Medicolegal Opinion

- **Prof. Dr. Tulsi Mahto**
- **Former Director, RIMS, Ranchi**
- **Former HOD, Dept. of FMT, RIMS, Ranchi**

Distinction between Suicide and Homicide

Suicide or Homicide?

- **Firearms**

Where on the body the injury occured - A shot to the side of the head, in the mouth, or to the front of the chest is usually suicidal.

Distance of gun from the body - Most suicidal shots are at or near contact range, causing a burn mark around the wound and leaving gun-powder residue; at contact range and fired just above the bone with star-like wound.

Angle of the shot - Most suicidal shots are aimed slightly upwards.

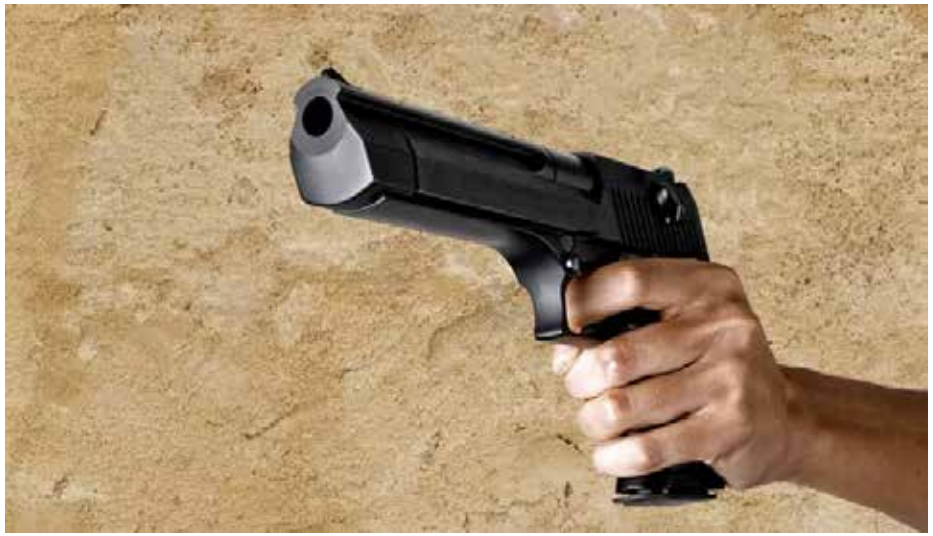
Number of shots fired

Presence of gun-powder residue on victim's hand

Shots through clothing - Suggest homicide.

History, a note, other factors

Evidence of struggle - Scratches, cuts, bruises...



Suicide or Homicide ?

- **Knives**

Defensive cuts - In a homicide on the palms of the hands, and the underside of the arms.

Number of wounds and their location –

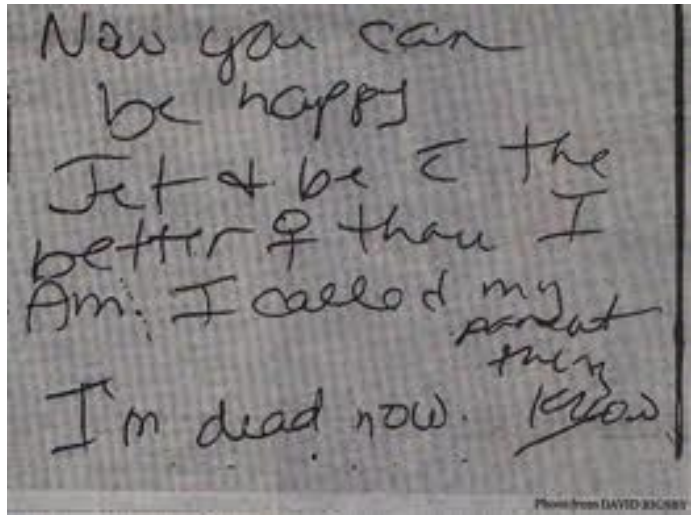
Murder: usually multiple stab wounds to the side, back or stomach;

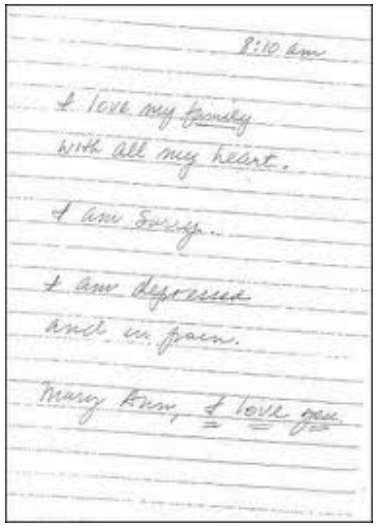
Suicide: cuts across the wrist and tentative test stabbings, but usually one wound in the chest.

Location of the murder weapon- Suicide: at the crime scene, with victim's fingerprints.

Presence of a note - A suicide victim will almost always leave a note.

Stabbing through clothing – In homicides.


Now you can
be happy
Jet & be
better of than I
Am. I called my
I'm dead now.


8:10 am
I love my family
with all my heart.
I am sorry.
I am depressed
and in pain.
Merry Xmas, I love you


TRENT

Suicide or Homicide ?

- **Hanging / Strangulation**

- Hanging: Accidental and homicidal rare.

- Whether done with rope, an electrical wire or a belt, always leaves an inverted V bruise.

- Ligature strangulation leaves a straight line bruise.

- Hanging compresses the veins, but arterial blood flow continues, causing small bleeding sites on the lips, inside the mouth and on the eyelids, as with ligature strangulation, the face and neck are congested with blood and become dark red.

- Ligature strangulations are almost always homicidal and the victims are often women.

Suicide or Homicide ?

- **Drowning**

- Most deaths by drowning are accidental and usually involve abuse of alcohol and drugs.
- Homicidal drowning is almost impossible to prove by an autopsy, drowning is a diagnosis of exclusion.
- Surrounding facts have to be taken into account- wounds, signs of struggle, presence of a suicide note.
- Unlike drowning in a river or the ocean,where samples of the water in the lungs can be tested, the same cannot be done with pool water (chlorine dissipates from the lungs almost instantly).
- Shallow water - may indicate accident or murder, especially if the victim is undressed.
- Suicide note.
- Evidence of other injuries.

Suicide or Homicide?

- **Poisoning**

- Second most popular form of suicide (38% of all female suicides).

- Can easily be slipped into a victim’s food or drink.

