



Test Discussion

ASPHYXIA + DROWNING +
FORENSIC ANATOMY

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SEQs

Q1

Enumerate information we can get from bones? (5)

Q2

A) Write mechanism of salt water drowning? (3)

B) Write causes of death in salt and fresh water drowning? (2)

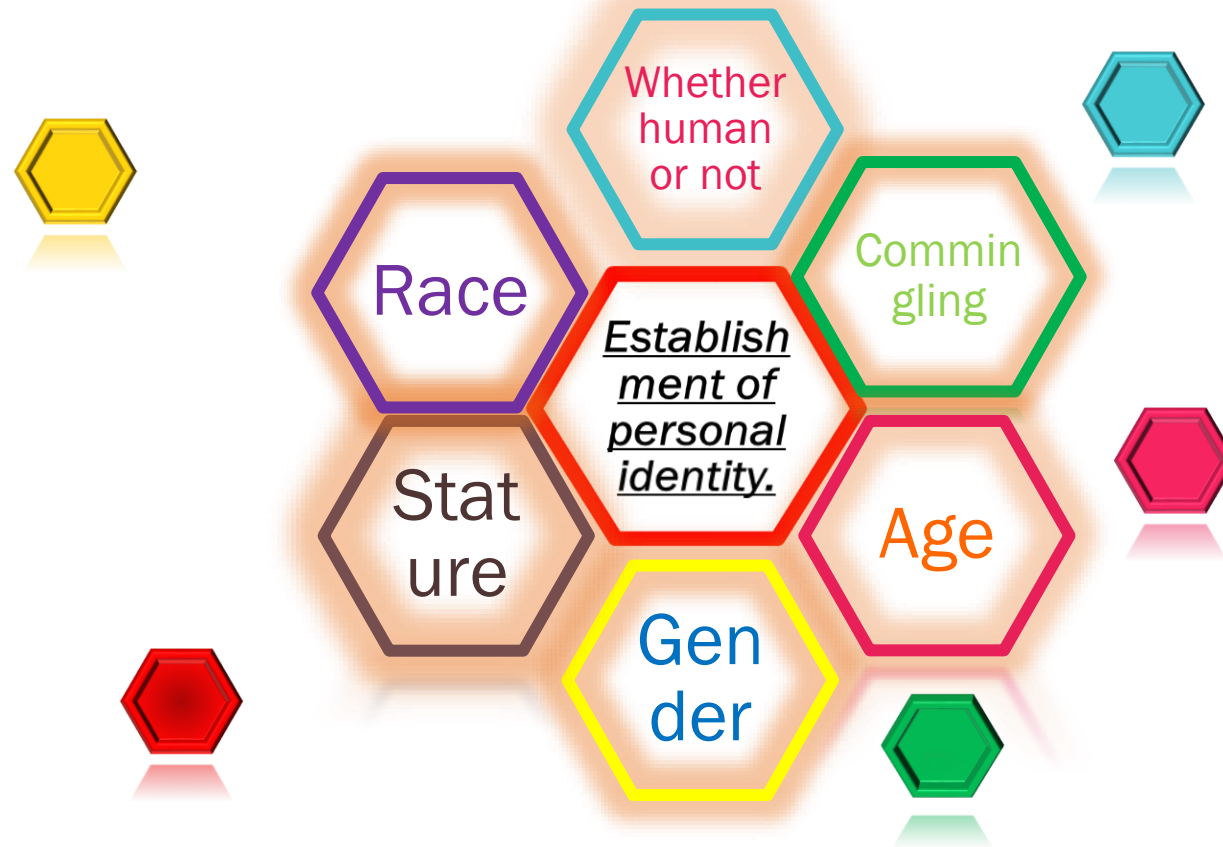
Q3

A) Define Asphyxia? (1)

B) Write differences between antemortem and postmortem hanging? (2)

C) Give general pathological changes in asphyxial death? (2)

Q#1 :





FRESH WATER DROWNING

Hypotonic

- Water absorbed into circulation
- Surfactant washout
- Alveolar cell damage
- Chemical pneumonitis, pulmonary edema
- Hypervolemia
- Hyponatremia
- Hemodilution
- Hemolysis
- Hyperkalemia

SALT WATER DROWNING

Hypertonic

- Protein rich effusion into alveoli
- Surfactant damage, alveolar basement membrane damage
- Alveolar cell damage
- Chemical pneumonitis, pulmonary edema
- Hypovolemia
- Hypernatremia
- Hemoconcentration

