURN	POST MORTEM BURN
Line of redness	Present	absent
Vesicles size	Contains albuminous fluid and chloride	Contains air and are big in size
Infection	Pus and sloughing	nil
Healing	Granulating tissues present	nil
Sooth in upper respiratory tract	Present	absent
Enzymes	Increased	No such increase
Carboxy Hb	Present	Absent
Inflammatory areola around vesicles	Present	Absent
Base of vesicle	Inflamed and red	Not inflamed
Scar formation	Present	Absent

**Annual 2006**

**Question no 15: enumerate contrasting features of entry and exit lesions caused by rifled firearm.**

**Answer:**

**CONTRASTING FEATURES OF ENTRY N EXIT IN RIFLED FIRE ARM WOUND:**

ENTRY WOUND	EXIT WOUND
The wound is usually smaller except in contact discharge where the skin is torn erratically	The wound is bigger in size than the corresponding entry wound
Edges inverted as the missile penetrates the body from outside(in fatty edges are everted	Edges are usually everted

due to fat protrusion)	
In contact and close range entry wounds, track near the entry wound may be bright pink due to CO	Usually not so but rarely present
Clothing may be turned into shreds taken into the wound	Clothing is turned out
Bleeding is generally slight	Profuse bleeding
Lead may be detected on radiological and micro chemical examination	Not so
Abrasion/ contusion collar is an essential feature	Abrasion/ contusion collar is absent except in short exit wounds
Grease or dirt may be present	Grease collar is also absent
Burning, blackening, singeing and tattooing may be seen at appropriate distances	Not so

**Q no 16: what is Ewing's postulate?****Answer:****Ewing's postulate:**

'Linking trauma with the new growth'

- Integrity of the part prior to injury
- Substantial or adequate injury to the part
- A reasonable interval of time for the development of symptoms
- Development of growth or tumor at the site of injury
- Proof of the nature of tumor by microscopy

**Annual 2007**

**Question no 17: you are going to do medico legal autopsy of a corpse died of firearm injuries. What will be the indications of homicidal death by a pistol?**

**Answer:****HOMICIDAL FIREARM INJURIES:**

- There can be multiple number of shots and multiple injuries on the body
- No cadaveric spasm.
  - Site of entrance wound can be on any part of the body.
  - Distance of firing can be contact shot, intermediate distance or distant range shots. This can be confirmed by the presence of blackening, tattooing, singeing of hair n collar of abrasion around the wound.

- Direction of fire can be assessed by the hole in clothes and singeing of cloth fibers when bullet enters the body.

**Annual 2008**

**Question no 18: A body of 65 years old male was recovered from a bolted room of a hotel having cut throat injury. There is history of great financial setback. How will you establish that it is the case of suicidal cut throat?**

**Answer:**

**Suicidal incised wound:**

- ❖ It is possible with a knife on elective sites e.g., throat, chest (heart area), forearm (radial), thigh (femoral).
- ❖ Weapon must be light n sharp
- ❖ Injury must be above the thyroid cartilage.
- ❖ Hesitation cuts must be present.
- ❖ Cut must be gradually deep in shallow with tailing (depends on handedness of person)
- ❖ Carotid artery is usually escaped
- ❖ Direction of wound is sloped up obliquely
- ❖ Absence of defense wounds
- ❖ Weapon must be in his hand (cadaveric spasm)
- ❖ It is done in quite places like locked bathroom
- ❖ Suicide note may be found near the body
- ❖ Financial loss could be the motive

**Annual 2009**

**Question no 19: Autopsy findings in case of lightning.**

**Answer:**

**Autopsy findings of lightning:**

**1) External appearances:**

- Rigor mortis comes and goes soon.
- Burning or tearing of clothes and tearing of shoes soles
- Singeing of hair
- Burning and laceration at the site of entry and exit wounds
- Different sorts of injuries on the body from simple erythema to wound and fractures

**2) Internal appearances:**

**These are not very characteristic**

- Congestion of all the organs
- Petechial hemorrhages in all the organs under the serous membranes like meninges, pleura, pericardium and peritoneum
- Laceration of internal organs, coronary thrombosis and rupture of gangrenous caecum

**Note:**

There may be no external injury if body was wet or well earthed.

If death is due to functional arrest of circulation and respiration (possible due to vagal or medullary stimulation due to sudden fright or spasm of vessels), there may be no external or internal marks

**Annual 2009**

**Question no 20 : on autopsy, a gunshot wound was found over the temple of a male businessman. The wound is stellate shaped with the collar of abrasion partly lost. there is no blackening or tattooing present.**

**a) What is the probable manner of death and distance of weapon?**

**b) On which side the beveling of skull will be?**

**Answer:**

**a) MANNER OF DEATH:**

The manner of death in this case is suicidal. This is proved by following facts:

- In suicidal cases, number of shots is usually single.
- In cases, in which there is firm contact with skin having bone underneath e.g. on head, Expansion of gases finding no other way to escape blasts giving an explosive appearance to scalp injury. There is production of a wound appearing star shaped is called stellate wound.
- All the components of discharge are mainly found inside the track of wound.

**DISTANCE OF WEAPON:**

This is a contact shot, the stellate wound proves this along with no blackening n tattooing.

**b) BEVELING OF SKULL:**

When a bullet passes through skull fracturing it, a phenomenon called beveling helps a lot in determination of an entry wound.

The skull being a flat bone has an outer table and an inner table. When the bullet passes through the outer table which is supported by the inner table at the moment, a clean cut hole is produced in the outer table while the inner table not supported from its inner side gets adversely fractured. When the same bullet reaches the opposite side of the skull to exit out, it first encounters the inner table, which is now supported by outer table, thus a clean cut hole in the inner table and an irregular fracture of the outer table is the result.

### **Supply 2009**

**Question no 21 : a wound over right temple in a right handed person was examined and following findings were observed. Circular collar of abrasion, tattooing, blackening and charring of tissues around the wound.**

- a) Write the type of weapon used?**
- b) What is the approx distance of weapon of discharge from wound?**
- c) What is probable manner of death?**
- d) What is the cause of tattooing?**
- e) What is the specimen of choice to be sent to the ballistic expert to confirm firer?**

**Answer:**

**a) TYPE OF WEAPON USED:**

A rifle is used as they discharge a single bullet.

**b) DISTANCE OF WEAPON :**

This is a close shot when the skin is in loose contact with the rifled firearm. Here gases will escape with resultant scattering of the muzzle blast and an unusual arrangement of soot is seen on the skin surrounding the wound of entrance. This is known as 'corona' having a circular zone of soot deposits surrounding the wound of entry.

**c) MANNER:**

The manner of death can be suicidal or homicidal. But the single shot on right temple of a right handed person describes suicidal manner of death.

**d) TATTOOING:**

Un burnt gun powder particles at a high speed pierce and penetrates the skin rupturing the superficial capillaries. Small reddish spots appear around the entry wound. This whole phenomenon is called 'tattooing' this can be seen within 18 inches of fire.



**e) SPECIMEN SENT:**

- full photographic notes including body, projectile and location of fired weapon must be sent, since their location may determine the location of firer.
- Special attention should be paid in the examination of victim's clothing for any evidence. There is possibility of finding any bullets or certain other residues in the cloths. Examination of clothing may help in finding out:
  - the range of fire, from the deposition of various discharge products over the clothing at respective distances
  - entry and exit wound, from various deposits as well as from direction of torn fibers which may be turned inward at the wound of entry and outward at the wound of exit.
  - If the bullet is discovered from the body, it must be packed and sent. The discovered bullet should not be washed or dried, as it would remove powder residues and blood sticking to it. Pattern of weaving of cloth on the nose of bullet
  - Should not be removed.

**Supply 2009****Question no 22: Tabulate the difference b/w Hanging & Strangulation?****Answer:****DIFFERENCE BETWEEN HANGING AND LIGATURE STRANGULATION:**

	<b>HANGING</b>	<b>STRANGULATION</b>
1	It is suicidal usually	It is homicidal usually
2	There are no signs of struggle (except in homicidal)	Signs of struggle are present
3	The ligature is found above the thyroid cartilage and is incomplete. It is directed obliquely upwards with a gap indicating the position of knot. at the place of knot in the gap, there is no damage to the skin.	Ligature horizontally encircles the neck below thyroid cartilage. Skin always found damaged underneath.
4	Abrasions and bruises are rarely present around the ligature mark.	Here these are commonly found
5	Dissection of ligature mark	Ecchymosed subcutaneous areolar

	reveals a dry n glistening white band of sub cutaneous areolar tissue	tissue is found on dissection of the ligature mark.
6	Neck usually stretched	Not stretched
7	Fracture of hyoid bone is rare	This is common in throttling
8	Fracture of larynx and trachea are rare	Common
9	Carotid arteries are injured only in long drop cases	Common
10	Neck muscles are rarely injured	Commonly injured
11	Fracture dislocation of cervical vertebrae are common	Rare
	Saliva marks running out of the angle of mouth vertically downward along the neck and the front of chest and abdomen	Saliva does not run, but if it does, it is tingled with blood
13	External signs of asphyxia are not well. Marked when death is due to any cause other than asphyxia	External sings of asphyxia are well marked because of considerable violence that is common.
14	Face is usually pale	Face is congested and marked with petechial
15	Bleeding from nose, mouth and ears is very rare.	Bleeding is common
16	Emphysematous patches on the lungs are not common	Common.

**Supply 2009****Question no 23: Ewing's postulate?****Answer:**

Refer to annual paper of 2006

**Annual 2010**

**Question no 24: during a scuffle in cricket match, one of the players sustained a blow on the top of head by a wicket. After one day, he develops 'black eye'**

**a) What are various causes of black eye?**

**b) Write any two medico legally significant features of a bruise?**

**Answer:**

**a) CAUSES OF BLACK EYE:**

- Head injury resulting in soft tissue damage can collection of blood in the loose connective tissue layer of the scalp, which is continuous with the upper eye lid. The blood easily tracks down anteriorly over the eyelids leading to discoloration, called black eye.
- A blow to the nose often causes both eyes to swell because the swelling from the nasal injury causes fluid to collect in the loose tissues of the eyelids.
- This type of bruising is called ectopic bruising; in this bruises are not present at the site of impact because at that site the tissue is laxed that blood travels under the skin due to gravity.

**b) MEDICO LEGAL IMPORTANCE OF BRUISE:**

- Identification of object (by the shape of bruise)
- Degree of violence (by the severity of bruise)
- Purpose of injury (homicidal, suicidal, accidental)
- Time of injury (by color changes)
- Whether true( due to actual injury) or false (by application of irritant substances)

**Supply 2011**

**Question no 25: note on whip-lash injury.**

**Answer:**

**WHIP-LASH INJURY:**

**SITE OF INJURY:** cervical spines C4-C6

**MECHANISM:**

Combination of hyper extension and hyper flexion of neck

In accidents where the vehicle is hit from back by another vehicle. There is sudden hyper extension at the neck joints suffered by the occupants not having back rest for head. Due to sudden oush from back the driver tends to apply brakes or vehicle strikes a fixed object resulting in sudden stoppage of vehicle. So there is sudden hyper flexion at the neck.

This combination of hyper extension and hyper flexion causes dislocation n fracture at C4-C6 level and persons suffer severe damage of spinal cord and paralysis of presenting part of the body.

In head-on contusion, reverse stimulation occurs, first there is sudden hyper flexion then hyper extension.

**Annual 2012**

**Question no 26: A victim presented to a medico legal clinical with multiple abrasions. In general, what info can be gained by examination of abrasions?**

**Answer:**

**MEDICOLEGAL IMPORTANCE OF ABRASIONS:**

Abrasions provide valuable information in respect to:

- Site of impact
- Possibility of internal injury
- Identification of causing object (patterned abrasion)
- It tells about the direction of force applied.
- It gives the time of injury (by change in color)

Fresh ( red color)	
Scab formation	After 24 hours
Reddish brown	Within 2-3 days
Shedding of scab n re-epithelization	Within one week
Complete healing	Within two weeks

❖ **Purpose of injury:**

- On the neck → throttling
- About nose and mouth → smothering
- About thighs n genitals → Zina-bil-jabr
- About the anus → sodomy
- On bony prominences → fall

**Annual 2013**

**Question no 27: Describe cause effect relationship in production of lacerations?**

**Answer:**

**LACERATIONS:**

Tearing of skin and subcutaneous tissue caused by blunt weapon is called as laceration.

**CAUSE EFFECT RELATIONSHIP IN PRODUCTION OF DIFF TYPES OF LACERATIONS:****1) SPLIT LACERATIONS:**

**Causes, effects, relationship:**

Sudden compression of tissues between two hard objects.

**FEATURES:**

- External hemorrhage
- Bruises of the edges
- Crushing of hair bulbs
- Margins are irregular
- Margins are inverted (by hand lens)

**2) OVER STRETCHING:****Causes, effects, relationship:**

Angular impact with localized pressure in the form of pull or push.