- Certain poisons can imitate diseases or cause steady weakening of the body, making it susceptible to other diseases.

Accidental Deaths

Injuries to Pedestrians

Three types of injuries are seen:

(1) ***Primary impact injuries*** are caused by the initial strike, i.e, the first part of the vehicle that strikes the victim (usually legs).

(2) The victim then revolves round his centre of gravity (located at symphysis pubis), and is thrown back on the vehicle, causing further injuries. These are known as ***secondary impact injuries***.

(3) Then the victim is thrown on the ground. This causes ***secondary injuries.***

Finally, the victim may be run over by the vehicle, causing crush injuries.

1. Primary impact injuries

Part of body struck – Depends upon p**osition of person..**

Pedestrian struck from behind; both feet fixed to the ground

- (1) **Bumper injuries** - Injuries at site of bumper impact, in the form of abrasions, contusions, lacerations, internal haemorrhage in the calves etc. Bumper fractures - part of bumper injuries. Most characteristic fracture in vehicular accidents.
- (2) **Impact against mudguard or headlamp:**
  (i) fracture of pelvis, Pubic ramus fracture
  (ii) fracture dislocations of the sacroiliac joints.
  (iii) Imprint abrasions - Due to head lamps and radiators
- (3) **Vehicle type:** If vehicle has a **straight and high front end** [eg bus, trailer, truck, van], the entire body may come in contact with front end at once. Injuries - would depend on how victim was positioned.
- **Secondary impact injuries** are virtually non- existent in such cases, as there is no way a victim can recoil back on the vehicle. He instead is pushed to the ground and suffers **secondary injuries**.
- (4) **Protruding objects** – from vehicles may cause serious, and often characteristic injuries.

2. Secondary impact injuries

- (1) If feet slide forward, the whole body falls backwards, with a secondary impact of the head against the windshield.
- (2) **Injuries:** If victim falls on hood – Tangential force directed by hood to the buttock and thigh causes separation of the skin and s/c tissues from the muscle produces a pocket in the upper thigh and buttock, with collection of large amount of blood in this pocket, which is often not visible externally.
- (3) If feet not firmly fixed on ground and vehicle is at high speed - The victim is “scooped up”, i.e. thrown into the air. He may land over the roof of the vehicle, somersaults [head may strike roof] and may even be deposited on the road behind the vehicle, where he may be run over by other vehicles. Atlanto- occipital dislocation and partial disruption of intervertebral discs are quite common in this situation.

3. Secondary injuries

(1) Due to striking of victim on ground:

(i) May be caused after secondary impact injuries, or
(ii) immediately after primary impact injuries, when the victim is thrown high up in air and strikes the ground.

(2) Injuries:

(i) All kinds – including abrasions, contusions, lacerations, fractures etc

(ii) fracture skull – due to victim falling over road

Waddell and Drucker's triad-

Primary impact, secondary impact and secondary injuries may together constitute the Waddell and Drucker's triad.

4. Run over injuries

Abrasions: (i) Grazes
(ii) Impact or imprint abrasions

Avulsions: The rotatory effect against a fixed limb may strip off almost all tissues down to the bone. If head is involved, complete avulsion of an ear may occur.

Head injury with egg-shelling of skull – skull may be crushed from side to side or forced open with extrusion of brain.

Multiple fracture of ribs – if tire passes over chest.

Abdominal rupture – with extrusion of contents [if tire passes over abdomen]

Crushing and hemi section of body - if vehicle is very heavy [eg truck] and tire passes through middle of body, eg abdomen

Crushing of legs – if tire passes over legs.

Burns – due to heat produced due to friction consequent upon dragging and Exhaust gases.

Special situations:
(i) If brakes are applied – wheels will lock, long lacerations, complete amputation of a limb, decapitation.
(ii) If victim is a child – fractures may not occur because of elasticity of cartilaginous skeleton.

5. Rolling over injuries

Mechanism - Produced when a vehicle with low chassis "rolls" the victim along the roadway, instead of "running him over".

Injuries:

(i) Abrasions – (a) Graze abrasions (b) Patterned abrasions
(ii) Burns - from exhaust system
(iii) Fractures – of bones all over body
(iv) Grease soiling

Site - Present circumferentially all-round the body [eg graze abrasions circling around body].

Injuries to Vehicle Occupants

Injuries would depend upon type of impact.

Two broad types are recognized – Non ejection and ejection injuries.

1. Non-ejection injuries

a. Frontal impact

(1) **Most common** - About 80% of vehicular accidents are frontal in nature.

(2) **Sequence of events upon frontal impact** – Driver and passengers receive some common [deceleration injuries] and some different set of injuries [due to differences in secondary collision].

i. Driver

(1) Secondary accident - The driver (if not wearing seat belt) slides forwards so, his chest and lower abdomen strikes the lower edge of the steering wheel.

(2) Facial impact on windscreen

(3) Flexion across steering wheel

(4) Rarely driver's chin may be suspended against steering wheel causing accidental hanging

(5) Flexion of spine - **whiplash injuries**.

(6) Head strikes windscreen

(7) Windscreen broken and body ejected.

(a) Air bag injuries

- At least one airbag related injury occurs in 43% of airbag deployments.
- The majority [96%] of injuries are minor eg lacerations, thermal, mechanical, or corrosive burns of the skin and the eyes.
- **Fatal lesions:** are caused by impact of chest against air bag.
- **Non-fatal lesions:** Ocular injuries – Most common. Abrasions, contusions, lacerations of face, chest and limbs, Orthopedic injuries.

(b) Deceleration injuries

- ***Deceleration injuries*** include a variety of thoracic injuries resulting when the moving thorax decelerates rapidly as a result of impact against a stationary or relatively stationary object.
- (1) **Injuries:** (i) aortic injuries. (ii) sternal fracture (iii) flail chest (iv) myocardial injuries.

(c) Seat belt injuries

- **Seat Belt Syndrome** [SBS]: (i) Caused by lap-strap seat belts - Frontal
- Most characteristic "***triad of injuries***" associated with rapid deceleration against a fixed fulcrum is ***spinal trauma***, ***seat belt aorta***, and ***bowel injuries***.
- Modern 3-point belts – Diagonal strap contribute to hyperflexion or hyperextension of the neck, fracture of cervical and upper thoracic vertebrae, Carotid laceration, tracheal transection, injuries to brachial plexus.
- Accidental strangulation.