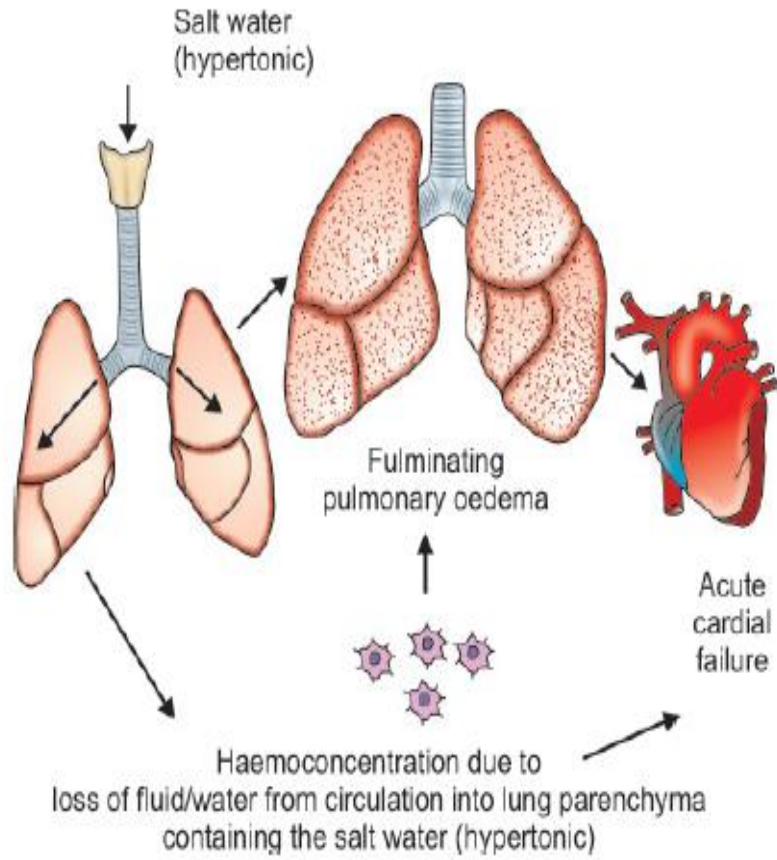


Fig. 15.12: Pathophysiology of death in salt water drowning

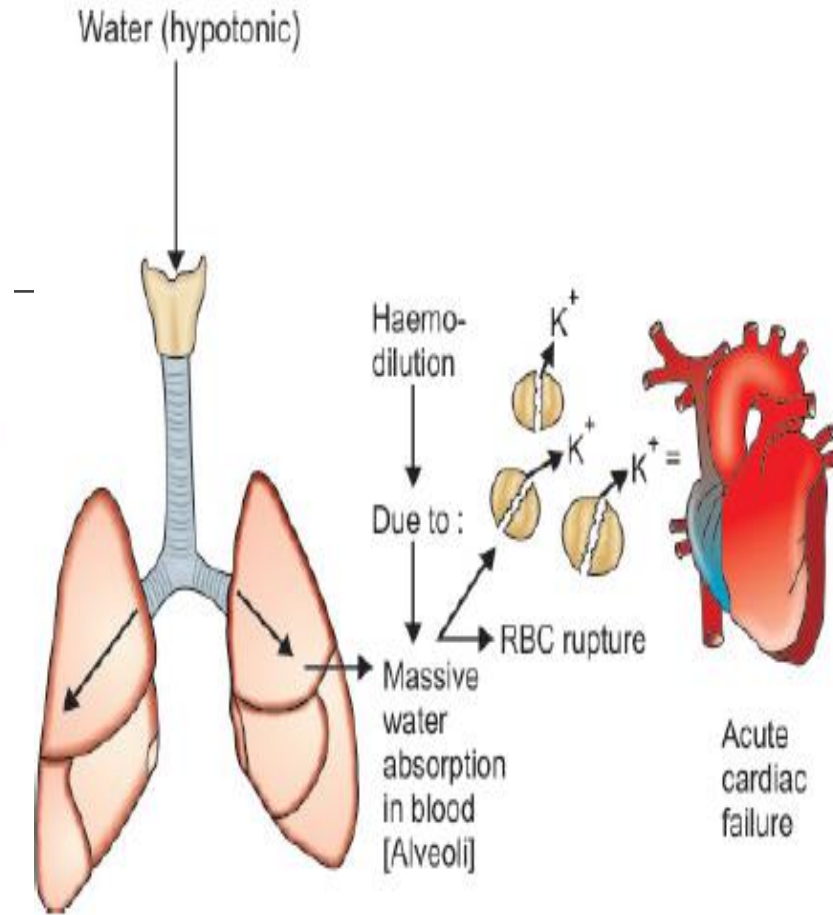
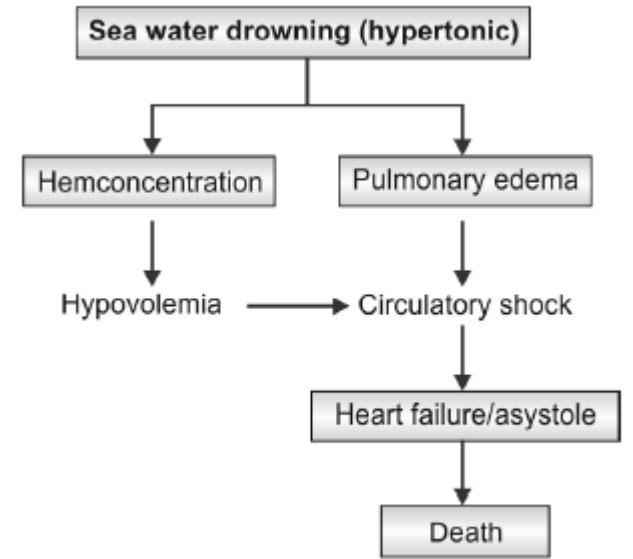