**FEATURES:**

- Flapping of skin
- Bruising of the point of max pressure e.g. compound fractures and road side accidents.

**3) GRINDING COMPRESSION:****Cause, effect, relationship:**

Localized pressure causing tearing and separation of skin from the underlying tissues which are crushed

**FEATURES:**

- Incomplete tearing
- Less external hemorrhage
- Raised injured areas
- Pockets of fat and blood e.g. crushing by hard objects, run over by wheels of heavy vehicle, collapsing buildings.

**4) CUT LACERATION:****Cause, effect, relationship:**

Caused by heavy edges weapons e.g. hatched, chopper, axe.

**FEATURES:**

- Skin is cut
- Bruising at the edges
- Hair are pushed into the wounds
- Underlying bone may be involved
- Injuries give the clue of weapon.

**Supply 2013**

**Question no 28: How ligature marks due to hanging and strangulation can be differ at autopsy?**

**Answer:****DIFFERENCE BETWEEN HANGING AND STRANGULATION:**

	<b>HANGING</b>	<b>STRANGULATION</b>
1	The ligature is found above the thyroid cartilage and is incomplete. It is directed obliquely upwards with a gap indicating the position of knot. at the place of knot in the gap, there is no damage to the skin.	Ligature horizontally encircles the neck below thyroid cartilage. Skin always found damaged underneath.
2	Abrasions and bruises are rarely present around the ligature mark.	Here these are commonly found
3	Dissection of ligature mark reveals a dry n glistening white band of sub cutaneous areolar tissue	Ecchymosed subcutaneous areolar tissue is found on dissection of the ligature mark.
4	Neck usually stretched	Not stretched
5	Fracture of hyoid bone is rare	This is common in throttling
6	Fracture of larynx and trachea are rare	common
7	Carotid arteries are injured only in long drop cases	common
8	Neck muscles are rarely injured	Commonly injured
9	Fracture dislocation of cervical vertebrae are common	Rare
10	Saliva marks running out of the angle of mouth vertically downward along the neck and the front of chest and abdomen	Saliva does not run, but if it does, it is tingled with blood

11	External signs of asphyxia are not well. Marked when death is due to any cause other than asphyxia	External signs of asphyxia are well marked because of considerable violence that is common.
12	Face is usually pale	Face is congested and marked with petechiae
13	Bleeding from nose, mouth and ears is very rare.	Bleeding is common
14	Emphysematous patches on the lungs are not common	Common.

**Supply 2014****Question no 29: what are autopsy findings in death due to garroting?****Answer:****GARROTING:**

Constriction of neck by ligature, that the constricting force being applied directly to the ligature is called Garroting.

**AUTOPSY FINDINGS:****Nonspecific findings:**

- Cyanosis
- Congestion
- Edema
- Petechial hemorrhages
- Fluidity of blood

**Specific findings:****On external Examination:**

- Signs of struggle will be evident
- Fingernails abrasion on the neck to relieve constriction will be present.
- Ligature marks around wrists and ankles may be present
- Other associated injuries like bruises and abrasions may be present on various body parts

- **LIGATURE MARK:**

A ligature mark is seen around the neck as a groove or depression.

**Color:** in early period after death, it appears pale. Later on yellowish brown to dark brown, dry, parchment like

**Site:** at or below the thyroid cartilage.

**Course:** horizontally encircles the neck

**Character:** depends upon

- 1) nature of ligature

- 2) number of turns around the neck
- 3) time for which the ligature remains applied
- 4) other findings: damage to the skin beneath the ligature.

**On internal Examination:**

- Subcutaneous areolar tissue is ecchymosed under the ligature mark
- The neck muscles, laryngeal cartilage, tracheal ring and carotid arteries are found injured
- The fracture of thyroid cartilage is vertical in direction when present
- The fracture of hyoid is uncommon but when present, it shows considerable force is applied
- Other body viscera shows signs of congestion.

**Solved by Iqra Anwer**  
**Co-ordinator @Med-com**  
**From QAMC**

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**Med-Com**  
(Session 2011-16)



## **FORENSIC AUTOPSY, EXHEUMATION & FORENSIC SCIENCES**

**Supply 2003**

**Question no 1: Classify autopsy. What is negative autopsy?**

**Answer:**

1. Medical autopsy
2. Medicolegal autopsy
3. Post mortem or Mini autopsy
4. Anatomical autopsy
5. Virtual autopsy
6. Negative autopsy
7. Psychological autopsy

**Negative autopsy:**

"The autopsy in which all efforts including Gross, Microscopic and Toxicological analysis fails to reveal the cause of death is called negative autopsy"

Incidence of negative autopsy in best courts of autopsy is 2-10%. In practical 10-20% or 10-25%.

Causes of negative autopsy:

- inadequate history
- lack of training
- lapses in external examination
- improper internal examination
- insufficient lab examination
- obscure trauma
- trauma at concealed sites

**Annual 2009**

**Question no 2: A male victim of physical violence was brought to the emergency department of a hospital despite enthusiastic**

**resuscitative measures he died. List at least five artefacts expected to be present at autopsy examination.**

**Ans:**

**Resuscitation Artefacts:**

- 1) Injection marks:  
Intra cardiac injection associated with bruising of heart and collection of blood in the pericardium.
- 2) Cardiac massage:  
Fracture of ribs, fat and bone marrow embolism during cardiac massage.
- 3) Defibrillator Application:  
Ring shaped bruise due to defibrillator.
- 4) Positive pressure breathing apparatus:
- 5) Acute emphysema and Air in mediastinum during application of positive pressure breathing.

**Supply 2009, Annual 2011**

**Question no 3: what is negative autopsy? What are the conditions conducive for negative autopsy?**

**Answer:**

**Negative autopsy:** "The autopsy in which all efforts including Gross, Microscopic and Toxicological analysis fails to reveal the cause of death is called negative autopsy"

**Conditions:**

- 1) **Lapses in history of case :** Commencing autopsy without sufficient history may result in losing findings
- 2) **Lapses in internal Examination:** May result in losing following lesions needle mark, snake bite mark on sole, injuries in fontanelles, inside the oral or nasal sinuses
- 3) **Lapses in external examination:** In case of air embolism right ventricle should be open under water to see air bubbles. Death due to pneumothorax , in such cases lung cavity should be opened under water
- 4) **Lapses in Histological Examination:** if proper specimen is not sent, or proper part of specimen is not sent, or if has not examine the proper section suspected to have details, or specimen is taken from putrefied body, or specimen is not preserved properly.
- 5) **Lapses in toxicological Examination :**
  - 1) Specimen is not proper
  - 2) Specimen is not in adequate quantity

- 3) Specimen is not properly preserved
- 4) Specimen is not collected in a proper way and can lead to negative result ie. Volatile and vegetable poisons

**6) Lapse in Medical person:** Medical man has deficient knowledge or he lacks skill and practice

## Annual 2010

**Question no 4: A doctor was appointed in forensic medicine department of a teaching hospital he was cautious of various hazards at work**

- a) Enumerate various hazard one can come across in autopsy room
- b) How one can protect oneself from being infected while conducting autopsy.

**Answer:**

**a) Hazards:**

### **1) Mechanical Hazards:**

- By falling slippery floor
- Injuries to hand by sharp instrument , needle prick & burn hot
- Injuries to back from carrying heavy corpse
- Injuries to eyes corneal ulceration from bone dust from bone sawing

### **2) Biological Hazards:**

- Bacterial infection –from septicemia and pyemic dead body & from specific infection like T.B. ,leprosy, Anthrax
- Viral infection – Hepatitis & AIDS
- Fungal Infections

### **3) Chemical Hazards:**

- Antiseptics And disinfectant
- Fixatives - live skin can be fixed if stays in contact with fixative for more than 15 minutes

**4) Electrical Hazards:** Electrical burns due to faulty appliances, metallic autopsy table & wet floor.

**5) Radiation:** Electromagnetic and Ionizing radiation.

**Protection:**

- Hair covers, masks, goggles, splash suits (including head covers, shirts, pants, shoe covers) are to be worn before autopsy and disposed of after completion.
- Doctor should wear double gloves before autopsy, after completion remove outer gloves first and check for any tear, or staining and then remove inner gloves and discard. If there is any cut or tear in gloves then inspect hands and immediately move to emergency if it is present
- No tissue jar or specimen should be handled after removing gloves.
- Autopsy Room should be well ventilated and air is properly disinfected.

**Annual 2012**

**Question no 5: Make a brief description of external examination of a dead body during autopsy?**

**Answer:**

- Information about general health e.g. height, weight, sex, age, color of skin, body build
- Information about visible changes after death
- External evidence of injuries e.g. nature, type, site, number
- External evidence of therapy e.g. surgical sutures, needle marks
- Thorough examination of natural orifices e.g. vagina, anus, nose, mouth, ear
- Collecting data indicative of time since death
- Obtaining evidence material
- Ascertaining probable cause of death

**Supply 2011 & 2012**

**Question no 6: Enumerate hazards to which a pathologist is exposed while doing autopsy****Answer:****a) Hazards:****1) Mechanical Hazards:**

- By falling slippery floor
- Injuries to hand by sharp instrument , needle prick & burn hot
- Injuries to back from carrying heavy corpse
- Injuries to eyes corneal ulceration from bone dust from bone sawing

**2) Biological Hazards:**

- Bacterial infection –from septicemia and pyemic dead body & from specific infection like T.B. ,leprosy, Anthrax
- Viral infection – Hepatitis & AIDS
- Fungal Infections

**3) Chemical Hazards:**

- Antiseptics And disinfectant
- Fixatives - live skin can be fixed if stays in contact with fixative for more than 15 minutes

**4) Electrical Hazards:** Electrical burns due to faulty appliances, metallic autopsy table & wet floor.

**5) Radiation:** Electromagnetic and Ionizing radiation

**Supply 2013****Question no 7: Breifly describe the procedure of exhumation and autopsy?****Answer:****Exhumation:**

- Necessary preparation with the help of grave yard authorities
- Identification of grave by care taker of graveyard, grave digger, relatives or friends present at time of burial
- Magistrate orders for exhumation, digging is started and the grave is left open for a while for foul gases to escape.
- Removal of dead body from the grave & its identification, shifted to autopsy table and examination is started.
- The medical officer should stand at wind side of the body to avoid inhalation of gases
- Collection of the samples of the earth in cases of suspected poisoning:
  - earth samples from above, below and sides of body
  - head hair, pubis hair, nails, teeth and bones.
  - viscera or material from soft tissue.

### **Autopsy examination**

- External examination
- Internal examination
- Look for fracture of skull, ribs & hyoid bone
- Collection of viscera for chemical examination
- If not available collect homogeneous sample from body cavities
- Hairs ,nails, teeth, skin if present can be collected
- autopsy report must be prepared
- no specimen for bacteriologist

### **Autopsy:**

- Examination of clothes
- External examination :

Changes after death, injuries , puncture or needle mark, natural orifices , general built and health

- Opening of body cavities, Cranial→ Thoracic→ Abdominal
- Examination of viscera
- Collection of viscera
- Stitching of dead body and hand over to police along with documents , clothes and Viscera in case of suspicion of poisoning

### **Annual 2007:**

### **Question no 7:**

**Enlist three types of autopsy. What are the objectives of performing a medicolegal autopsy?**

**Answer:**

Types of autopsy:

1. Medical autopsy
2. Medicolegal autopsy
3. Psychological autopsy

Objectives of medicolegal autopsy:

1. To determine the identity of a person
2. To determine the cause of death
3. To determine the manner of death
4. To collect the trace evidence
5. To identify the weapon, person or poison responsible for death
6. To determine the violent activity possible after trauma
7. To estimate time since death
8. To determine the question of live birth and viability of child
9. To restore the body to best possible cosmetic appearance before it is released to relatives.

**Supply 2013**

**Question no 8:**

**Examining and afterwards dispatching the specimen to concerned laboratory may lead to unrewarding autopsy. Briefly describe the pitfalls in the above mentioned procedures which can lead to such results.**

**Answer:**

Causes of negative autopsy:

**1. Commencement of autopsy without proper history:**

- Anaphylactic shock
- Pneumothorax
- Epilepsy
- Vagal inhibition

**2. Lack of training of medical officer:**

- Ischemic heart disease
- Coronary spasm
- Distal coronary artery occlusion

**3. Lapses in external examination:**

- Electrocution
- Intracardiac injection
- Drug addiction

**4. Improper internal examination:**

- Air embolism
- Pneumothorax
- Coronary spasm

**5. Improper and insufficient histological examination:**

- Histological
- Analytical
- Toxicological

**6. Obscure or insignificant trauma or disease:**

- Concussion
- Fat and air embolism

**7. Trauma at concealed sites:**

- Firearm injuries
- Atlanto-occipital joint dislocation

**8. Decomposition of the dead body**

Annual 2013

Question no 9:

**Autopsy is a dialogue with dead. Comment.**

**Answer:**

- Autopsy literally means to see for oneself
- Autopsy means detailed scrutiny of both external surface and internal contents of body after opening its cavities including further examinations such as histology, biochemistry, and toxicology of collected material.