(d) Under-running

- If a small vehicle eg a car is following a larger vehicle eg a truck at a high speed [tail-gating], and truck suddenly stops, the smaller vehicle may continue to run underneath the larger vehicle, causing severe crushing of the car [under- running].
- **Occupants** may receive severe crushing injuries. Their recovery is very difficult.
- **If tailgating vehicle is a motorcycle,** the motorcyclist's head and shoulders are smashed against the tailboard. In extreme cases decapitation may occur.

ii. Front seat passengers

- Same sequence as that seen in driver, except that they do not strike the steering wheel. They instead strike the dashboard.

iii. Back seat passengers

(1) **Mechanism:** violent deceleration, no seat belts
(2) **Injuries:** Most common to head and knees, due to striking of head to front seat including head rests
(ii) Sometimes thrown over the front seat and strike the car's front structures, or even ejected through the windscreen.

b. Side impact

- Second most common after frontal collisions
- Severe; because side of car has thin metal walls. No other components to absorb impact
- Occupant sitting on the struck side is injured most
- Injuries caused by shattering of side-windows. **Dicing injuries** [caused by "dice" shaped glass fragments] on the face, shoulders, and arms. These are small linear, right angled, V-shaped or sometimes irregular cuts, lacerations or abrasions.

Medicolegal aspects

Manner of death

Most automobile accidents are accidental; few are suicidal and still fewer are homicidal. Pattern of injuries, and circumstances of death often indicate the manner.

a. Accidental

(1) Driver may stop - and may try to assist victim

(2) Hit and run - Driver loses nerve, drives away in order to avoid arrest.

b. Suicidal Automobile accidents can rarely be suicidal. Sometimes these may be masqueraded as an accident.

(i) The typical scene is when an old depressed individual, suffering from incurable disease and chronic pain is found to have died following an accident.
(ii) He drives the car himself at very high speed and strikes it against a tree.
(iii) No skid marks [indicating application of brakes] are found.
(iv) Shoe sole shows a deep impression of accelerator pedal, as if shoes were hardly pressed on it.
(v) No alcohol and drugs are found in the body, ruling out drunken driving.

Motive - for masquerading a suicide as an accident is to help relatives claim full insurance amount; for suicide claim is not given.

c. Homicidal

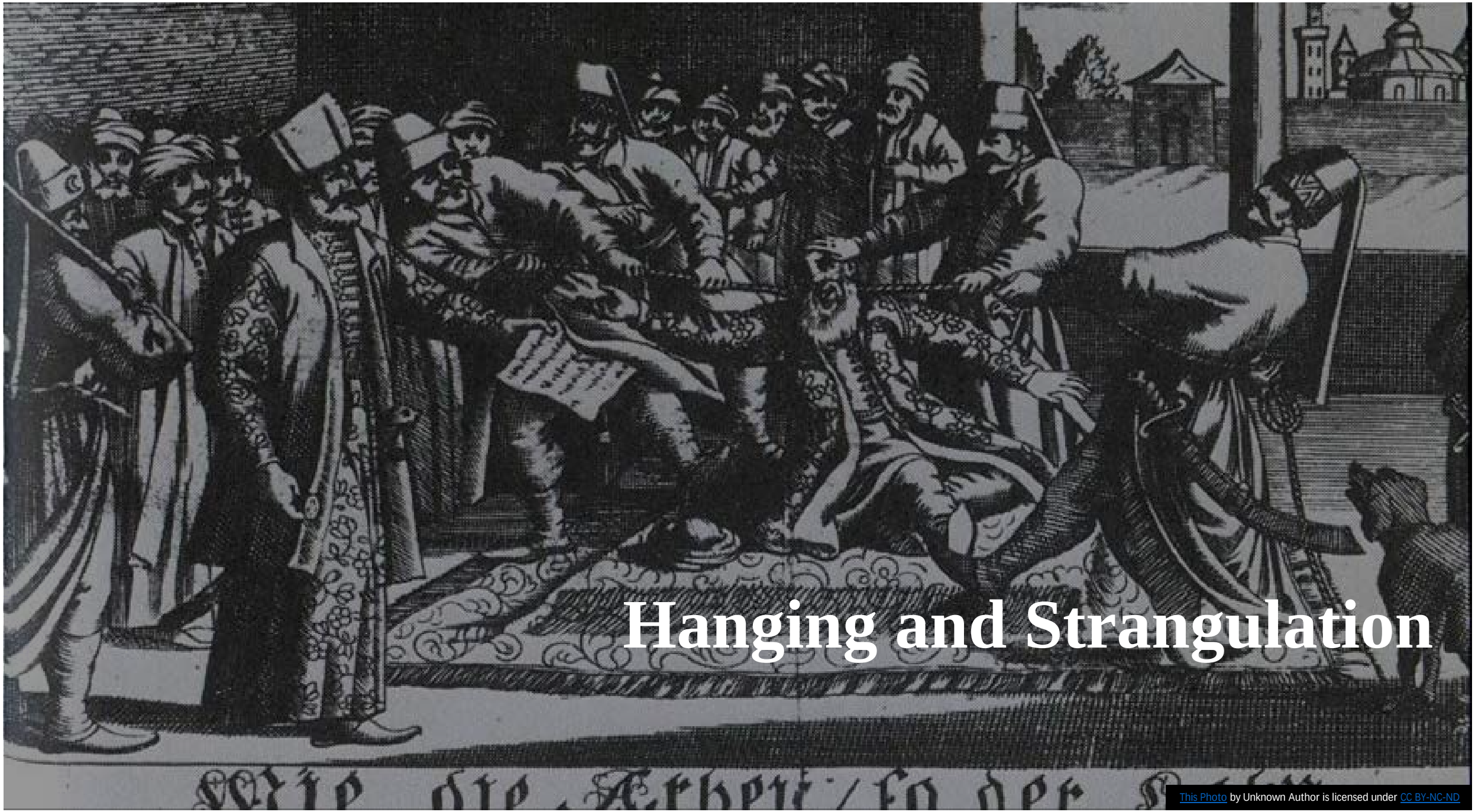
- Premeditated murder of a pedestrian with an automobile.
- Driver hopes to avoid the blame altogether if he is able to successfully drive away, or at least get away with a lesser charge **u/s 106 (1) of BNS, 2023**.