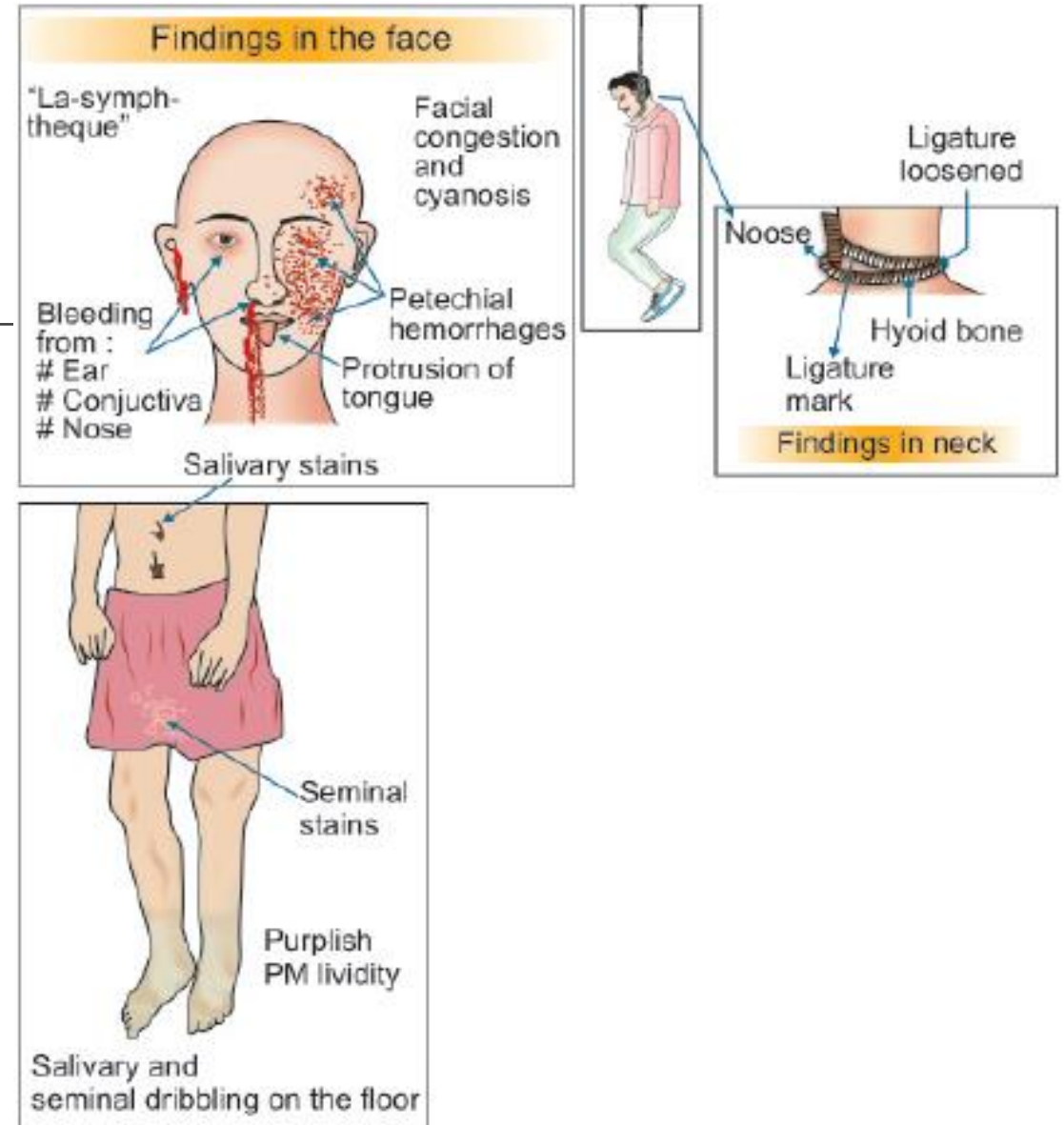
Fig. 15.10: Pathophysiology of death in fresh water drowning



Q#3.

DEFINITION OF ASPHYXIA

Asphyxia is defined as lack of oxygen in blood and tissues due to impaired or absence of exchange of oxygen and carbon dioxide on a ventilatory basis, leading to death.²



Differentiation 10.1: Antemortem and postmortem hanging

S.No.	Feature	Antemortem hanging	Postmortem hanging
1.	Salivary dribbling mark	Present	Absent
2.	Fecal/urinary stains	May be present	Absent
3.	Ligature mark <ul style="list-style-type: none"> • Direction • Continuity • Level in the neck • Parchmentization • Vital reaction 	Oblique Non-continuous Above thyroid Present Present	Circular Continuous At or below thyroid Absent Absent
4.	Knot	Single, simple, on one side of neck	Multiple, granny or reef type on occiput/chin
5.	PM staining <ul style="list-style-type: none"> • Above ligature mark • In lower limbs • Glove-stockings like 	Present Present Present	Absent Absent Absent
6.	Evidence of injury <ul style="list-style-type: none"> • Self-inflicted • Struggle • Tear of carotid artery intima • Imprint abrasion 	Present Absent Present Present	Absent Present Absent May/may not be present
7.	Elongation of neck	Present	Absent
8.	Cyanosis	Deeply positive	Absent or faintly present
9.	Emphysematous bullae on lungs	Absent	Present
10.	Point of suspension	Compatible with self-suspension	Not so