**TYPES OF AUTOPSY:**

1. Medical autopsy



2. Medicolegal autopsy
3. Postmortem autopsy
4. Psychological autopsy
5. Anatomical autopsy
6. Virtual autopsy
7. Negative autopsy

**Medicolegal autopsy:** is performed in pursuance of law to establish the cause and manner of death and also to establish or rule out foul play.

### Objective

1. To determine the identity of a person
2. To determine the cause of death
3. To determine the manner of death
4. To collect the trace evidence
5. To identify the weapon, person or poison responsible for death
6. To determine the violent activity possible after trauma
7. To estimate time since death
8. To determine the question of live birth and viability of child

### Stages of autopsy examination:

1. Physical examination of clothes and collection of evidence in them
2. Physical examination of body surfaces and collection of any evidence during it
3. Opening of body cavities
4. Scrutiny of internal contents of cavities and vital systems
5. Collection of specimens
6. Closure of body

**Solved by Zainub Arif**  
**Co-ordinator @Med-com**  
**From Fatima Memorial college, Lhr**

**Solved by Hafsa Faiz**  
**Co-ordinator @Med-com**  
**From PMC**

## **GENERAL TOXICOLOGY**

**Supply 2003**

**Question no 1: write short on Universal Antidote**

**Answer:**

**Definition:**

It is an antidote that is used in those cases where the nature of ingested poisons is unknown or where it is suspected that a combination of two or more poisons has been taken.

Constituents	Quantity	Purpose
Powdered charcoal	2 parts	adsorbs alkaloids
Magnesium oxide	1 parts	neutralizes acids
Tannic acid	1 parts	precipitates alkaloids certain glucosides and many metals

**DOSE:**

A tablespoonful stirred up in a tumberful (200 ml) of water and may be repeated once or twice.

**Supply 2003**

**Question no 2: What are the factors which modify the effect of poison on human body?**

**Answer:** Answered in supply 2013 below

**Annual 2004**

**Question no3: Write short on Automatism**

**Answer:**

The person forgets that he has taken drug and he takes another drug that produces toxicity.

**For example:** barbiturate poisoning

**Supply 2004**

**Question no 4: Write a short note On Hazards of stomach wash**

**Answer:**

1. May be perforation of the stomach
2. Perforation may leads to peritonitis
3. If operator is unskilled the tube may enter in trachea and this may lead to respiratory infection
4. When large amount of fluid is used the poison may sweep from the stomach to intestine
5. Body temperature may be lowered rapidly especially in children
6. Injury to mouth by mouth gag

**Annual 2005**

**Question no 4: Give the Indications, Contraindications, & Hazards for performing Gastric Lavage?**

**Answer:**

**Indications:**

1. Within 4-6 hours after ingestion of poison.
2. Where emesis is contraindicated
3. Baby less than 6 months
4. Patient of aspirin poisoning( may effective after 12 hours also)

**Hazards:**

7. May be perforation of the stomach
8. Perforation may leads to peritonitis
9. If operator is unskilled the tube may enter in trachea and this may lead to respiratory infection
10. When large amount of fluid is used the poison may sweep from the stomach to intestine
11. Body temperature may be lowered rapidly especially in children
12. Injury to mouth by mouth gag

**Contraindications:**

1. In corrosive poisoning except carbolic acid for the fear of rupture of stomach
2. In strychnine poisoning as convulsions may be induced.
3. In kerosene or volatile liquids poisoning as there is high risk of aspiration into air passages.
4. Coma
5. hypothermia

**Annual 2007**

**Question no 5: What are the factors which modify the effect of poison on human body?**

**Answer:** Answered in supply 2013 below

**Annual 2008**

**Question no 6: How are ingested/unabsorbed poisons removed from body?**

**Answer:**

The object is to remove from the stomach as soon and as much of the poison as possible. For this purpose

1. Vomiting(**emesis**) may be induced
2. Stomach washed out(**gastric lavage**)

If patient is conscious and cooperative and vomiting is not contraindicated it should be induced either by tickling the fauces or by the use of emetics. Household emetics such as warm water, one tablespoonful of mustard powder (15 gms) or two tablespoonful of common salt in a tumblerful (200 ml) of tepid water, readily available and may be used in emergency.

Gastric lavage, if not contraindicated may be lifesaving if undertaken within about four to six hours after the ingestion of poison. It is contraindicated mainly in corrosive poisoning except carbolic acid for fear of rupture of stomach.

**3. Decontamination**

Some poisons are absorbed through skin.in these cases remove the clothes and wash the skin to reduce the absorption of poison.

**(IF FOOD IS ABSORBED THAN THESE MECHANISMS)**

**Accelerated elimination of poisons**

- A. Forced diuresis
- B. Peritoneal dialysis

**C. Hemodialysis****D. Charcol hemoperfusion****❖ Forced diuresis:**

The manipulation of pH can enhance renal excretion of drugs. The rate of drug diffusing back from renal tubules will decrease when drug is maximally ionized. The ionization of weak acid is achieved by alkaline urine & weak base by acidic urine. In this way salicylates & phenobarbitones can be more easily excreted at the pH 7.5-8.5.

Whereas amphetamine & quinine can be more easily excreted in acidic pH.

Acidification of urine can be achieved by ammonium chloride, arginine, lysine whereas alkalization can be achieved by sodium bicarbonate.

**❖ Peritoneal dialysis:**

It is the easiest and least risky method for complications. The procedure is undertaken by inserting a tube through a small cut made through mid-abdominal area into peritoneum. Through this tube dialysis fluid is injected into peritoneal cavity. The peritoneal membrane acts as a semipermeable membrane. In this procedure dialysis fluid will diffuse from blood across peritoneal membrane into dialyzing fluid.

The following poisons are effectively removed by this method:

Alcohol. Long acting barbiturates, chloral hydrate, lithium, salicylates, sodium chlorate

**❖ Hemodialysis:**

It is more effective than above 2 but difficult techniques. Principle is same as peritoneal dialysis. This procedure is effective when kidneys are non-functioning or diseased.

It is effective for alcohol, glycol, and barbiturates, chlorides, salicylates, sodium chlorate.

**❖ Charcol hemoperfusion**

It is well known for absorbing chemicals but side effects are trapping platelets, WBCs, blood coagulation factors like fibrinogen. Problems were overcome by coating charcol with polymers and one of the best is **acrylic hydrogel**.

The drugs actively adsorbed by active charcol are

Barbiturates, salicylates & other sedatives

**Annual 2009****Question no 7: List types of ANTIDOTES****Answer:**

1. Mechanical or physical antidote
  - a. Demulcent
  - b. Bulky food
  - c. Charcoal
2. Universal antidote  
Activated charcoal
3. Dispositional antidote  
N acetylcystine for aminophen
4. Chemical antidote  
Lime,  $\text{MgSO}_4$ ,  $\text{CaSO}_4$ ,  $\text{KMnO}_4$ ,  $\text{MgO}_2$
5. Functional antidote  
cholralhydrate for strychnine poisoning
6. Receptor antidote  
Naloxone with morphine  
Atropine with physostigmine
7. Pharmacological or physiological antidote or chelating agent  
B.A.L (British anti lewisite)  
Pencillamine, EDTA, Defroxamine
8. Household antidote  
Starch for iodine  
Strong tea for alkaloids and metallic poisons  
Milk and raw egg for Hg, arsenic

**Annual 2009****Question no 8: Write mechanism of action and use of chelators****Answer:**

Chelation is the formalton of metal ion complex in which metal ion is associated with charged or uncharged electron donor types of chelating agents:

1. Dimercaprol BAL
2. Calcium diphosphate edate (EDTA)
3. Defroxamine
4. Penicillamine

**Dimercaprol BAL:**

Metal ions such as arsenic & mercury combined with SH group in an enzyme system to cause their toxic effect. Dimercaprol contains two acid groups serve as metal ion acceptor to prevent or reverse the combination. The compounds formed by heavy metals and dimercaprol are excreted without causing damage

**Dose of Dimercaprol:** 3 mg/kg body weight

4 hourly first two days

6 hourly on third day

12 hourly on next ten days

### **Calcium diethylenetriamine (EDTA):**

Is used in chelation of lead, iron, zinc, manganese and copper but its specific antidote of lead poisoning.

**Dose:** 15-20 mg/kg in 250-500 ml of 5% dextrose in 1-2 hours twice daily

### **Deferoxamine:**

It has specific ability to chelate iron, so it is useful in treatment of acute iron intoxication. With iron, deferoxamine water soluble compounds are formed which is excreted in urine

**Dose:** 0.5-1 g, I/M initially

0.25-5.0 gm 4 hourly

### **Penicillamine:**

It's useful for removing copper, lead & mercury.

**Dose:** 100 mg/kg/day in divided doses

Poisons	Chelators
Arsenic	BAL, EDTA
Mercury, Lead	EDTA, Calcium diethyl tetra acetate
Mercury, Lead, copper	N-penicillamine
Iron	Deferoxamine

**Supply 2009**

**Question no 9: A case of suspected poisoning is brought in accident emergency department of hospital. What are the legal duties of attending causality MO?**

**Answer:**

1. Record the name, age, sex, occupation, address, date, time and two identification marks.
2. In case of homicidal poisoning inform the police
3. Arrange for dying )
4. If death is not immediate then arrange for dying deposition.
5. Collect and preserve properly in a separate containers the followings
  - ✓ Stomach wash
  - ✓ Vomitus
  - ✓ Urine
  - ✓ Blood
6. Collects the evidences of the patients
  - Utensils used for preparation of poison
  - Bottle or container of poisonous food or drink
  - Clothes or bed sheet sailed with vomitus, urine or other things
7. If death occurs, death certificate should not be issued but fact of death must be conveyed to police.
8. If death occurs send for post mortem examination and collects all viscera
9. If there is food poisoning send food to chemical examiner for examination.

**Annual 2010**

**Question no 10: Write short note on TOXICITY RATING SCALE.**

**Answer:**

Rating	Dose	Probable oral dose for average 150 lb. adult
non toxic	>15g/kg body weight	>1 quart
Slightly toxic	5-15g/kg	1 pint-1 quart
Moderately toxic	0.5-5g/ kg	1 oz-1 pint
Very toxic	50-500mg/kg	1TSF- 1oz
Extremely toxic	5-50 mg/kg	7 drops- 1TSF
Super toxic	<5 mg/kg	<7 drops



**Annual 2010****Question no 11: Write short note on Activated charcoal****Answer:**

It is prepared by heating wood pulp at 900 degree centigrade then made activated by passing over steam or on an acid. 1gm has area 1000 m Sq

**Mode of Action:**

In stomach and intestine poison diffuses through numerous pores on charcoal surface and from tight chemical bond. This charcoal chemical complex passes out of body. It is effective in all types of alkaloids but not effective in acids, alkalies, cyanide, iron and other poisons which are water soluble and not effective when bowel sound absent.

**Dose:**

30 mg in children and 60 mg in adult.

**Annual 2011****Question no 12: Define antidotes****Answer:**

Antidotes are remedies which counteract or neutralize the effect of poisons without causing appreciable harm to body. They need to be used because

1. The poison may not have been completely removed by emesis or gastric lavage or these procedure are contraindicated
2. The poison is already absorbed
3. The poison has been administered by route other than ingestion.

**Annual 2011****Question no 13: What are various types of antidotes, explain each with examples?**

**Answer:** already answered

**Supply 2011****Question no 14:**

- a) Name different types of antidotes
- b) What is dispositional antidote?
- c) What are the disadvantages & limitations of activated charcoal?

**Answer:**

- a) Already answered

**b)** It involves the alteration of a poison's absorption, metabolism, distribution or excretion to reduce the amount available to tissues e.g., when acid aminophene is taken in overdose is metabolized in toxic metabolites which cause hepatotoxicity. Glutathione prevents its toxicity but due to overdose its depleted. so to treat this N-acetylcysteine. it enhances ability of glutathione & decrease toxicity by binding acidominphen's metabolites.

**c) Limitations:**

Charcol doesn't bind iron, lithium or potassium, but poorly does bond alcohol & cyanides.

It doesn't appear to be useful in poisoning due to corrosives, alkaline & acidic substances, boric acid, ethanol, methyl carbonate or tolbutmine.

**Disadvantages:**

Activated charcol appears to be relatively safe but consumption or mechanical bowel obstruction may accompany repeated use.

Aspiration of charcol into lungs can cause hypoxia through obstructive & arteriovenous shunting.