Accident faked to conceal crime

- Person killed by other means, body placed in vehicle, vehicle pushed off a cliff, or set on fire to make it look like an accident
- Careful evaluation of all injuries
- If vehicle caught fire during fall, burns should be antemortem and there should be soot in fine branches of bronchi
- If body shows signs of putrefaction, the time of which is inconsistent with that of accident, it may indicate an already dead body being kept inside vehicle.

Miscellaneous

A dead body lying on a street may be run over by a vehicle, especially if the street was dark. All run over injuries would be PM in nature. Some other obvious cause of death would be present eg a stab wound etc.



Hanging and Strangulation

Asphyxia is exclusion of air from lungs.

Hypoxia is deprivation of adequate oxygen supply at tissue level that results from asphyxia.

Anoxia is complete deprivation of adequate oxygen supply at tissue level.

Normal oxygen saturation of arterial blood is around **95 mm Hg (12.7 kPa).**

Persons > 60 years of age may have a somewhat lower saturation – around **80 mm Hg.**

Mild hypoxia 60 mm Hg**. Severe hypoxia** 40 mm Hg**. Fatal hypoxia** 20 mm Hg (1/5 of normal).

TYPES OF MECHANICAL ASPHYXIA

(a) When exclusion of air from lungs is by ligature around the neck:

(i) Constriction force of ligature is weight of the body **- Hanging**

(ii) Constriction force of ligature is anything other than the weight of the body **–Strangulation**

(b) When exclusion of air from lungs is by any means other than ligature around the neck **- Suffocation**

(i) External orifices of respiration (mouth, nose) are blocked **- Smothering**

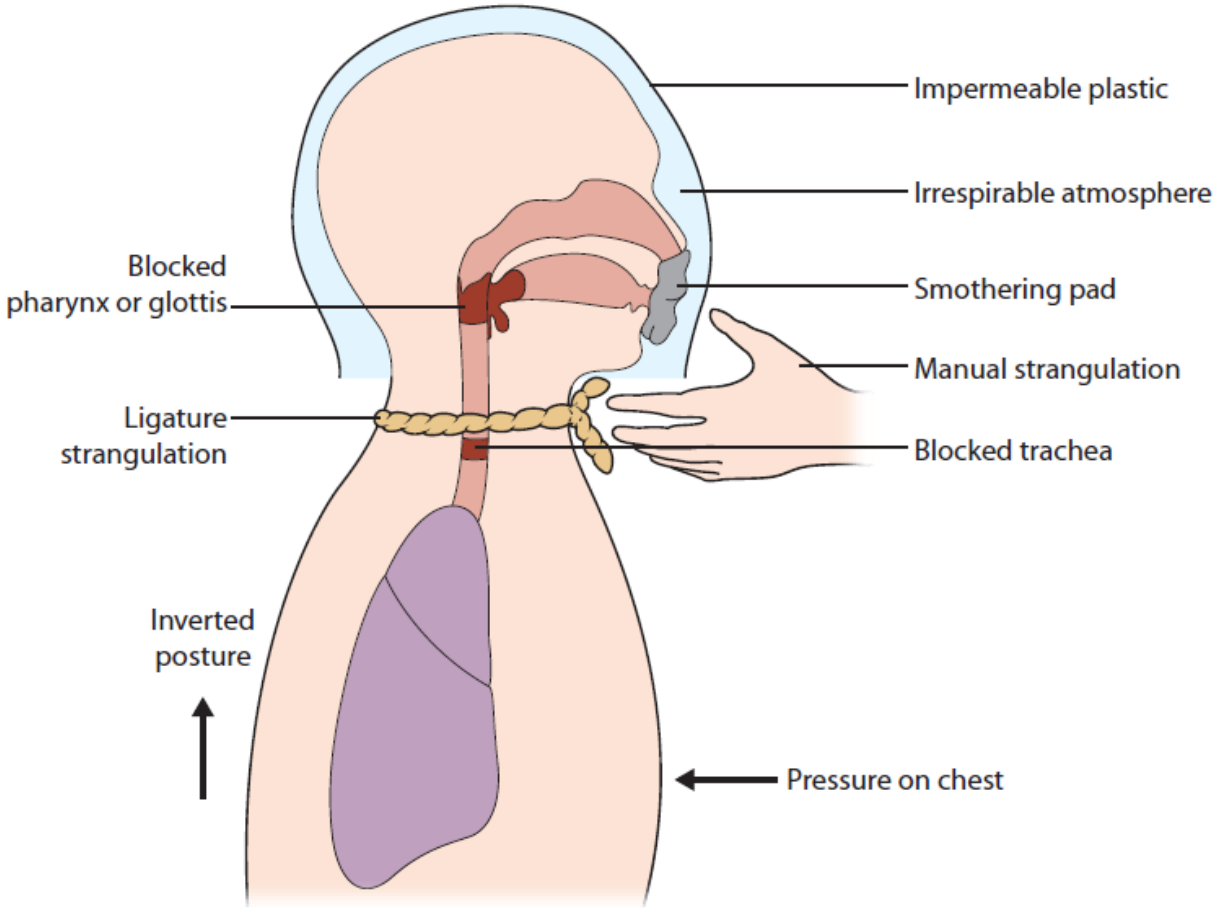
(ii) Foreign object is pushed through mouth up to posterior pharyngeal wall **–Gagging**