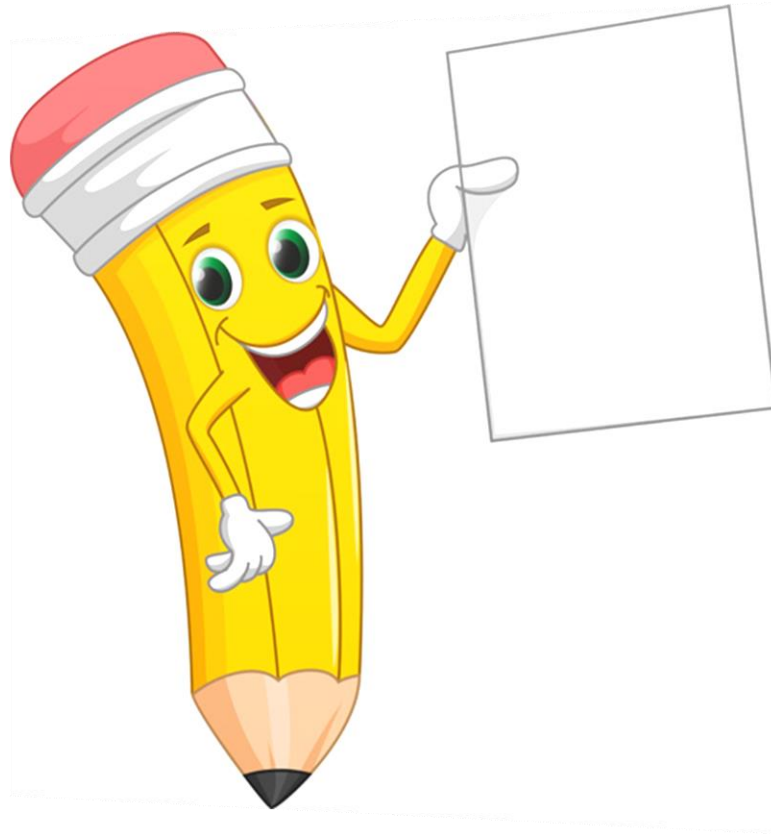


Figs 15.5B and C: External autopsy findings in hanging: (B) Swollen, cyanosed, face; (C) Protrusion of tongue (Courtesy: Capt. Dr. Santha Kumar, Professor & HOD, Forensic Medicine, Govt. Kilpauk Medical College, Chennai, Tamil Nadu)



Figs 15.5D and E: Hanging – Eye findings: Prominent eyes with subconjunctival haemorrhages. (Courtesy: Dr. B. Suresh Kumar Shetty, Asst. Professor, Dept of Forensic Medicine, KMC, Mangalore, Karnataka)

MCQs



12-14 years

The 2nd molar teeth erupt at the age of:

Select one:

- a.
12-14 years
- b. 10-12 years
- c. 6-7 years
- d. 17-21 years

B) 40 Yrs

Xiphoid process unites with body of sternum at:

Select one:

- a. 25 years
- b. 40 years
- c. 30 years
- d. 60 years

c) Cyanosis

Decrease oxygen tension and increased reduced haemoglobin levels in blood is called:

Select one:

- a. Anemia
- b. Hyperemia
- c. Cyanosis
- d. Jaundice

c) Traumatic Asphyxia

- Clear line of demarcation

On autopsy table the body of a female shows congestion of face and conjunctiva. Chest shows abrasion, bruises, fractured ribs and a clear line of demarcation of skin colour. The cause of death is:

Select one:

- a. Burking
- b. Auto erotic asphyxia
- c. Traumatic asphyxia
- d. Mechanical asphyxia

b) Medical Doctor

Iatrogenic Asphyxia is due to the negligence of:

Select one:

- a. Judge
- b. Medical doctor
- c. Psychologist
- d. Forensic expert

c) Throttling

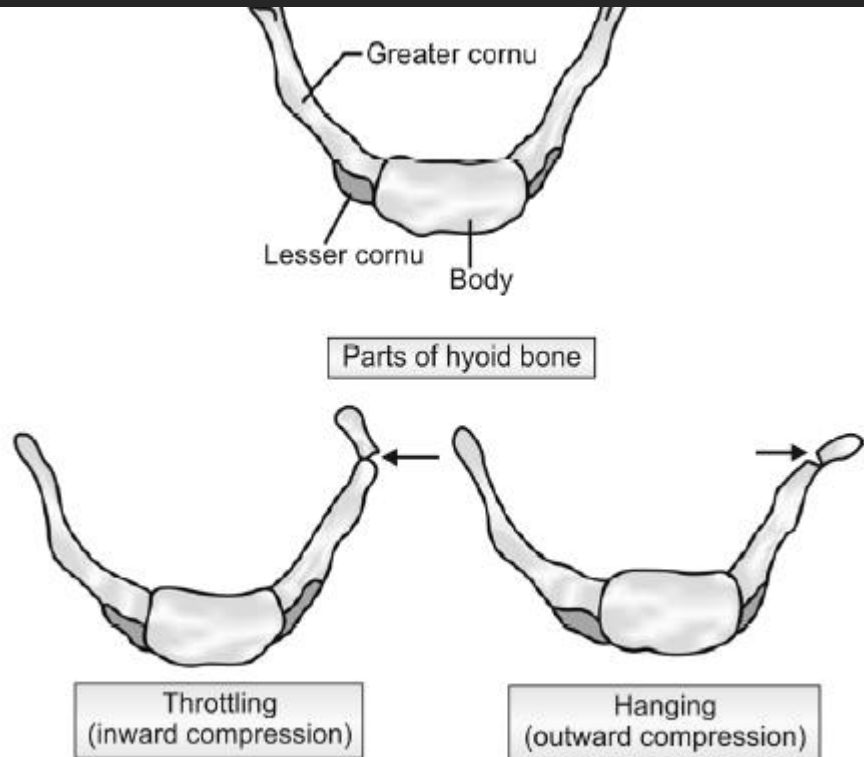


Fig. 10.12: Hyoid bone fracture

Outer one third of greater cornu of hyoid bone is displaced inwards in death due to:

Select one:

- a. Hanging
- b. Ligature strangulation
- c. Throttling
- d. Garroting

b) Mugging

During a wrestling match, the player compressed his opponent neck by his elbow in order to be released from his grip during this struggle he killed him. The cause of death was:

Select one:

- a. Hanging
- b. Mugging
- c. Throttling
- d. Strangulation

b) Manual strangulation

Finger tip bruises and nail marks

On autopsy, presence of fingertip bruises and nail marks on the neck suggest

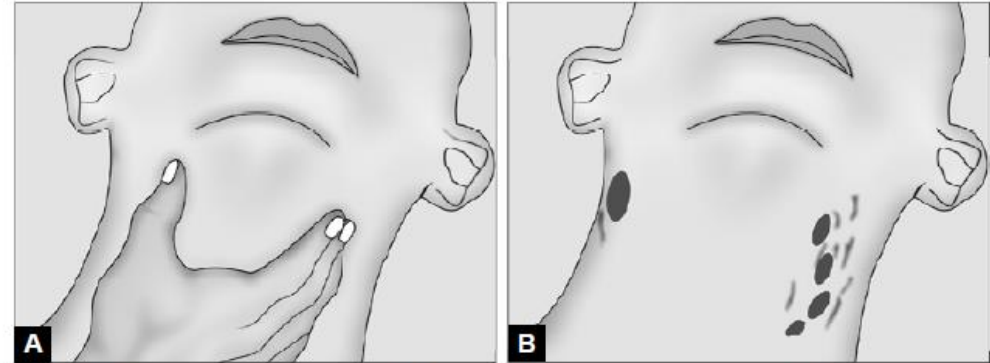


Fig. 10.10: (A) Compression of neck with single hand and (B) External findings in neck

Select one:

- a. Smothering
- b. Manual strangulation
- c. Lynching
- d. Traumatic asphyxia

D)Judicial hanging

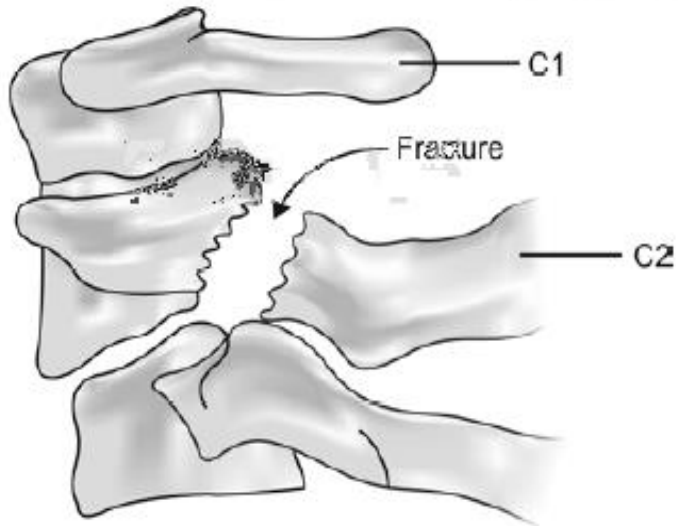


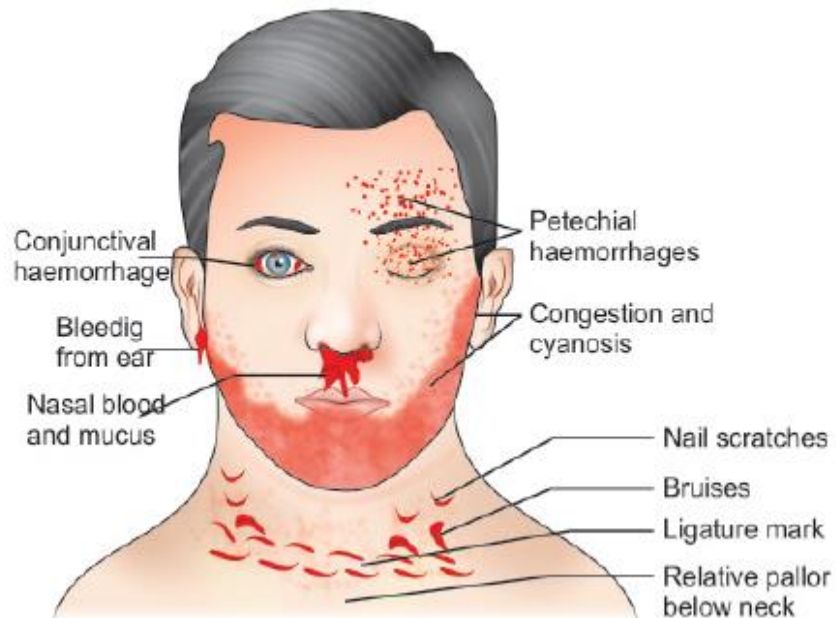
Fig. 10.7: Hangman's fracture

On autopsy, findings on the neck area are extensive laceration of neck structure, tears in sternocleidomastoid and fracture dislocation of C2 and C3 vertebrae. These findings are present in:

Select one:

- a. Incomplete hanging
- b. Accidental hanging
- c. Suicidal hanging
- d. Judicial hanging

D)



All of the following are general pathological changes in asphyxia **except**:

Select one:

- a. Cyanosis
- b. Congestion
- c. Petechial haemorrhages
- d. Vomiting

C)