**Annual 2012**

**Question no 15: A person tried to commit suicide by ingesting a poison. He was rushed to the hospital where the duty doctor tried to remove still unabsorbed poison. Briefly describe the rationale, procedure, and contraindications of gastric lavage.**

**Answer:**

**RATIONALE:**

1. When emesis is contraindicated
2. Within 4 to 8 hours after ingestion of poison.
3. When quick removal is required.

**PROCEDURE:**

❖ **In adults:**

1. The patient should be prone or semi-prone on his side with hips higher than his head, as this will aid respiratory drainage and also prevent regurgitated material from entering the respiratory tract.
2. The airway must be clear and a mouth gag with a central hole is necessary especially in unconscious patients to prevent the rubber tube being bitten off by the teeth.

3. A stomach tube (flexible rubber tube about 12.7mm in ext. diameter and about 1.5m in length provided with filter funnel at upper end while lower end is blunt and rounded to avoid any injury when it is being passed and perforated by more than one opening on its sides to allow the administered fluid to enter the stomach easily.
4. Stomach tube is passed through mouth gag over the tongue into esophagus and is inserted up to 50 cm mark on tube as distance between lips and cardiac end of stomach is 45cm.
5. The lower end of tube should be lubricated with liquid paraffin, glycerin, milk or some other substances.
6. At about mark the tube should be lying in stomach of adult which can be confirmed by forcing little air through the tube and bubbling sounds can be heard by stethoscope over the epigastric region. If tube has entered the trachea a hissing noise is heard at the funnel end and in conscious patients reflex coughing will occur.
7. After confirmation about quarter litre of plain warm water (35 degree centigrade) is run into the funnel which is held above the level of the patients mouth. The fluid enters the stomach by gravity. The funnel is then lowered below the level of patient stomach to allow the gastric contents to siphon off.
8. Subsequent washings are done with half litre of liquid.
9. Process is repeated either with warm water or other fluid containing an appropriate antidote until the returning fluid is of same color and character as the lavage fluid.
10. When poison has been removed a small quantity of antidote or some suitable solution may left in stomach to deal with effects of part of poison that either escaped in lavage or later on excreted in stomach. These solutions may be

**MgSO<sub>4</sub> or NaSO<sub>4</sub>** → to ensure purgation of any poison that has passed the intestine

**NaHCO<sub>3</sub>** → To counteract irritation in aspirin poisoning

**Activated charcoal** → to adsorb alkaloids

**Liquid paraffin** → as a demulcent fluid

11. Before tube is withdrawn it must be pinched to prevent aspiration of material into lungs.

**In children:**

1. Ryle's tube or a number 8 to 12 French rubber catheter is used
2. Catheter is passed through nose or mouth into stomach with usual precautions
3. Stomach washing is done using a 50 ml glass syringe

**Contraindications:**

6. In corrosive poisoning except carbolic acid for the fear of rupture of stomach
7. In strychnine poisoning as convulsions may be induced.
8. In kerosene or volatile liquids poisoning as there is high risk of aspiration into air passages.
9. Coma
10. Hypothermia

**Annual 2013**

**Question no 16: What is activated charcoal? How it is commercially prepared? What is its therapeutic use, MOA, dose regimen?**

**Answer:****Activated Charcol:**

Activated carbon, also called activated charcoal, activated coal, or carob activates, is a form of carbon processed to have small, low-volume pores that increase the surface area available for adsorption or chemical reactions

**Preparations:**

Charcol is activated by oxidizing gas following at high temperature (700-800 °C) to create a network of (10-20 nm) pores to give it an enormous surface area in relation to weight (100m<sup>2</sup> /g) adsorbed activity is increased by activation.

**MOA:**

In stomach and intestine poison diffuses through numerous pores on charcoal surface and from tight chemical bond. This charcoal chemical complex passes out of body. It is effective in all types of alkaloids but not effective in acids, alkalies, cyanide, iron and other poisons which are water soluble and not effective when bowel sound absent.

**Therapeutic use:**

It is used as universal antidote.

It is used in hemoperfusion method

**Dose regimen:**

50-100g for adults

15-20g for children

And should be given by nasogastric tube

**Supply 2013**

**Question no 17: Write a brief note on any five factors modifying the significance of dose of poison?**

**Answer:**

These are:

1. Dose or quantity
2. Form of poison
3. Method of administration
4. Condition of the body
5. Condition of stomach

❖ **Dose or Quantity**

As general rule small doses produce therapeutic action large doses produce toxic effects. However there are certain exceptions to this rule

1. Some individuals have an **idiosyncrasy (inherent tolerance)** towards certain drugs and foods resulting in intense symptoms. Example is morphine, cocaine, quinine, aspirin and certain articles of food mushrooms, eggs, milk, shell-fish.
2. Some individuals are **allergic** towards certain drugs. Allergy means hypersensitivity acquired as a result of previous administration of toxic agents or induced by simultaneous presence of another poison. E.g. penicillin
3. **Habit** diminishes the effect of certain poisons since a tolerance towards them is gradually developed. E.g. alcohol, opioids, pethidine and tobacco
4. Two poisons for example alcohol and barbiturates in nontoxic doses administered simultaneously may causes toxic symptoms due to **synergism** which means that final response is greater than the sum of their individual actions.

5. If a poison exerts an **emetic effect**, a large dose may induce violent vomiting and mitigate the evil effects of a poison. Occasionally, a large dose acts differently from a small dose of the same poison. As for example, a large dose of arsenic may produce death by shock while a small dose results in gastrointestinal irritation.
6. Some poisons such as arsenic, mercury. Lead barbiturates, digitalis and carbon monoxide are eliminated slowly and may accumulate in the body (**cumulative poisons**). Their repeated administration even in small doses may result in chronic poisoning

❖ **Form of poison:**

The important factors to be considered are:

- (1) Physical state
- (2) Chemical combination
- (3) Mechanical combination

**(1) Physical state:** Gases and vapors act more rapidly than fluid poisons. Fluid poisons act more rapidly than solid ones, of which fine powders act more quickly than coarse ones synthetically coated pills soluble in the alkaline contents of the small intestine might have their action delayed for several hours.

**(2) Chemical combination:** The toxic effects of substances may vary greatly from chemical combination. Some substances become inert, e.g. acids with alkalis and strychnine with tannic acid some substances become poisonous, such as lead carbonate and copper arsenite which are insoluble in water but are rendered sufficiently soluble by the hydrochloric acid in the stomach to make her poisonous effects felt. Some substances such as alcohol and barbiturate. in non-toxic doses may prove toxic due to synergism.

**(3) Mechanical combination:**

The action of a poison is considerably altered when combined mechanically with inert substances. Alkaloid's when taken with animal charcoal fail to act. Corrosive acids or concentrated alkalis, when sufficiently diluted with water, act as irritants.

❖ **Method of administration**

A poison acts most rapidly when inhaled in gaseous or vaporous form or when injected intravenously; when injected intramuscularly or subcutaneously, and least rapidly when swallowed. There is further slowing of action if the substance ingested is partly soluble, or the stomach is

full. There is still further slowing of action if the poison is applied to unbroken skin. Certain poisons act differently when they are introduced through different routes. Snake venom is highly toxic when injected but is harmless when ingested. Cocaine acts as a local anaesthetic when injected and as a deliriant and convulsant when ingested.

❖ **Condition of the body**

The important factors to be considered are:

**1) Age**

Poisons have greater effect at the two extremes of age.

**2) State of health:**

Persons in poor health are more susceptible to poisons, e.g. a 30% concentration of carbon monoxide in blood may kill a person suffering from coronary heart disease. In certain diseases, the tolerance of the body to certain drugs is increased, for example, hypnotics and opiates in mania delirium and strychnine in or tremens, and strychnine in paralysis

**3) Sleep and intoxication:**

The bodily functions are at low metabolic level during sleep and intoxication. The action of a poison is delayed if a person goes to sleep after taking it or if a person is intoxicated when he takes a poison

❖ **Condition of stomach**

If stomach is full with food action of poison is slow.

**Solved by Areeza Rana**

**Co-ordinator @Med-com**

**From Fatima Memorial college, Lhr**

Med-Com  
(Session 2011-16)

## **SPECIAL TOXICOLOGY**

**Supply 2003**

**Question no 1: Enumerate Signs & Symptoms of Acute Opium Poisoning.**

**Write Autopsy Findings in such case?**

**Answer:**

**Signs & Symptoms of Acute Opium Poisoning**

**A) Mild cases**

- 1) Euphoria
- 2) Hallucinations (especially with pentazocine)
- 3) Tachycardia
- 4) Vomiting
- 5) Lethargy
- 6) Constricted pupils (due to stimulation of 3rd nerve nucleus)
- 7) Constipation

**B) Severe cases**

1. Stupor (progression to coma)
2. Relaxation of muscles
3. Reflexes are abolished
4. Hypotension, weak thready pulse
5. Cold, clammy skin (hypothermia with increased sweating)
6. Respiratory depression, slow sighing breaths. 2 to 4 breaths per minute (CHEYNE STOKES BREATHING)
7. Sudden severe pulmonary edema with copious frothing from the mouth
8. Cyanosis of extremities
9. Pinpoint pupils (may dilate in terminal stage)
10. Death due to respiratory failure may be preceded by convulsions.

**AUTOPSY FINDINGS**

**EXTERNAL:**

1. Smell of opium present.
2. Face deeply cyanosed, almost black



3. Fingernails blue.
4. Neck veins engorged and distended
5. Postmortem lividity is almost black better seen in fair skinned body
6. Froth at the nose but not so copious nor so fine as in drowning.
7. Look for injection marks on arms, elbow, forearm, neck etc.
8. Tattoo marks (commonly indulged in by drug users)

**INTERNALLY:**

1. stomach may show the presence of soft, brownish lumps of opium
2. Trachea, bronchi, lungs, brain exhibit marked degree of venous congestion.
3. Trachea bronchi covered with froth and lungs are edematous
4. Blood is usually dark and fluid.
5. In case of suspended opium poisoning blood ,brain and bile should be preserved in addition to routine viscera.

**Supply 2003****Question no 2: Write note On**

- a) Macewan Sign
- b) Phossy Jaw
- c) Sui Poisoning

**Answer:****a) Macewan Sign:**

"Pinching the skin of face or neck dilates the constricted pupil of alcoholic coma momentarily and which slowly return to their original use. It is helpful to differentiate alcoholic coma from other comatose conditions."

**b) Phossy Jaw**

**"Osteomyelitis of Jaw bone with multiple sinuses discharging foul smelling pus"**

Manifestation of chronic phosphorus poisoning, frequent inhalation of phosphorus fumes over a period of years. Lower jaw commonly affected in region of decayed tooth where

1. first symptom is toothache
2. swelling of jaw

3. loosening of teeth
4. necrosis of gums
5. sequestration of bone in the mandible

Constitutional symptoms are common such as

Weakness, headache. Weight loss, anemia, jaundice, pain in joints

### c) Sui Poisoning

**Abrus precatorius** is used to poison cattle's by sui.

SUIS are the fine needles prepared by decortivating seeds of ABRUS PRECATORIUS and powdering them, followed by mixing the powder with opium, onion, dhaturas and spirit or water to make into a paste, and the paste shaped into small sharp needles, which are allowed to harden by drying in the sun. Needles are 15 mm long and weigh about 90 to 120 mg. Two or three of them are fitted to the holes made in a small wooden stick with which blow is struck to the animal. This results in a local lesion characterized by edema, necrosis and oozing of hemorrhagic fluid from puncture site. The animal becomes apathetic and drowsy. It is disinclined to take food. In three or four days it is unable to move, drops down becomes comatose and dies. Convulsions may precede death. The symptoms resemble those of viper snake bite for which they may be mistaken. *abrus precatorius* is used to poison cattle's by sui.

### Annual 2004

#### Question no 3: Atropinazation in Acute Organophosphate Insecticide Poisoning?

##### Answer:

In acute organophosphate poisoning, atropine is used as an antidote to block the muscarinic actions of excessive acetylcholine levels built up by cholinesterase inhibitors but central and neuromuscular reactions are unaffected. It controls excessive salivation, bronchial secretions, sweating, abdominal pain, vomiting and bradycardia. It is administered in a dose of 2 mg every 15 to 30 minutes I/M OR I/V till signs of atropinazation appear (flushed face, dry mouth, dilated pupil, fast pulse and warm skin). As much as 12 mg of atropine has been given safely in first 2 hours.

### Annual 2004

#### Question no 4: Write a note on PARAQUAT NOTE :

**Answer:****PARAQUAT**

It is a herbicide that is sprayed on unwanted weeds and other vegetation before planting crops.

It is absorbed by foliage and rapidly kills plants but is inactivated when in contact with the soil. It is produced commercially as a brownish concentrated liquid of dichloride salt in 10 -30 % strength under trade name GRAMOXONE and for horticultural use as brown granules called WEEDOL at about 5 %concentration.

**Toxicity**

- Mainly by ingestion
- Occasionally by inhalation while spraying
- Accidental deaths are due to decanting of concentrate from the original containers.