(iii) Foreign object enters trachea **– Choking**

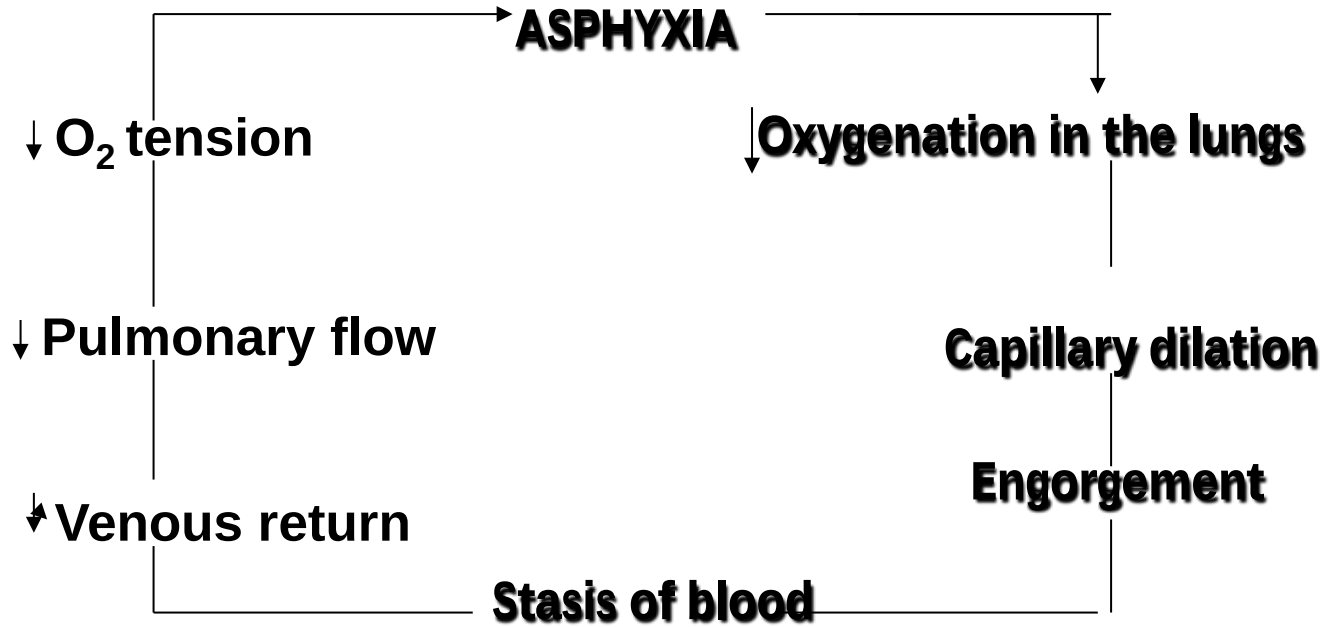
(iv) Mechanical obstruction by interference with respiratory movements **- Traumatic asphyxia**

(C) When exclusion of air from lungs is by mechanical entry of liquid into lungs**-- Drowning**

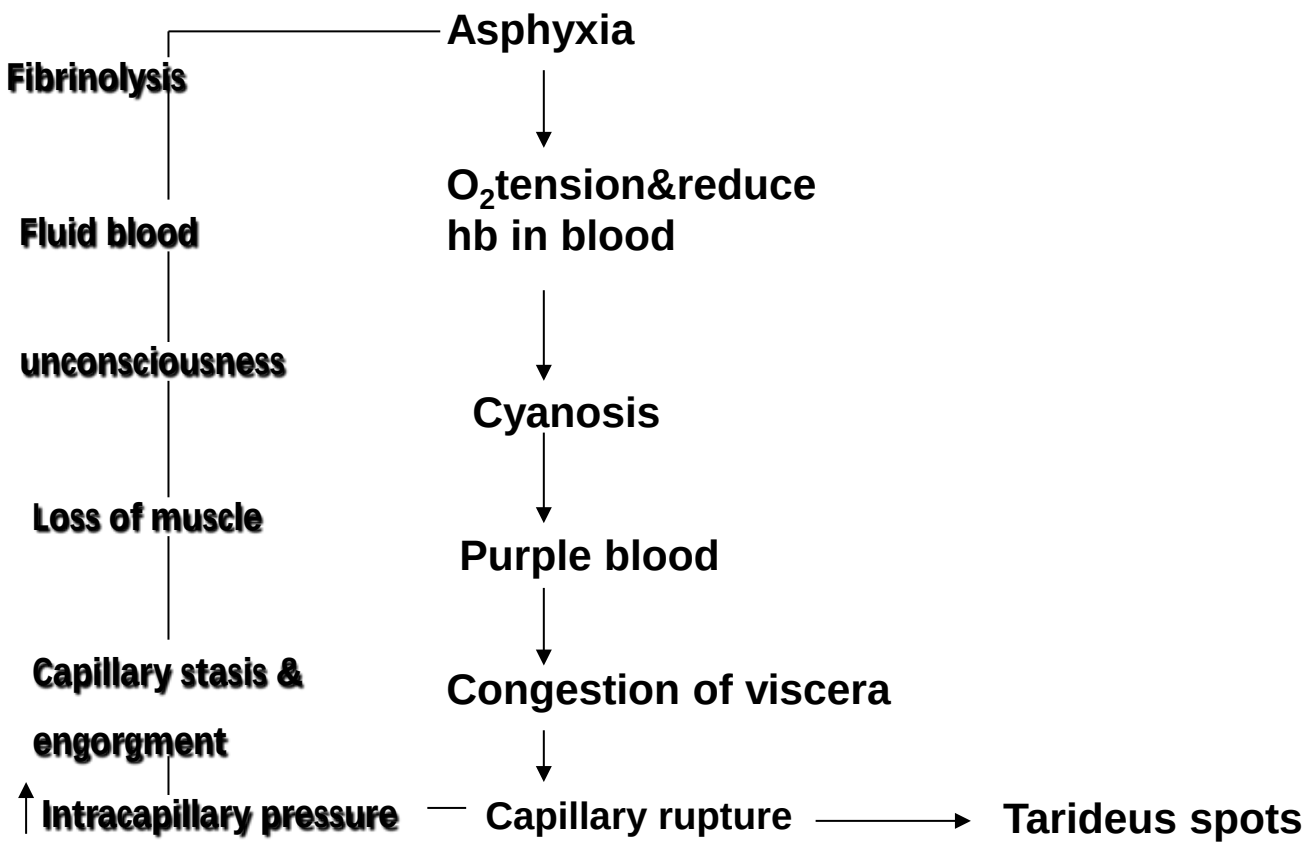
ASPHYXIAL DEATHS



Pathophysiology of asphyxia



Clinical effects of Asphyxia



CLASSICAL SIGNS OF ASPHYXIA

- Cyanosis
- Congestion of internal organs
- Petechial hemorrhages (Tardieu’s spots)
- Edema
- Engorgement of the right side of the heart
- Decreased fluidity of the blood

HANGING

Hanging is that form of death which is caused either by exclusion of air from lungs or oxygenated blood from the brain by means of a ligature round the neck, the constricting force being the weight of the body.

When a person survives hanging incident, it is called **near hanging.**

Suspension of the body by a ligature tied around the neck and force of constriction on the neck being applied by the weight of the body.