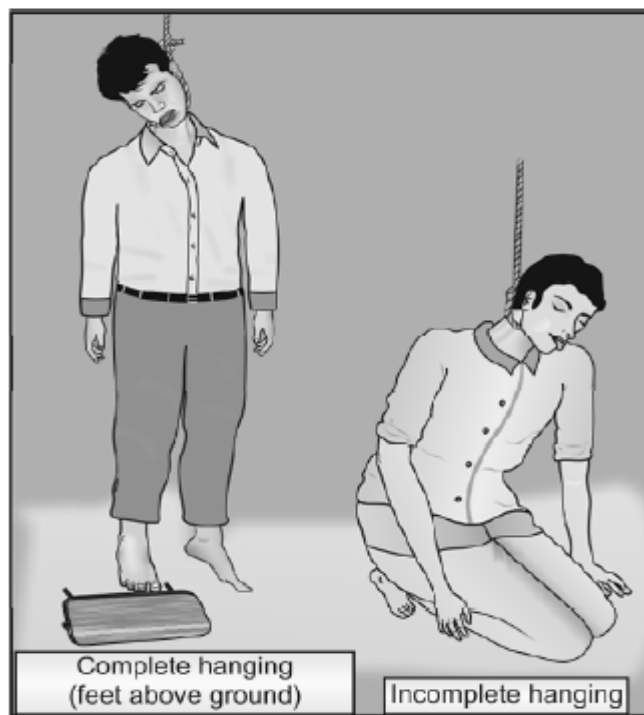


Fig. 10.3: Classification of hanging (degree of suspension)



Fig. 10.2: Classification of hanging (position of knot)

Police found a dead body of a psychiatrically ill 24 years old male hanging from the ceiling of his room with a rope, feet well above ground and saliva dribbling from the right corner of mouth and the ligature was placed in the upper part of neck above thyroid cartilage the cause of death was:

Select one:

- a. Typical hanging
- b. Atypical hanging
- c. Complete hanging
- d. Lynching

a)

25 year old male was taking his meal at a five star hotel. Suddenly he collapsed and died. On autopsy his face is cyanosed and edematous, In the trachea a food bolus was found. In the chest and abdomen visceral congestion was seen and particular hemorrhages were seen in the visceral pleura. The correct diagnosis is:

Select one:

- a. Mechanical asphyxia
- b. Pathological asphyxia
- c. Environmental asphyxia
- d. Traumatic asphyxia

b)

Ventricular fibrillation is seen in:

Select one:

- a. Dry drowning
- b. Fresh water drowning
- c. Salt water drowning
- d. Primary drowning
- e. Secondary drowning syndrome

a)

Diatoms are:

Select one:

- a. Algae
- b. Parasites
- c. Bacteria
- d. Fungi

b)

Paltauf's hemorrhages are seen in:

Select one:

- a. Hanging
- b. Drowning
- c. Strangulation
- d. Carbon mono oxide poisoning

B)

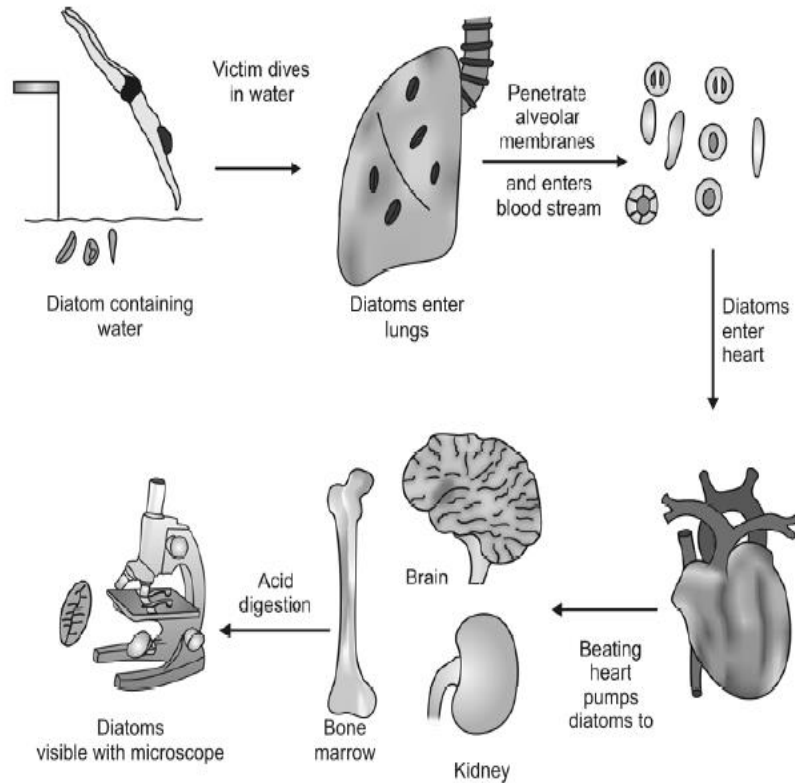


Fig. 10.18: Principle of diatom test

Important site in drowning patient for diatoms is:

Select one:

- a. Brain
- b. Bone marrow from femur
- c. Liver
- d. Heart

A)