**Symptoms & Signs:**

- Concentrated paraquat is irritant to all epithelial tissues.
- Lips, mouth, pharynx and oesophagus are superficially eroded, followed by blood stained and vomiting and bloody stools.
- Lungs are mainly affected by direct aspiration either during swallowing or vomiting.it undergoes a centrilobular necrosis with giant mitochondria and crystalline inclusion bodies seen on electron microscopy.
- Renal failure may develop within two or three days from diffuse tubular damage.
- Myofibril fragmentation may occur.

**Fatal Dose & Fatal Period:**

5 ml of GRAMOXONE or 1 to 2 gm of WEEDOL are usually fatal.

Death occurs rapidly due to hepatorenal failure.

Delayed death within about two weeks is due to progressive lung damage, where it causes fibrosing alveolitis and rigid stiff lungs **(ADULT**

**RESPIRATORY DISTRESS SYNDROME)****Treatment:**

- Washing of stomach with tap water, brisk saline purgative maybe useful

- Artificial respiration and oxygen may be required
- In serious cases an exchange transfusion may be necessary
- Rest of treatment symptomatic.

**Postmortem Appearances:**

- Ulceration around lips and chin due to dribbled paraquat.
- Mucosa of mouth and esophagus maybe reddened /desquamated.
- Stomach may show erosion and patchy hemorrhages
- Liver may show fatty changes and necrobiosis
- Kidneys may reveal cortical pallor if there is renal failure
- In delayed deaths lungs are large and stiff keeping their shape when removed from chest
- Fibrinous pleurisy
- Bloody pleural effusion

Main appearances are microscopic unless history is known and condition misdiagnosed as bronchopneumonia.

**Viscera to be preserved:**

Blood samples, urine, stomach contents, lungs and liver.

paraquat is excreted over a long period and can be detected in urine at autopsy many days after ingestion.

**Medico legal Importance:**

- Mainly accidental
- suicidal
- Homicide is possible and poisoning may be mistaken for viral pneumonia.

**Annual 2004**

**Question no 5: Classify the corrosives & Describe signs & symptoms, treatment, & specimen of choice for analysis of OXLAIC ACID POISONING.**

**Answer:**

**Classification of Corrosives****A. MINERAL ACIDS**

- Sulphuric acid

- Nitric acid
- Hydrochloric acid

**B. ORGANIC ACIDS**

- Oxalic acid
- Carbolic acid
- Acetic acid
- Salicylic acid

**C. VEGETABLE ACIDS**

- Hydrocyanic acid

**D. ALKALIS**

- Caustic soda and potash
- Ammonium hydroxide

**Clinical Features of OXALIC ACID POISONING**

The severity of symptoms and character depends upon amount and concentration of acid swallowed.

- Initially sour taste in mouth, burning sensation in throat and stomach, vomiting within few minutes. Vomiting is severe, continuous and vomit is black in color "**COFFEE GROUND**" due to altered blood.
- Large doses causes rapid shock and death due to its narcotic action.
- If case of short duration then intestinal tract not affected, but when life is prolonged there is pain and tenderness over the abdomen and purging and tenesmus may appear.
- After absorption of poison signs of collapse and prostration soon appear.
- Numbness and tingling may indicate effects of hypocalcaemia on nervous system. spasmodic twitching of muscles of face and extremities and even convulsions may follow.
- Where death is not rapid, evidence of irritation of kidneys maybe found leading to oliguria and urine contains albumin, blood and large amount of calcium oxalate crystals (oxaluria).

**Treatment of OXALIC ACID POISONING**

**A. Stomach Wash:** neutralization of acid and stomach washed out as rapidly as possible. Since degree of corrosion not as severe as in case of mineral acids, A soft stomach tube can be passed with care and washing of stomach with lime water. Warm water should be avoided as it may dissolve more acid.

**B. Antidote:** Any calcium preparation which can convert poison into insoluble calcium oxalate, The most readily available preparation being CHALK .A suspension of 30 grams of chalk in water or milk will neutralize about twenty grams of oxalic acid. Lime water is useful if at hand. CALCIUM GLUCONATE maybe given by mouth or 10ml 10% solution intravenously. Alkalis, soda, potash or ammonia should be avoided as their oxalates are soluble.

**C. Urinary Output:** urinary output should be checked to detect possibility of renal damage and fluid intake controlled as found necessary.

The rest of treatment is symptomatic.

**Specimen of Choice**

- Stomach wash
- Vomitus
- Urine

**Annual 2004**

**Question No 6: Describe Mode of Action, Clinical Features, Post Mortem findings, Treatment & Specimen of choice in Oxalic Acid Poisoning?**

**Answer:**

**Mode of Action of Oxalic Acid**

Oxalic acid is the corrosive organic acid; one of the most rapid and unerring of all the common poisons, irrespective of the concentration of poison. It has following actions

- **LOCAL:** it exerts a corrosive action on the mucous membranes when given in a strong solution.
- **REMOTE:** it has a strong remote effect on the nervous system after absorption. It combines with serum calcium to form insoluble calcium oxalate. Hypocalcemia leads to violent muscular stimulation with convulsions and collapse.

- Narcotic action: large doses of oxalic acid cause rapid death from shock.
- Nephrotoxic action: There may be oliguria, albuminuria, hematuria and large amount of calcium oxalate crystals in the urine (oxaluria). These crystals have the shape of envelope when seen under a microscope.

### **Clinical features of OXALIC ACID**

#### **Poisoning**

The severity of symptoms and character depends upon amount and concentration of acid swallowed.

- Initially sour taste in mouth, burning sensation in throat and stomach, vomiting within few minutes. Vomiting is severe, continuous and vomit is black in color "**COFFEE GROUND**" due to altered blood.
- Large doses cause rapid shock and death due to its narcotic action.
- 
- If case of short duration then intestinal tract not affected, but when life is prolonged there is pain and tenderness over the abdomen and purging and tenesmus may appear.
- After absorption of poison signs of collapse and prostration soon appear.
- Numbness and tingling may indicate effects of hypocalcaemia on nervous system. Spasmodic twitching of muscles of face and extremities and even convulsions may follow.
- Where death is not rapid, evidence of irritation of kidneys may be found leading to oliguria and urine contains albumin, blood and large amount of calcium oxalate crystals (oxaluria).

#### **Postmortem findings**

If the poison is taken in concentrated form it has postmortem findings similar to that in mineral acid poisoning.

- Lips and chin don't show any staining
- The mucous membrane of the tongue, throat, mouth and gullet is white as if bleached or sometimes reddened by irritation.
- **Stomach :**

- a. Contains dark brown gelatinous liquid due to formation of acid haematin.
- b. Cloudy areas of deposits of calcium oxalate.
- c. Mucous membrane is eroded and detached.
- d. Dark lines in submucosa due to formation of acid hematin in blood vessels.
- e. Outer coat of stomach may be inflamed.
- f. Perforation is rare.
- In narcotic poisoning, there may be congestion of liver, lungs, kidneys and brain without any local changes.
- in delayed death inflammation maybe found in upper portion of small intestine and kidneys.

### **Treatment of Oxalic Acid Poisoning**

**A. Stomach wash:** neutralization of acid and stomach washed out as rapidly as possible. Since degree of corrosion not as severe as in case of mineral acids, a soft stomach tube can be passed with care and washing of stomach with lime water. warm water should be avoided as it may dissolve more acid.

**B. Antidote:** Any calcium preparation which can convert poison into insoluble calcium oxalate, the most readily available preparation being CHALK .A suspension of 30 grams of chalk in water or milk will neutralize about twenty grams of oxalic acid. Lime water is useful if at hand. CALCIUM GLUCONATE maybe given by mouth or 10ml 10% solution intravenously .Alkalis, soda, potash or ammonia should be avoided as their oxalates are soluble.

**C. Urinary output:** urinary output should be checked to detect possibility of renal damage and fluid intake controlled as found necessary.

The rest of treatment is symptomatic.

### **Specimen of choice**

- Stomach wash
- Vomitus
- Urine



**Supply 2004****Question no 7: Describe mode of action, signs, symptoms, treatment ,autopsy findings and specimen of choice in case of Carbon Monoxide Poisoning****Answer:****Mode of Action**

- It has 200-300 times greater affinity for hemoglobin than oxygen.
- Rapidly absorbed through lungs and rapidity depends upon its proportion in the air.
- Combines with hemoglobin to form carboxyhemoglobin which is cherry red in color, 300 more stable than oxy - hemoglobin and rapid cumulative effect.
- Doesn't take part in oxygen transport thus produce symptom of OXYGEN DEPRIVATION.
- Most important factor in producing anoxia is not the level of carbon monoxide in blood but percentage of hemoglobin which is inactivated from carrying oxygen.
- Exercise causes rapid breathing and children with rapid rate quicken the process of uptake.

**Signs & Symptoms:**

Depend upon degree of saturation of carbon monoxide in the blood

SATURATION OF HEMOGLOBIN WITH CO SYMPTOMS

**0-10 %** → no appreciable symptoms

**10 -20 %** → shortness of breath on exertion mild headache assitude and flushed skin.

**20 -30 %** → throbbing headache, buzzing in ears breathlessness, muscular weakness.

Incoordination dulling of senses.

**30 -40%** → severe headache, dizziness, nausea, vomiting, collapse on slight exertion,

Breathlessness, mental confusion, impaired judgment, muscular weakness and incoordination, dim vision

**40 -50 %** → all symptoms intensified, maybe mistaken with drunkenness, in coordination, staggering, mental confusion, loss of memory, dyspnea and palpitation.

**50 -70 %** → intermittent asphyxia convulsions, coma cheyne Stokes respiration, respiratory paralysis and death.

**Above 70 %** → rapidly fatal due to respiratory arrest

- The gas being odourless and non-irritant onset of symptoms is insidious.
- Rapidity with which these symptoms develop depends upon concentration of gas and length of exposure.
- Patient may show reddish patches on skin and occasionally blisters.
- If recovery follows after coma its completeness varies with depth of anoxia and length of time during which brain suffered.
- Symmetrical softening of basal nuclei due to prolonged anoxia may cause PARKINSONIUM.

#### **Treatment:**

- A.** Immediately remove the patient from that place to fresh air and body warmth maintained. Oxygen speeds up elimination of CO.
- B.** No further treatment may be necessary if patient is breathing and conscious.
- C.** Artificial respiration is necessary if breathing is even slightly irregular.
- D.** Whole blood transfusion useful in grave cases.
- E.** Prophylactic antibiotics against lung infection are helpful.
- F.** Even normal respiration has returned, the patient should be kept at absolute rest till acute symptoms disappear.

#### **Autopsy Findings**

##### **A. External**

- Fine froth may be seen at mouth and nose
- Color of skin especially in areas of postmortem staining and in fair skinned persons is bright cherry red if saturation of CO in blood exceeds 30 %.
- Below 20 % such colorization not visible.

- Skin blisters may be seen on those areas of body in contact with the ground or where skin is in apposition such as axillae and inner side of thighs.
- Lesions are due to hypoxia.

**B. Internal**

- Blood tissues and viscera are of cherry red colour if more than 5 gm COHb /100 ml of blood.
- Serious effusions are common
- Brain may be edematous and petechial hemorrhages maybe seen on the meninges .
- Necrosis and cavitation of basal ganglia( putamen and globus pallidus )
- lungs maybe edematous or show bronchospasm
- myocardial degeneration and necrotic patches in cardiac muscle are not uncommon.
- carboxyhemoglobin is stable and can be detected even in highly putrefied bodies.

**Specimen of Choice :**

Blood

**Supply 2004****Question no 8: Write a note on COCAINISM****Answer:**

Chronic cocaine poisoning is called cocainism/cocainomania /cocainophagia

- tongue and teeth of habitual cocaine users may be black
- when cocaine is used as snuff there is generally ulceration of nasal septum.

**Symptoms are as follows:**

- euphoria occurs within minutes and subsides over 1/2 to 1 hour after which there is usually a rebound dysphoria "**CRASH**" characterized by intense depression, fatigue, insomnia irritability and headache.

- In order to get rid of such un-pleasant effects the addict feels compelled to use drug again. such repeat dosing sometimes extends over a one to four day binge
- Addict loses interest in family, friends, food, sexual activity etc. and may appear emaciated and physically exhausted.
- Mydriasis, anorexia, hyperactivity, tachycardia, tachypnea and insomnia.
- effects of cocaine lead to increased erotic tension in women and nymphomania (sexual dependency)
- In men the conditions leads to many sexual perversions mainly homosexuality or occasionally shameless libidinous outrages.
- Sometimes a manic, paranoid or depressive psychosis develops.
- insanity is characterized by many delusions of perception and hallucinations, chiefly tactile and visual.
- **Magnan's symptom** the feeling as if grains of sand are lying under the skin or small insects (cocaine bugs) are creeping on the skin (formication) is the most characteristic tactile hallucination.