Brown leathery ligature furrow

Imprint abrasion

Fixed noose - inverted V-shape, knot mark

Running noose - horizontal

Low suspension point - groove less marked, lower, horizontal

Typically, no classic asphyxial features

Scene shows preparation and precautions.

CLASSIFICATION OF HANGING

1

1. According to position of knot

- (1) **Typical hanging –** if knot is at occiput
- (2) **Atypical hanging –** if knot is at any other position.

2

2. According to position of feet

- (1) **Complete hanging –** if feet do not touch ground
- (2) **Incomplete or partial hanging –** if feet or other parts of the body touch ground

3

3. According to manner of hanging

- (i) Suicidal (ii) Homicidal [eg lynching] (iii) accidental [eg autoerotic asphyxia] (iv) Judicial.

Causes of Death

- Asphyxia
- Venous Congestion
- Asphyxia and Venous Congestion
- Cerebral Anaemia
- Vagal Inhibition
- Fracture or Dislocation of Cervical
- Vertebrae

Consensus is that

(1) **asphyxia is the main cause of death in complete hanging, while**

(2) **occlusion of neck blood vessels is the main cause in incomplete hanging.**

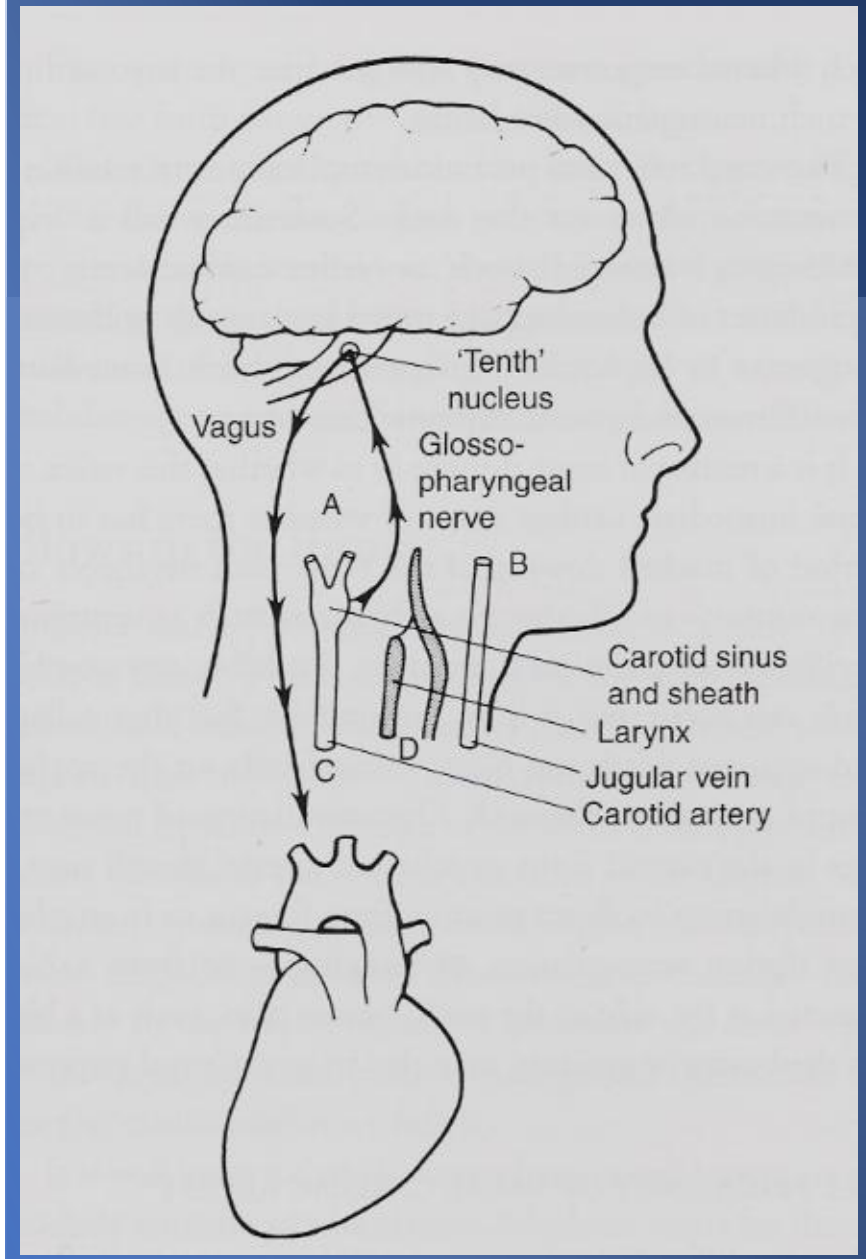
(3) Very few authors believe in reflex vagal inhibition theory.

(4) Earlier belief that commonest cause is **combined asphyxia, and venous congestion is no more considered correct.**

MECHANISMS OF DEATH

- **Mechanical (traumatic) Asphyxia results in**

- Reduced blood flow to brain (neck pressure)
- Carbon dioxide accumulation
- Oxygen deprivation
- Vagal inhibition (parasympathic reflex).
- Complex


'Tenth' nucleus
Vagus
Glosso-pharyngeal nerve
A
B
Carotid sinus and sheath
Larynx
D
Jugular vein
C
Carotid artery