In cold water immersion ---→
contraction of erector pillori

CHRISTIAN MAUCERY



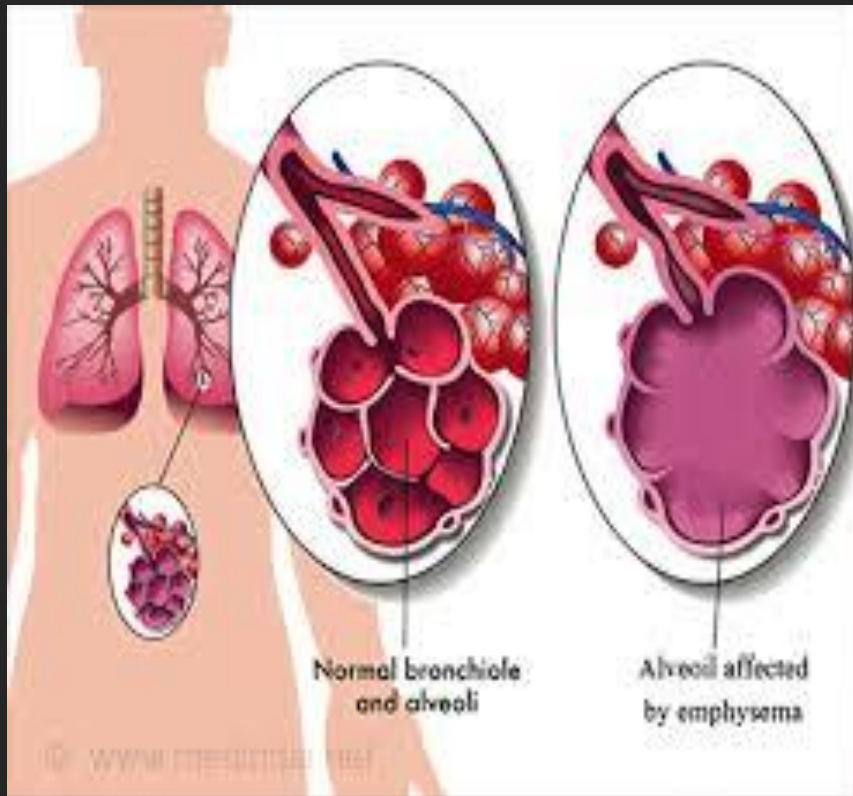
CUTIS ANSERINA

Cutis anserina is seen in:

Select one:

- a. Drowning
- b. Firearm injury
- c. Hanging
- d. Strangulation

A)



Emphysema aquosum is seen in:

Select one:

- a. wet drowning
- b. dry drowning
- c. immersion syndrome
- d. secondary drowning

B)

Acid digestion technique is used for detection of:

Select one:


- a. aquatic vegetations in stomach content
- b. Diatoms in drowning
- c. Fibers in stomach content
- d. metallic content in tissues

B)

Question **20**

Not yet answered

Marked out of 1.00

 Flag question

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Signs of asphyxia are seen in:

Select one:

- a. Typical drowning
- b. Secondary drowning
- c. Dry drowning
- d. Sea water drowning

B)

5 kg(11 pounds) of rope tension in hanging is sufficient to occlude:

Select one:


- a. Jugular vein
- b. Carotid artery
- c. Vertebral artery
- d. wind pipe

C)

Question **22**

Not yet answered

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In case of typical hanging, postmortem staining is seen at:

Select one:

- a. Back of trunk
- b. Not clearly visible
- c. Dependent part of limbs
- d. Abdomen

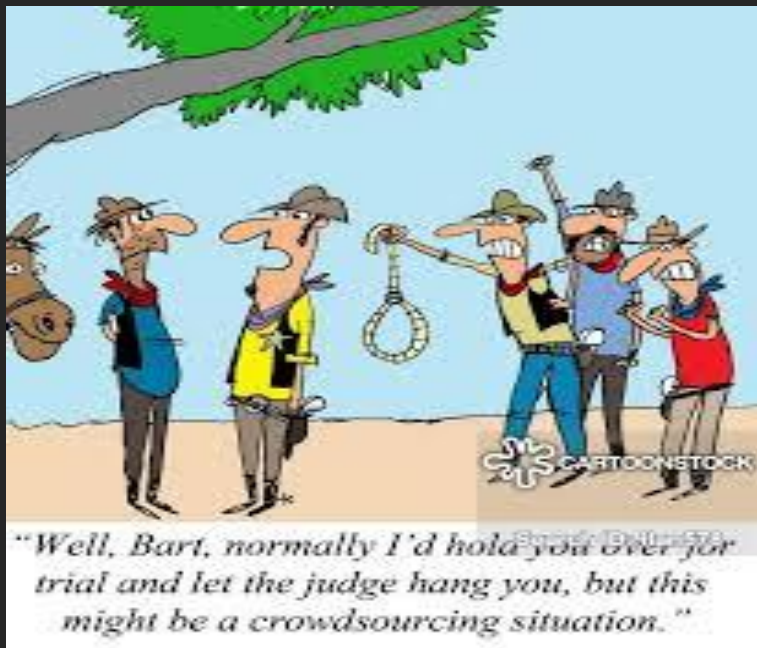
A)

Dribbling of saliva is characteristic of:

Select one:

- a. Antemortem hanging
- b. Postmortem hanging
- c. Homicidal strangulation
- d. Suicidal strangulation

B)



Lynching

Lynching is a form of *homicidal hanging*. A suspect, an accused or an enemy is overpowered by several persons, acting jointly and illegally and hung him by means of a rope from a tree or some similar object. It was prevalent in North America, where it was practiced by whites on Negroes.⁶

Lynching is a form of:

Select one:


- a. judicial hanging
- b. homicidal hanging
- c. throttling
- d. strangulation

A)

Question **25**

Not yet answered

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Sexual asphyxia is associated with:

Select one:


- a. Masochism
- b. Sadism
- c. Voyeurism
- d. Tribadism

A)

Question **26**

Not yet answered

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 Flag question

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Earliest bone to ossify is:

Select one:


- a. Clavicle
- b. Tibia
- c. Sternum
- d. Ribs

C)

Question **27**

Not yet answered

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Best bone to assess age between 20-50 years:

Select one:


- a. Ribs
- b. Vertebrae
- c. Skull

C)

Question **28**

Not yet answered

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Cephalic index is:

Select one:


- a. Maximum braedth of skull
- b. Maximum length of skull
- c. Ratio of breadth and length of skull
- d. sum of breadth and length of skull

C)

Question **29**

Not yet answered

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The police brought fragmentary remains of a victim killed in bomb blast for identification. While determining gender, pelvic bones were examined which showed that the victim is female. The % accuracy of this test was:

Select one:

- a. 85%
- b. 92%
- c. 95%
- d. 98%

C)

A Girl married a 21 years old boy against the will of her parents. Her father reported the matter to police to nullify marriage as her daughter was minor. The police brought the girl to Mayo hospital for M/L examination. On examination Secondary Sexual characteristics were well developed.