#### Supply 2004

#### Question no 9: Write a note On Postmortem Imbibition Of Arsenic

##### Answer:

Certain samples of earth contain small traces of arsenic probably derived from use of arsenical weed killers in the burial ground, or account of drainage of water contaminated by arsenic. It is known that when a dead body is buried in such a earth, small quantities of arsenic may enter the dead body. Where the soil contains arsenic and arsenic poisoning is suspected samples of earth from around dead body should be collected for chemical analysis at the time of exhumation. In arsenical poisoning concentration of arsenic in various organs should be more than that in the earth.

#### Supply 2004

#### Question no 10: Discuss chronic mercury poisoning with special reference to signs symptoms and treatment.

**Answer:**

Chronic mercury poisoning occurs as a result of

- after effects of acute attack
- injudicious medical administration
- Continuous accidental absorption in those working with metal or its salts as in manufacture of thermometers, barometers fur felt mirrors, ultraviolet apparatus or in police officers engaged in finger print detection work.

**Signs & Symptoms**

- Excessive salivation with metallic taste in the mouth.
- loosening of teeth with painful inflamed gums blue black line on the gums as with lead poisoning
- irritation of skin
- nephritis is serious complication
- abortion is common
- **MERCURIS LENTIS** discolourization of capsule of lens of eye due to deposition of mercury without affecting visual acuity observed through a slit lamp
- Nervous Symptoms are tremors, mental symptoms known as erethism, tremor (coarse, intentional and affects hands, arms tongue and later legs) is known as hatter's shake, because it is common in workers of that industry.
- **ERETHISM** peculiar disturbance of personality characterized by shyness, Irritability, tremors, loss of memory and insomnia, common in workers in mirror industry.

**Treatment:**

removal of patient from exposure to mercury and promoting elimination of mercury by bowels and kidneys.

rest of treatment is symptomatic.

**Supply 2004**

**Question no: Write a short note on phossy jaw.**

**Answer:** already answered

**Annual 2005****Question no 11: What are the dermal manifestations of chronic arsenic poisoning?**

Following are the dermal manifestations in **chronic arsenic poisoning**:

**1)** Irritation of skin and vesicular eruptions resembling "**NETTLE RASH**" for which arsenical poisoning maybe mistaken.

Chronic arsenic poisoning is insidious and present as classical dermatitis (hyperkeratosis and dew drops on dusty roads)

**2)"RAIN DROP PIGMENTATION"** patchy brown pigments of skin mainly on face and neck after long exposure mistaken diagnosis of **ADDISON'S disease**.

**3)**Hyperkeratosis of palms and soles.

**4)**Brittleness of nails and falling out of hair.

**5)"Aldrich Mees line "**whit bands crossing nails of fingers and toes showing arrested growth due to altered metabolism.

**Annual 2005****Question no 12: What are the signs & symptoms, treatment and medico legal importance of acute dhatara poisoning?****Answer:**

The signs and symptoms appear within half an hour if the seeds are taken, or earlier if a decoction (concentrated water extract) of seeds is used ,and almost immediately if the alkaloids are taken. In most cases powdered seeds are administered in food.

**1)Dry As Bone :**

earliest symptom is bitter taste in mouth, due to inhibition of salivation ,dryness of mouth and throat resulting in difficulty in talking, dysphagia and unquenchable thirst.

**2) Red As Beet:**

Face is flushed due to dilation of cutaneous blood vessels.

**3) Blind As Bat:**

Pupils are dilated, insensitive to light, power of accommodation for near vision is paralyzed

**4) Hot As A Hare:**

body temperature is raised. Skin dry hot due to inhibition of sweat secretion and stimulation of heat regulating center.

### **5) Mad As A Wet Hen:**

Vomiting followed by giddiness and unsteady gait, person staggering like drunken individual. mind affected early, at first patient being restless and confused, later becoming delirious, mutters indistinct words. He is subject to visual and auditory hallucinations, appears to grasp at imaginary objects, picks at his clothings and tries to pull imaginary threads from the tips of his fingers. The delirium passes off in an hour or so and the patient becomes drowsy which may progress to stupor, coma and rarely death from respiratory paralysis. Secondary delirium may appear when patient recovers. There may be scarlatiniform rashes.(innumerable small red papules, pattern of scarlet fever).

### **Summary of Signs & Symptoms of Acute Dhatura poisoning:**

**(9D'S) which may be mistaken for heat stroke or drunkenness.**

- 1) dryness of mouth and throat
- 2) difficulty in talking
- 3) dysphagia
- 4) dilation of cutaneous blood vessels
- 5) dilation of pupil
- 6) dry hot skin
- 7) drunken gait
- 8) delirium
- 9) drowsiness

### **Treatment Of Acute Dhatura Poisoning**

**1) Decontamination** (emesis or stomach wash with either weak solution of potassium permanganate or 4 to 5 % tannic acid ,activated charcoal and cathartic)

**2) Antidotes:** physostigmine in a dose of 1 to 4 mg (if necessary at intervals of 1 to 2 hours) or NEOSTIGMINE (2.5MG I/V every 3 hours) act as physiological antidotes.

**3) Purgatives** are beneficial rest of treatment symptomatic.

**4) Diazepam** for convulsions

**5) Supportive measures**

moistening of tongue and change in size of pupil towards normal are valuable guides in treatment.

in non-fatal cases recovery takes a day or two ,the effect on the pupils being the last to disappear.

### **Medico legal Importance**

**1) ACCIDENTAL POISONING:** results from therapeutic misuse by quacks or accidental ingestion of datura fruit or berries of atropa by children. A few cases arise from the use of drug as an aphrodisiac; it is sometimes added to country liquor for a greater kick.

**2) SUICIDAL CASES** very common.

**3) HOMICIDAL** cases very rare.

**4) STUPEFYING AGENT:** used as a stupefying agent prior to rape, kidnapping and robbery. Sometimes used as a **ROAD POISON**. When powdered seeds mixed with food, tea or pain (beetle leaf) is given to unwary traveller by an apparently obliged person. On ingestion of such material the traveller becomes very drowsy .When he wakes up he finds his pockets are picked removable belongings lost and apparently obliged person vanished. When such a person goes to police station to seek help he is taken as a drunken because of drunken gait and difficulty in talking.

**5) As an arrow poison**

### **Annual 2006**

**Question no 13: What are the Manifestations Of Chronic Lead Poisoning?**

**Answer:**

Chronic lead poisoning is nearly always of chronic type. It occurs due to chronic intake of low doses of lead .

### **General Symptoms**

General weakness, anorexia, dyspepsia, metallic taste in mouth, foulbreath, headache, vertigo, irritability, drowsiness, arthralgia.

### **Characteristics Symptoms:**

#### **1) Facial Pallor:**

Around the mouth due to vasospasm .one of the earliest and most consistent signs of chronic lead poisoning and independent of degree of anemia.

#### **2) Anemia with Punctate Basophilia:**



blood shows hypochromic anemia associated with polychromasia, punctate basophilia, reticulocytosis, poikilocytosis-an increase in mononuclear cells and decrease in polymorphonuclear cells.

**PUNCTATE BASOPHILIA** means presence of dark blue colored pin head like spots in the cytoplasm of red blood cells. These are stained with basic dyes and hence the name. The condition is due to toxic action of lead on porphyrin metabolism. Porphyrins are excreted in urine, the amount being as much as 500 micrograms per day.

### 3) Lead Line:

stippled bluish black line due to sub epithelial deposition of lead sulphide granules on the gums at the junction with the teeth but not on the teeth (mostly on upper jaw seen on gums of carious teeth). Its color is due to action of hydrogen sulphide liberated by microorganism from decomposing protein food around carious teeth in the presence of circulating lead.

### 4) Constipation And Lead Colic:

It is though late manifestation but classical acute symptom of chronic plumbism.

the colic generally affects intestines, ureters, uterus and blood vessels, relieved by pressure on abdomen. OBSTINATE CONSTIPATION (DRY BELLY ACHE) associated with it.

### 5) Paralysis:

- a late manifestation seen in less than 10 % patients.
- onset may be gradual or sudden
- paralysis of extensor muscles of wrist (WRIST DROP) or leg (FOOT DROP)
- it is associated with degeneration of nerve and atrophy of muscle
- it is due to interference with the resynthesis of phosphocreatinine.

### 6) Encephalopathy:

- usually in children
- associated with exposure of tetraethyl lead.
- it begins with **INTRACRANIAL HYPERTENSION (PSEUDOTUMOR CEREBRI)** characterized by
  - a. insomnia
  - b. visual blurring

- c. headache
- d. irritability
- e. ataxia
- f. delusions
- g. hallucinations
- h. mania

### 7) Renovascular Manifestations:

vascular constriction results in hypertension, arteriolar degeneration .Atherosclerotic nephritis may occur

### 8) Reproductive System Manifestations:

It causes sterility in both sexes.

#### In Females:

- menstrual disorders such as dysmenorrhoea, amenorrhoea, menorrhagia
- toxic action on trophoblastic epithelium and tonic contractions of uterus leads to dead fetus or abortion

### Annual 2006

#### Question no 14: What are the characteristics of snake venom?

##### Answer:

In the fresh state it is clear transparent amber tinted fluid and dries into a yellow granular mass which retains its activity for many years.

It contains **toxalbumins and several toxic principles**, such as following

- Fibrinolysins
- proteolysis
- neurotoxins(predominant in elapid venom)
- cholinesterase (perdominant in elapid venom)
- haemolysins (predominant in viper venom)
- thromboplastin (predominant in viper venom )
- agglutinins
- cardiotoxins
- Coagulase, hyaluronidase, leithinase etc.

**ELAPID VENOM** is mainly neurotoxic; viper venom is mainly vasculotoxic, sea snake venom myotoxic.

### **NEUROTOXIC VENOM**

- Causes muscular weakness of legs and paralysis of muscles of face, throat and respiration.
- neurotoxins of cobra venom produce both convulsions and paralysis
- Krait venom causes only muscular paralysis.
- local symptoms at the site of bite are minimum as compared to those caused by vasculotoxic venom

### **VASCULOTOXIC VENOM**

- Produces enzymatic destruction of cell walls of coagulation disorders.
- Endothelium of blood vessels is destroyed, red cells are lysed and other tissue cells are destroyed.
- locally oozing of hemolytic blood and spreading cellulitis
- Hemorrhages from external orifices of body are common.
- Other functional disturbances are related to involved organ eg convulsions from hemorrhage in the brain.

### **MYOTOXIC VENOM**

- Produces generalized muscular pain followed by myoglobinuria three to five hours later ending in respiratory failure in fatal cases.

**Annual 2006**

**Question no 15: What are the manifestations of chronic cocaine addiction**

**Answer:** already answered

**Annual 2006**

**Question no 16: Write down the criteria of WHO to label a person as ADDICT?**

**Answer:**

#### **Criteria for Addiction**

- An individual may become compelled to continue taking drugs (cravings)

- Amount needed for the intended initial effect may have to be increased(tolerance)
- Discontinuation of the drug may lead to complex sequence of symptoms (withdrawl symptoms)
- Physical and psychological dependence may occur
- Social deterioration of the personality of drug user may occur.

## Annual 2006

### Question no 17: What is delirium tremens ?

#### Answer:

one of the common clinical syndromes from chronic alcohol poisoning.  
It is a state of excitement with hallucinations which usually lasts 3 to 4 days.  
it results from

- unusual bout of drinking
- sudden withdrawl of alcohol.
- acute infection such as pneumonia or influenza
- shock from injury **eg** fracture of bone
- exposure to cold .It is characterized by an attack of acute insanity in which main symptoms are sleeplessness, marked tremors, excitement ,fear and hallucinations chiefly visual and occasionally auditory.
- he may seek escape from his terrifying new world by suicide
- he is often violent with a tendency to homicide .
- he is for the time being insane and not responsible for his actions.

#### Treatment:

- sedatives such as chlorpromazine 100 mg four times a day orally
- Intravenous hypertonic glucose to relieve cerebral edema.
- withdrawl of some CSF to reduce intracranial tension
- Infection if present must be treated energetically.

## Annual 2006

### Question no 18: What are the signs and symptoms of STRYCHNINE POISONING?

**Answer:**

Nux vomica seeds swallowed as a whole are non-poisonous on account of the hard pericarp which cannot be dissolved by digestive juices. When broken seeds are taken or the seeds chewed, there is an intensely bitter taste in the mouth. Within 15 minutes to an hour symptoms of poisoning appear.