Types of knots

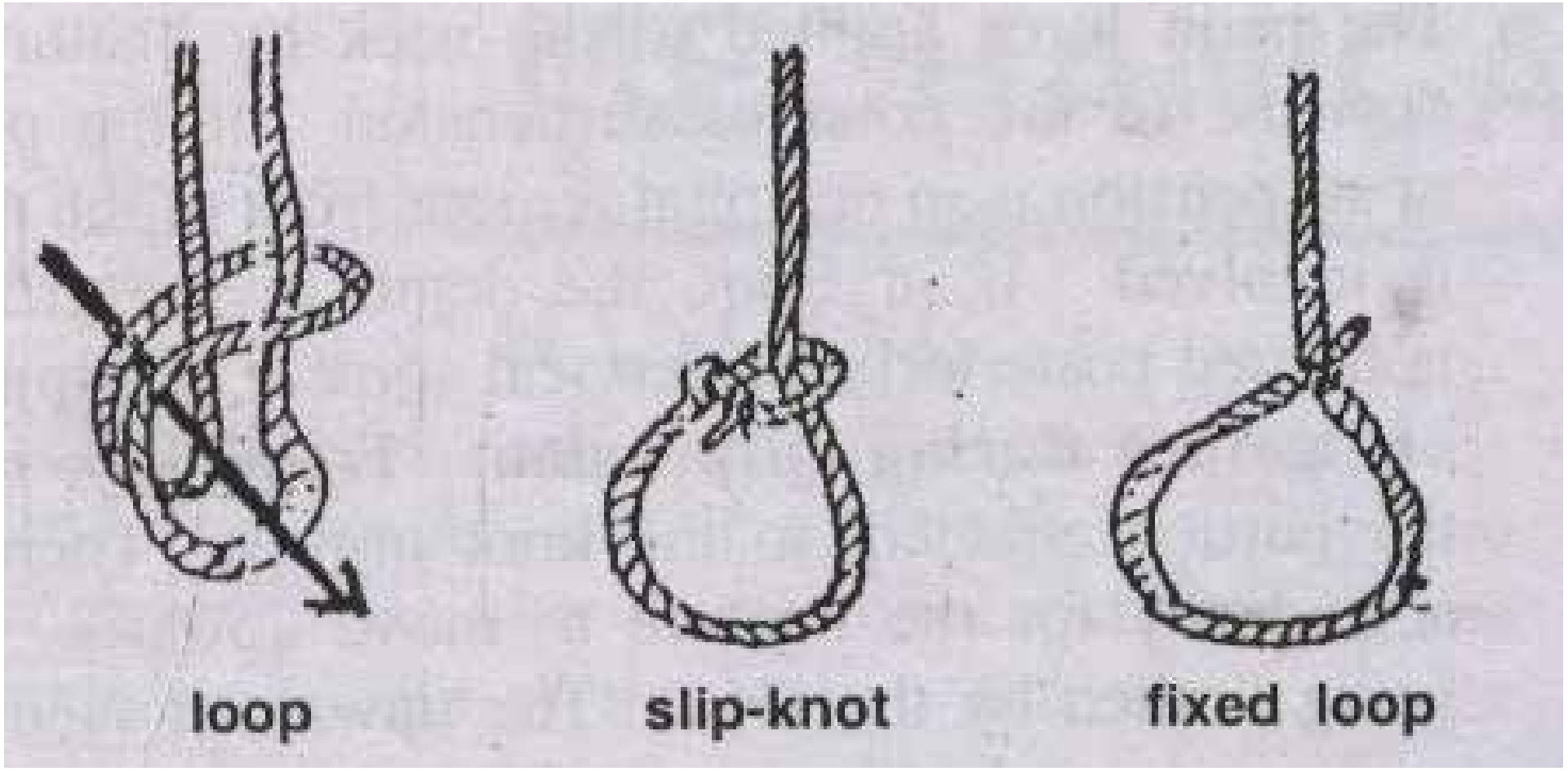
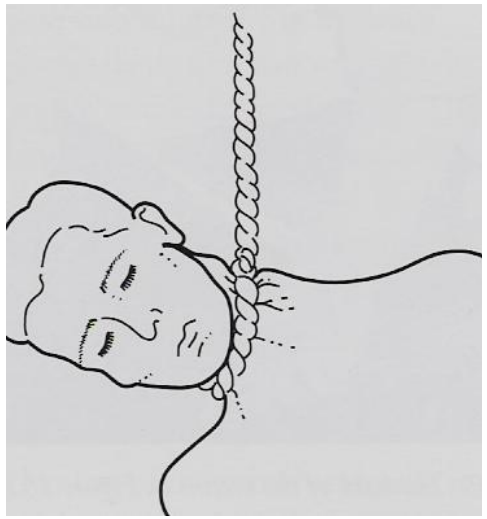
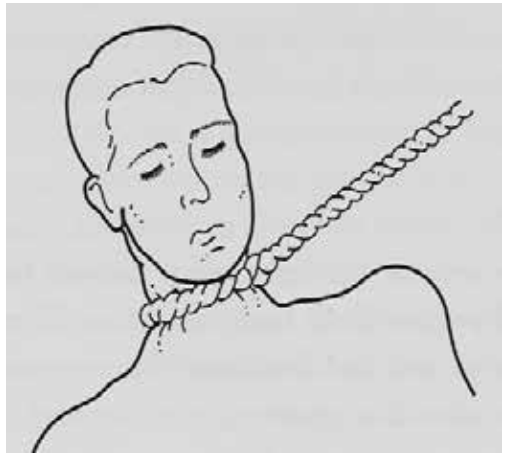


Fig. 19.4: **(1)** Fixed knot **(2)** & **(3)** slip [syn, quick release, running, slipped loop] knot – two different types. Less common are **(4)** Granny knot and **(5)** Reef knot. In granny knot, the crossings are opposite, while in reef knot they are same. Pl see dotted circles.