Radiological data revealed that all epiphysis at wrist, knee crest of ileum and lateral end of clavicle were united. The acromion was fused with scapula. The age of the girl was.

Select one:


- a. 13 to 14 yrs
- b. 15 to 16 yrs
- c. 18 to 20 yrs
- d. 10 to 12 yrs

B)

Question **31**

Not yet answered

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 Flag question

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the obturator foramen in female is

Select one:


- a. oval shaped
- b. triangular shaped
- c. Square shaped
- d. rectangular shaped


C)

Question **32**

Not yet answered

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 [Edit question](#)

the most reliable dental change in Gustafson's method for age estimation is:

Select one:


- a. Attrition
- b. Cementum
- c. Transparency of root
- d. Secondary dentin deposition

A)

Question **33**

Not yet answered

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 Flag question

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Pissiform bone ossifies at the age of:

Select one:


- a. 10-12 yrs
- b. 3-4 yrs
- c. 18-20yrs
- d. 7-8yrs

A)

Question **34**

Not yet answered

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 Flag question

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Fatal period is short in:

Select one:


- a. Fresh water drowning
- b. Sea water drowning
- c. Submersion of unconscious
- d. Secondary drowning syndrome

D)

Question **35**

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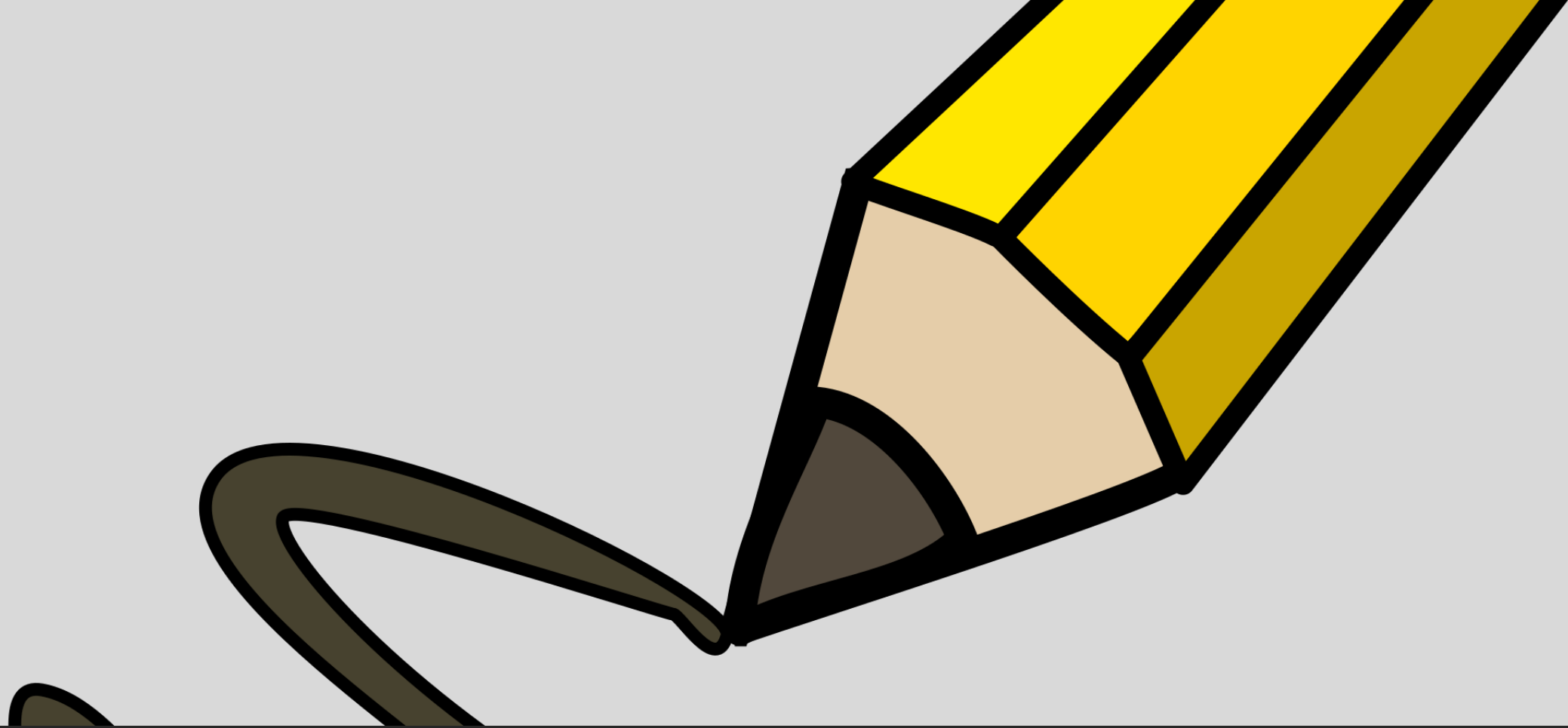
 Flag question

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A dead body is brought from a River. You are working as a medical examiner. The relatives narrate that he has died due to drowning. The surest thing corroborating the claim of relatives is:

Select one:

- a. Police inquiry
- b. wet clothes
- c. Exclusion of other injuries
- d. Fine , persistent , profuse at the mouth and nose



THANK YOU !

STAY SAFE 😊