- The patient is anxious and restless.
- Stiffness of muscles before typical STRYCHNINE CONVULSIONS occurs. These convulsions are at first clonic (intermittent) and then tonic (sustained) in nature. They affect simultaneously both the flexors and extensors.
- **OPISTHOTONOS** the muscles becomes stiff and rigid so that there is hyperextension of spine and body arched forward, resting only on the back of head and heels. Sometimes the body curve is in the opposite direction (**EMPROSTHOTONOS**) or sideways (**PLEUROSTHOTONUS**)
- **RISUS SARDONICUS:** It refers to the grinning or grimacing expression seen on the victims face due to spasm of facial muscles.
- Eyes appear prominent and staring.
- Respiration is affected by muscle spasms and cyanosis may ensue.
- Fixation of chest serves to distinguish strychnine convulsions from those of tetanus.
- Blood stained froth may be seen at the mouth
- After about a minute convulsion passes off and the muscles are completely relaxed, patient looks comparatively normal but this remission is temporary.
- As poisoning progresses spasm increase in duration, severity and frequency.
- Patient experiencing extreme pain during the convulsions.
- Mind remains clear till the end
- Death may occur from asphyxia from spasm of respiratory muscles, rhabdomyolysis, hyperthermia, myoglobinuria and renal failure.

**Annual 2007**

**Question no 19: Classify Corrosive Poisons & give Christison's Saying ?****Answer:****Classification of Corrosives****B. MINERAL ACIDS**

- sulphuric acid
- nitric acid
- hydrochloric acid

**B. ORGANIC ACIDS**

- oxalic acid
- carbolic acid
- acetic acid
- salicylic acid

**C. VEGATABLE ACIDS**

- hydrocyanic acid

**D. ALKALIS**

- caustic soda and potash
- ammonium hydroxide

**CHRISTISON's Saying:**

It spells out the effects of oxalic acid

"If a person after swallowing a solution of crystalline salt, which tasted bitter and

Strongly acidic, immediately suffers from burning sensation in the throat and Stomach and also vomits, especially of bloody matters .Further his pulse becomes

Imperceptible and he dies in ten, twenty or thirty minutes. I don't know any fallacy

Which can interfere with the conclusion that oxalic acid was the cause of death. No

Disease begins so abruptly nor ends so soon and no other crystalline poison has

the same effects."

**Annual 2007**

**Question no 20: If You are working in the Emergency Department Of Tertiary Care Hospital. On Clinical Examination How would You recognize a case Of Opium Coma?**

**Answer:**

The effects of opium poisoning are divided in **three stages** ,**stage of excitement** (euphoria, hallucinations ,rapid heart rate),**stage of stupor** (headache, giddiness, strong tendency to sleep from which patient can be aroused by painful stimuli ,contracted pupil, cyanosis of lips, face ,pulse and respiration almost normal) while in **the third stage of NARCOSIS**

- the patient passes into deep coma ,from which he cannot be aroused
- Muscles are relaxed and reflexes are abolished.
- pin point pupils and don't react to light
- blood pressure falls
- pulse rapid and feeble
- breathing is slow gradually diminishing in rate
- skin cold ,with profuse sweating
- temperature subnormal (hypothermia)less than 35 degree centigrade

In FATAL termination marked cyanosis ,froth escapes from the mouth, breathing is sighing and irregular (cheyne -stokes type),the rate being 2 to 4 per minute, pulse is imperceptible, pupils dilate terminally when asphyxia ensues but still don't react to light, coma deepens and death result from ASPHYXIA due to respiratory paralysis. The breath may smell of opium throughout the illness.

In case of narcosis stage of acute ethyl alcohol poisoning the patient goes into deep sleep responds only to strong stimuli, pulse rapid, temperature subnormal, strenuous breathing, pupils contracted but on pinching neck face skin it returns to original size. This stage lasts for more than 12 hours; death ensues from cardiac/respiratory center paralysis or later from pulmonary edema.

Opium/morphine poisoning resemble alcohol poisoning but in alcohol poisoning macewan sign present no paralysis while in other case pinpoint pupil which in later cases dilates but no macewan sign present.

**Annual 2008**

**Question no 21: A 15 years old male was brought to Emergency room. He was in deep coma on examination muscles were relaxed, pupils constricted to pin point and nonreactive to light. Pulse was rapid and feeble. Temperature was subnormal. Raw flesh like smell from mouth.**

- 1) What is your provisional diagnosis?**
- 2) What specific antidote will be given and how?**
- 3) What is the specimen of choice for chemical analysis of this?**

**Answer:**

**1) Diagnose:**

Opium poisoning

**2) Antidote:**

NAlorphine (lethidrone) given I/V in a dose of 5 to 10 mg every 15 minutes till pupils begins to dilate, respiration become normal, the patient is arouses and maximum 40 mg is given. However drug of choice nowadays is NALOXONE pure antagonist given in a dose of 0.4 to 0.8 mg I/V or I/M and can be repeated every 10 to 15 minutes up to maximum of 10 mg with similar criteria.

**3) Specimens:**

(a) Vomit (b) Urine (c) Stomach (d) Liver

**Annual 2008**

**Question no 22: A patient after toxic dose of a very commonly available analgesic/antipyretic reports to Emergency department of Hospital with complaints of malaise, nausea, vomiting followed by epigastric pain, anorexia and jaundice. What is the drug? How will you treat the case?**

**Answer:**

**Name of Drug:**

Paracetamol (acetaminophen)

**Treatment:**



- 1)** Gastric lavage should be carried out 4 hours of taking an overdose.
- 2)** While protracted vomiting needs adequate hydration, it's important to note that paracetamol can cause fluid retention. More than 2.5 liters of fluid (I/V) would be risky.
- 3)** Complications of severe hepatic necrosis such as hypoglycemia, metabolic acidosis and generalized bleeding should be treated with Dextrose Infusion, Sodium Bicarbonate Infusion, vitamin K1 and Whole Blood or Plasma respectively.
- 4)** Oral Methionine 10 grams over 12 hours in 4 doses prevents hepatic damage if given with 10 hours.
- 5)** Hemodialysis maybe necessary for acute renal failure.
- 6)** In moderate /severe cases N acetylcysteine (mucomyst) should be given orally. Most effective if given within 16 to 24 hours of overdosage. it prevents hepatic damage. initial dose is 140mg/kg followed by 70 mg/kg every four hour for a total of 17 doses. it may cause skin rashes nausea, vomiting which are acceptable of the serious dangers of poisoning.
- 7)** In patients having evidence /suspicion of cerebral oedema, Intravenous administration of hypertonic glucose useful.

### **Annual 2009**

**Question no 23: A 16 years old unmarried girl was brought to Emergency department of Hospital. According to parents she was found unconscious in her room in the morning. On examination she was responding to deep painful stimuli only, having pin point pupils and her lungs were full of crepitation's. She had voided urine in her salwar.**

- A) What is your Diagnosis?**
- B) List two differential diagnoses.**
- C) What is the mode of action of poison?**
- D) What is its management?**

#### **A) Diagnosis:**

Organ phosphorus compounds poisoning

#### **B) D.D:**

- Opiate overdose toxidrome
- Cholinergic crisis toxidrome

- Intravenous/narcotic overdose
- Heroin/morphine usage/addiction
- Mushroom poisoning/all types
- Nerve gas exposure
- Cholinesterase inhibitor poison/exposure
- Amanita muscarina/atropinoid toxicity (fly agaric)

### **C) Mode of Action:**

#### **❖ Muscarine Like Effects :**

**1) Pulmonary:** discomfort or pain in the chest, dyspnea, cough, froth at the mouth and nose, cyanosis ,these all stimulate asthma.

#### **2) Gastrointestinal:**

- anorexia
- nausea
- vomiting
- epigastric and sub sternal tightness with heartburn and eructation's
- diarrhea
- tenesmus
- involuntary defecation

#### **3) CVS:**

- slight bradycardia

#### **4) Eyes:**

- slight miosis occasionally unequal later more marked
- ciliary body-blurring or dimness of vision
- chromogenic tears in some cases (red tears)

#### **5) Urinary Bladder:**

- frequency of micturition and involuntary micturition

#### **6) Secretory Glands:**

- increased sweating
- increased salivation
- increased lacrimation

#### **❖ Nicotine Like Effects**

#### **1) Stratified muscle**

- easy fatigue
- mild weakness
- muscular twitching
- cramps
- fasciculation
- generalized weakness of muscles of respiration with dyspnea and cyanosis

## 2) CVS

- tachycardia
- hypertension

### ❖ Central Nervous System Effects

- irritability
- apprehension
- restlessness
- headache
- vertigo
- slurred speech
- ataxia
- fine fibrillary tremors of hands ,eyes ,face and tongue
- mental confusion -stupor ,muscular weakness with tremors and convulsions
- coma with absence of reflexes and depression of respiratory and circulatory centers

## D) Management:

### 1. Decontamination:

- 1) Remove person from poison source
- 2) Remove contaminated clothes
- 3) Wash skin and mucous membrane with water.
- 4) Gastric lavage

### 3. Patency of Airway:

- 1) Raising foot end
- 2) Suction of bronchial secretion
- 3) Intubation

4) Oxygen inhalation

**3. Anti-Dote Administration:**

1. Atropine sulphate 1-2 mg I/V 25-50mg daily

**4. Cholinesterase Reactivator Administration:**

a) Pralidoxime

b) Pyridine aldoxy mithiodate 1-2gm I/V (for adults) 20-50 mg/kg (for children)

**5. General Measures:**

a) Diazepam/barbiturates

b) Diuretics

c) Symptomatic treatment

d) Exchange transfusion

**Annual 2009**

**Question no 24: Write a short note on skin manifestation in chronic arsenic poisoning.**

**Answer:** already answered

**supply 2009**

**Question no 25: A railway police picked a 50 year old unconscious man from plate form. He was responding to stimulus and arousable but incoherent speech. Pulse was 120/min bp was 150/90 mm hg. Abdomen was distended with occasional bowel sounds.**

**A) What is your clinical diagnosis?**

**B) Give two Differential Diagnosis**

**C) How will you manage the case?**

**D) List 2 chemical test to diagnose the poisoning**

**A) Diagnose:**

Datura poisoning

**B) D.D**

1. Atropine Over dosage

2. Hyoscine Poisoning

3. Drunkenness

4. Heat Stroke

**C) Management**

**1) Decontamination** (emesis or stomach wash with either weak solution of potassium permanganate or 4 to 5 % tannic acid ,activated charcoal and cathartic)

**2) Physostigmine (physiological antidote) only** in severe cases 1-2 mg I/M or I/V repeated after half hour ,if necessary

**3) Supportive measures**

#### **D) Chemical Tests**

**1) MYDRIATIC TEST (CAT'S TEST)**

**2) THERAPUTIC PHYSIOSTIGMINE TEST**

#### **MYDRIATIC TEST (CAT'S TEST)**

The suspected material is processed and a solution made. A drop of solution is instilled into one eye of a cat the other eye being kept as control. The pupil dilates in about half an hour, if dhatara is present even in minuets quantity .A simple test of dhatara poisoning consists of instilling a drop or two of patients urine into eyes of a cat or rabbit .There will be dilation of pupil.

**Annual 2010**

**Question no 26: Briefly Describe the features of chronic Lead Poisoning.**

**Answer:** Already answered

**Annual 2010**

**Question no 27:\_Briefly give an account of various stages a person with Acute Alcoholic Intoxication passes through?**

**Answer:**

A person with acute alcoholic poisoning passes through following stages

#### **1) Stage of Excitement:**

- This is the feeling of well-being and pleasure resulting from inhibition of higher centers
- The drunken converse well, laughs and smiles readily or becomes angry easily.
- He may disclose secrets
- He may behave in an obscene manner or talk in vulgar language
- sexual desire maybe aroused.

**2) Stage of Incoordination:**

- incoordination of thought, speech and action which manifest as impaired judgment, confusion, slurred speech and staggering gait
- the drinker may suffer from hiccups
- he is untidy in appearance
- he may become morose ,euphoric or irritable depending on his inherent emotions.
- nausea ,vomiting are common
- pupils dilated
- most offenses are committed in this stage
- Impaired judgment may lead to accidents, sexual excesses, violence and crime.

**3) Stage Of Narcosis:**

- patient passes into deep sleep and responds only to strong stimuli
- pulsar rapid
- temperature subnormal
- breathing sternous
- pupils maybe contracted

**MACEWAN'S SIGN:** on pinching skin of face, neck, pupil dilates initially and slowly returns to their original size. This sign is helpful in differentiating alcoholic coma from other comatose patients.

If this stage lasts for more than 12 hours death ensues from paralysis of cardiac or respiratory center or later from effects of pulmonary edema.

**Annual 2011**

**Question no 28: Write down the manifestations of chronic lead poisoning? Name the screening test for early detection of condition.**

**Answer:**

- **Manifestations of chronic lead poisoning :**

Already answered

- **Screening test for early detection:**

**1. Hematologic tests**

- Hb estimation(anemia)
- punctuate basophilic RBC (more than 200 such cells /cu mm )

- erythrocyte protoporphyrin (EP level will be much above normal)
- blood lead level (more than 35 microgram /100 ml )

## **2. Urine**

- increased level of ALA (amino levulinic acid )
- lead level (more than 0.25 mg/liter)

## **3. Radiological**

- opacities in GIT
- increase in metaphysical density of bones

**Question no 29: A farmer brought in Emergency department in the month of August having excessive salivation ,voiding urine, stools in clothes, chest exhibits bronchospasm, pupils are constricted frothy fluid coming from nose and mouth with garlic odor .**

**A) What is Possible Diagnosis?**

**B)How History contributes to Diagnosis?**

**C) Name the single Medicine to treat the case?**

**D) What is the specific treatment to treat the Case?**

**E) Name two immediate remedies upon arrival ?**

**A) Diagnose:**

organ phosphorus compounds poisoning

**B) History:**

since history reveals he is a farmer and month of august also so common chemicals used in agricultural industry are organ phosphorus compounds which may harm farmers by accidental exposure during their application to crops or due to careless storage.

**C) Single medicine:**

Atropine 2mg every 15 to 30 minutes till signs of atropinization.

**D) Specific treatment:**

Atropine therapy + to supplement atropine use specific antidote cholinesterase reactivators (oxime compounds) + diuretics

**E) Immediate remedies:**

**1. Decontamination:**

- (a) Remove person from poison source (b) Remove contaminated clothes  
(c) Wash skin and mucous membrane with water. (d) Gastric lavage

**2. Patency of Airway:**

- (a) Raising foot end (b) Suction of bronchial secretion (c) Intubation (d) Oxygen inhalation

**3. Anti-Dote Administration:**

- (a) Atropine sulphate 1-2 mg I/V 25-50mg daily

**Supply 2011**

**Question no 30: Clinical Manifestations of Viper Bite?**

**Answer:**

**VIPER BITE's clinical manifestations are**

**Local Features:**

- 1) Very prominent
- 2) Include rapid swelling with discolourization and blister formation which may involve entire bitten limb and may even extend to trunk.
- 3) Usually bleeding from bite site.

**General Features:**

- 1) Bleeding often occurs from gums in addition to which there may be
- 2) Epistaxis
- 3) Haematouria
- 4) Disseminated intravascular coagulation etc.

**Supply 2011**

**Question no 31: A 30 year old man was brought to emergency department .Patient was conscious and having starring look , fever, convulsions after every 15 minutes.**

- A) What is your clinical diagnosis?**  
**B) Write three differential diagnoses?**  
**C) How will you manage such a case?**

**A) Diagnose:**

Strychnine poisoning

**2) D.D:**



- 1) Tetanus
- 2) Epilepsy
- 3) Hysteria

**C) Management:**

- 1) Treat patient in quiet dark room with minimum external stimuli
- 2) Neuromuscular paralysis may have to be induced with succinyl choline (50 mg I/V) to facilitate endotracheal intubation. Curare or pancuronium bromide can be used instead of succinyl choline.
- 3) Oxygen therapy
- 4) Convulsions can be controlled with diazepam (10 mg I/V ) or barbiturates (600 mg phenobarbital I/V)
- 5) Induction of emesis and stomach wash to be avoided as far as possible since they can provoke convulsions. However decontamination may become necessary when there is suspicion that a substantial amount of poison is still present in the stomach. Stomach wash with tannic acid may be done after convulsions, have been controlled.
- 6) Acidification of urine can significantly enhance the excretion of strychnine.

**Annual 2012**

**Question no 32: Write down signs and symptoms of poisoning by foxglove (digitalis)?**

**Answer:**

Toxic symptoms by over dosage or more insidious cumulative action are

- nausea
- vomiting
- abdominal pain
- diarrhea
- depression
- headache
- giddiness

Toxic effects **on Heart** are

- bradycardia (rate may fall to 20 per minute)

- heart block
- extrasystoles
- fibrillation
- feeling of faintness and precordial oppression

**Respiration** become slow and sighing

The patient becomes drowsy, condition may deepen into coma.

Convulsions may precede death.

**Annual 2012**

**Question no 33: Medico legal Importance of Nicotine**

**Answer:**

- Drug of addiction leads to psychological dependence.
- its use leads to serious ,oral, dental, respiratory ,and cardiac problems leading in chronic disability and decreased life expectancy.

**In many cases poisoning is accidental and occurs from**

**1) Chewing a large dose**

**2) Ingestion of decoction (concentrated water extract)**

**3) absorption through skin when applied as a poultice .(poultice is a soft moist mass, often heated and medicated, that is spread on cloth over the skin to treat an aching, inflamed, or painful part of the body).**

**4) excessive smoking**

**5) exposure of fertilizers, insecticides, fumigants.**

- Malingersers soak tobacco leaves in water and bandage them in arm pits to become sick with fever in next 6 to 8 hours and avoid duty.
- has been used for infanticide in certain parts of India.

**Annual 2012:**

**Question no 34: Treatment of Acute paracetamole Poisoning**

**Answer:**

**1) Gastric lavage should be carried out 4 hours of taking an overdose.**

**2) While protracted vomiting needs adequate hydration, it's important to note that paracetamol can cause fluid retention. More than 2.5 liters of fluid (I/V) would be risky.**

**3)** Complications of severe hepatic necrosis such as hypoglycemia, metabolic acidosis and generalized bleeding should be treated with Dextrose Infusion, Sodium Bicarbonate Infusion, vitamin K1 and Whole Blood or Plasma respectively.

**4)** Oral Methionine 10 grams over 12 hours in 4 doses prevents hepatic damage if given with 10 hours.

**5)** Hemodialysis maybe necessary for acute renal failure.

**6)** In moderate /severe cases N acetylcysteine (mucomyst) should be given orally. most effective if given within 16 to 24 hours of overdose.it prevents hepatic damage .initial dose is 140mg/kg followed by 70 mg/kg every four hour for a total of 17 doses.it may cause skin rashes nausea, vomiting which are acceptable of the serious dangers of poisoning.

**7)** In patients having evidence /suspicion of cerebral oedema, Intravenous administration of hypertonic glucose useful.

### **Annual 2013**

**Question no 35: Briefly Explain Mechanism of Cyanide Poisoning & Its Management.**

**Answer:**

❖ **Mechanism of Cyanide Poisoning:**

Mode of action of cyanides is both local and remote

**Local:**

- Behaves as weak acid
- cause irritation and hyperemia of surfaces it comes in contact with .
- it may also produce corrosion of mucus membrane of stomach

**Remote:**

- After absorption is at the levels of cell.
- it acts as protoplasmic poison inhibiting enzyme **cytochrome oxidase**
- prevents uptake of oxygen by cell
- interference with cellular respiration produces death of cells
- tissues and organs affected first are brain, blood, small blood vessels ,skeletal and heart muscle.

❖ **Principle Of Treatment:**

- Reversal of cyanide -cytochrome combination achieved by converting hemoglobin to methemoglobin so that cyanide will combine with methemoglobin to form cyanmethemoglobin which is nontoxic.
- cyanide can be converted to relative nontoxic thiocyanate by giving sodium thiosulphate intravenously.

**Treatment:**

- Take 20 ml ampoules of 1.5 % dicobalt tetracemate (kelocyanor) are injected I/V followed by 20 ml of 50 % glucose .it converts hemoglobin into methemoglobin which combines with free cyanide removing it from the reaction

**Alternatives:**

- I/V administration of 50 ml of 1 %sterile aqueous solution of methylene blue (methyl thionine chloride ,USP) may be used as antidote
- cobalt acetate in dose of 100 mg I/V forms stable complexes with cyanide and may be tired.

**In Poisoning by Inhalation with Hydrocyanic Acid Gas (Cyanogas)**

- the patient should be removed from source of administration
- artificial respiration and 100 % oxygen is of highest value
- a intravenous administration of sodium nitrite and sodium thiosulphate will be necessary and should be repeated if symptoms reappear
- in case of mercury cyanide poisoning injection of BAL may be necessary

**In Case of Potassium Cyanide /Dilute Hydrocyanic Acid Poisoning**

- stomach should be lavaged with 5 to 10 % solution of sodium thiosulphate ,or a mixture of sulphates (ferrous and ferric \_ of iron followed by a solution of potassium carbonate to form prussian blue which is inert
- emetics may be used if a stomach tube not available.

**Supply 2013**

**Question no 35: A railway police picked a 50 year old unconscious man from plate form. He was responding to stimulus and arousable but incoherent speech. Pulse was 120/min bp was 150/90 mm hg. Abdomen was distended with occasional bowel sounds.**

**A) What is your clinical diagnosis?**

**B) Give two differential Diagnosis**

**C) How will you manage the case?****D) List 2 chemical tests to diagnose the poisoning**

**Answer:** Already answered

**Supply 2013****Question no 36: What are the Signs & Symptoms of Acute Arsenic Poisoning?****Answer:**

Symptoms of acute arsenic poisoning manifest within 15 to 30 minutes after the dose but can be delayed if taken with food.

- nausea ,burning pain in oesophagus, stomach and epigastrium
- Severe continuous persistent vomiting follows. Vomit initially contains stomach contents later bile and finally mucus mixed with blood.
- Diarrhea (main effect) accompanied by tenesmus and anal irritation leads to prostration from dehydration and electrolyte imbalance.
- Stools become watery and often blood streaked.
- Thirst, oliguria, cramps, collapse and perhaps convulsions leads to cardiovascular failure.
- urine maybe suppressed
- skin eruptions appear in late stages
- In many cases remissions occur during which person is moderately comfortable, then the symptoms recur.
- Collapse set in with cold clammy skin pale anxious face, sunken eyes, dilated pupil rapid feeble pulse and sighing respiration.
- Convulsion may precede death.
- in some cases when patient survives acute initial attack, the poisoning becomes sub-acute ,symptoms persisting to a lesser degree for some time. Person becomes progressively weak and dies of heart failure within 7 to 10 days.
- When large amount of arsenic taken it is quickly absorbed, symptoms of gastroenteritis maybe absent and symptoms of narcotic poisoning (vertigo, headache, spasms ) followed by stupor and vascular collapse may be present. death with 2 to 3 hours.

**Supply 2013**

**Question no 37: What is the Treatment of Paracetamol Toxicity?****Answer:**

Already answered

**Supply 2013****Question no: Write a note On Korsakoff'S Syndrome /Korsakoff Psychosis/Korsakoff Dementia/Amnesic-Confabulatory Syndrome?****Answer:**

Is a neurological disorder caused by deficiency of Vitamin B 1 (thiamine), its onset is linked with **CHRONIC ALCOHOL POISONING**. It is characterized by hallucinations, disorientation, multiple neuritis.

- 1) Anterograde amnesia
- 2) Retrograde amnesia
- 3) Confabulation (invented memories which are then taken as true due to memory losses).
- 4) Apathy
- 5) Minimal content in conversation
- 6) Lack of insight

This state lasts for about one month to a year.

**Supply 2014****Question no 38: Describe Dermatological Findings For Chronic Arsenic Poisoning?****Answer:** Already answered**Supply 2014****Question no 39: Describe Laboratory Investigations For Plumbism?****Answer:****Laboratory Tests****1. Hematologic tests**

- Hb estimation (anemia)
- punctuate basophilic RBC (more than 200 such cells /cu mm )
- erythrocyte protoporphyrin (EP level will be much above normal)

- blood lead level (more than 35 microgram /100 ml )

## 2. Urine

- increased level of ALA (amino levulinic acid )
- lead level (more than 0.25 mg/liter)

## 3. Radiological

- opacities in GIT
- increase in metaphysical density of bones

### Supply 2014

**Question no 40: A patient brought to a and e department in a semi-comatose condition, He is gasping, pupils constricted, His body is deeply cyanosed, flesh like smell is emitting from him.**

**A) What is the diagnosis?**

**B) On What Receptors Drug Act?**

**C) What are Antidotes for this Poisoning?**

**D) How will You Manage the Case If withdrawal from Poison Occurs?**

**Answer:**

**A) Diagnose:**

Opium poisoning

**B) Receptors:**

Opioid receptors are a group of G protein-coupled receptors with opioids as ligands. The opioid receptors are ~40% identical to somatostatin receptors (SSTRs). Opioid receptors are distributed widely in the brain, and are found in the spinal cord and digestive tract.

- delta ( $\delta$ )
- kappa ( $\kappa$ )
- mu ( $\mu$ )
- Nociception receptor

**C) Antidotes:**

NAlorphine (lethidrone) given I/V in a dose of 5 to 10 mg every 15 minutes till pupils begins to dilate, respiration become normal, the patient is arouses, maximum 40 mg is given. however drug of choice nowadays is NALOXONE pure antagonist given in a dose of 0.4 to 0.8 mg I/V or I/M and can be repeated every 10 to 15 minutes up to maximum of 10 mg swith similar criteria.

**D) Management:**

- When withdrawal from poison occurs a less potent drug must be given as a substitute to take care of the minimal withdrawal symptoms that are likely to develop. The best drug for this is methadone must be given at a dose of 30-40 mg/day then gradually tapered off.
- Antispasmodics can take care of abdominal cramps, vomiting, diarrhoea etc.
- Tranquillizers or bed time sedation can be administered.

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