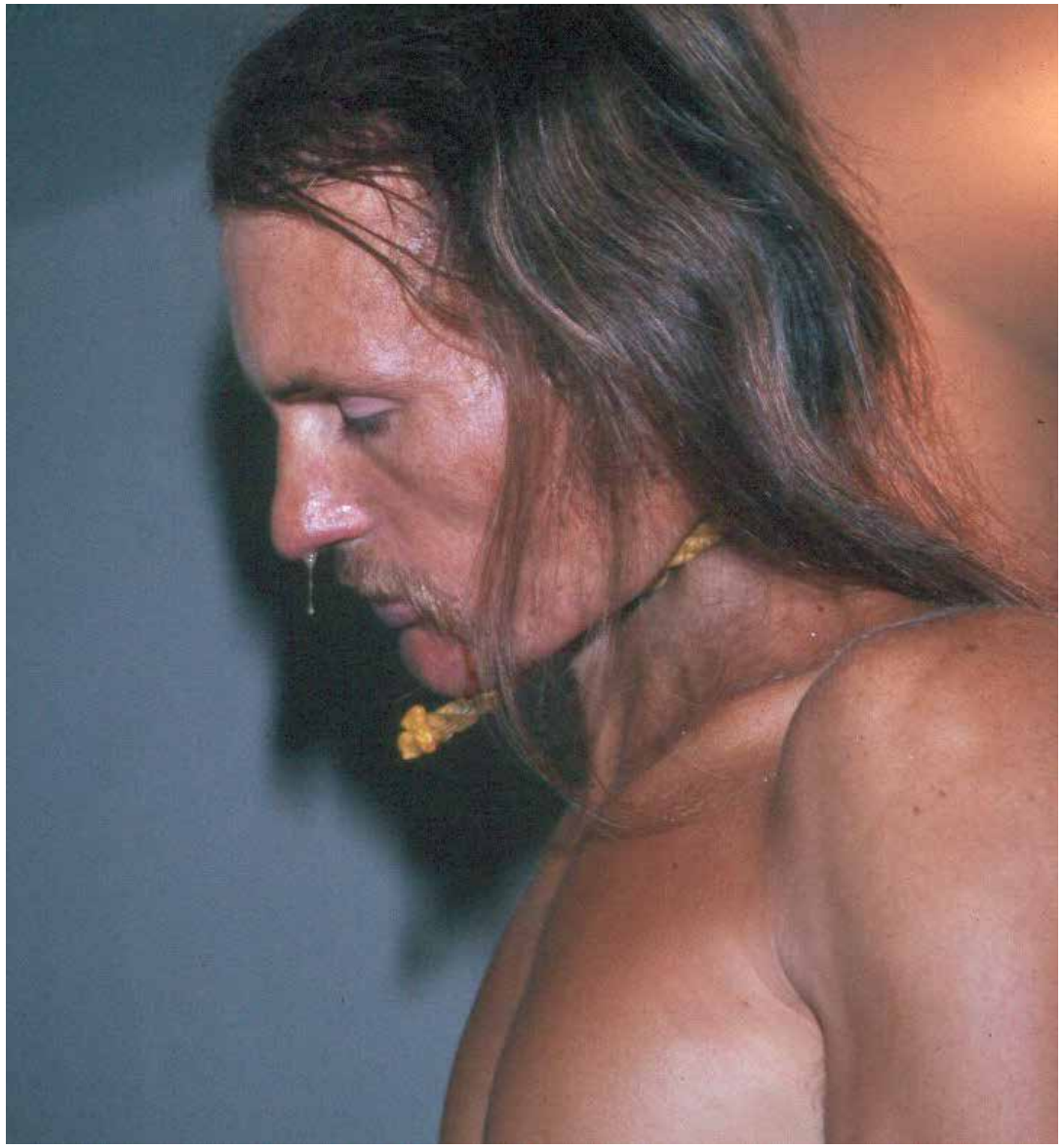
The position of the hanging mark on the neck can vary.

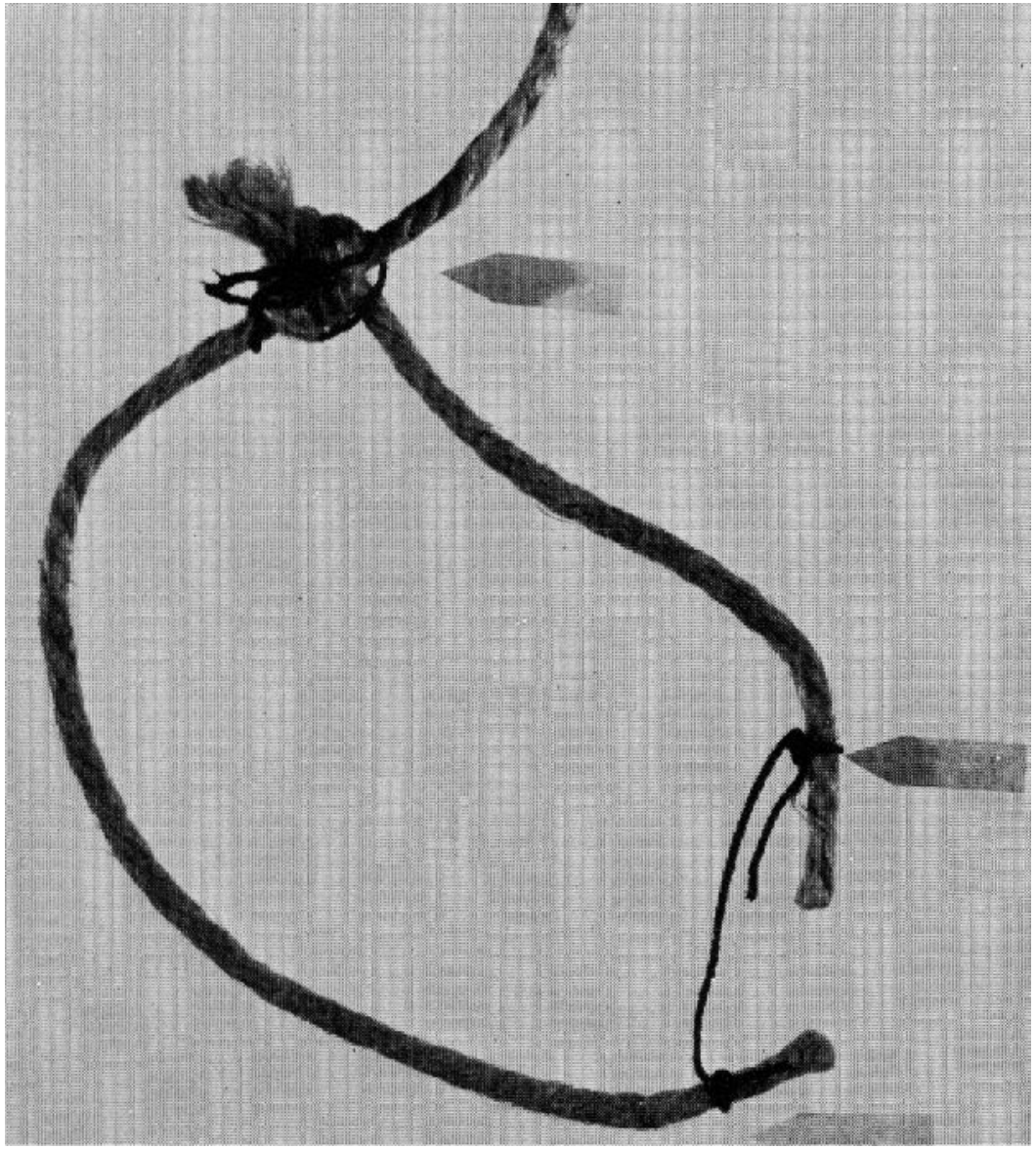
- Top - is the usual position with a fixed noose and high suspension point

- Middle – if a slipknot is used the tightness of the deeply impressed loop tends to find the smallest circumference on the neck.

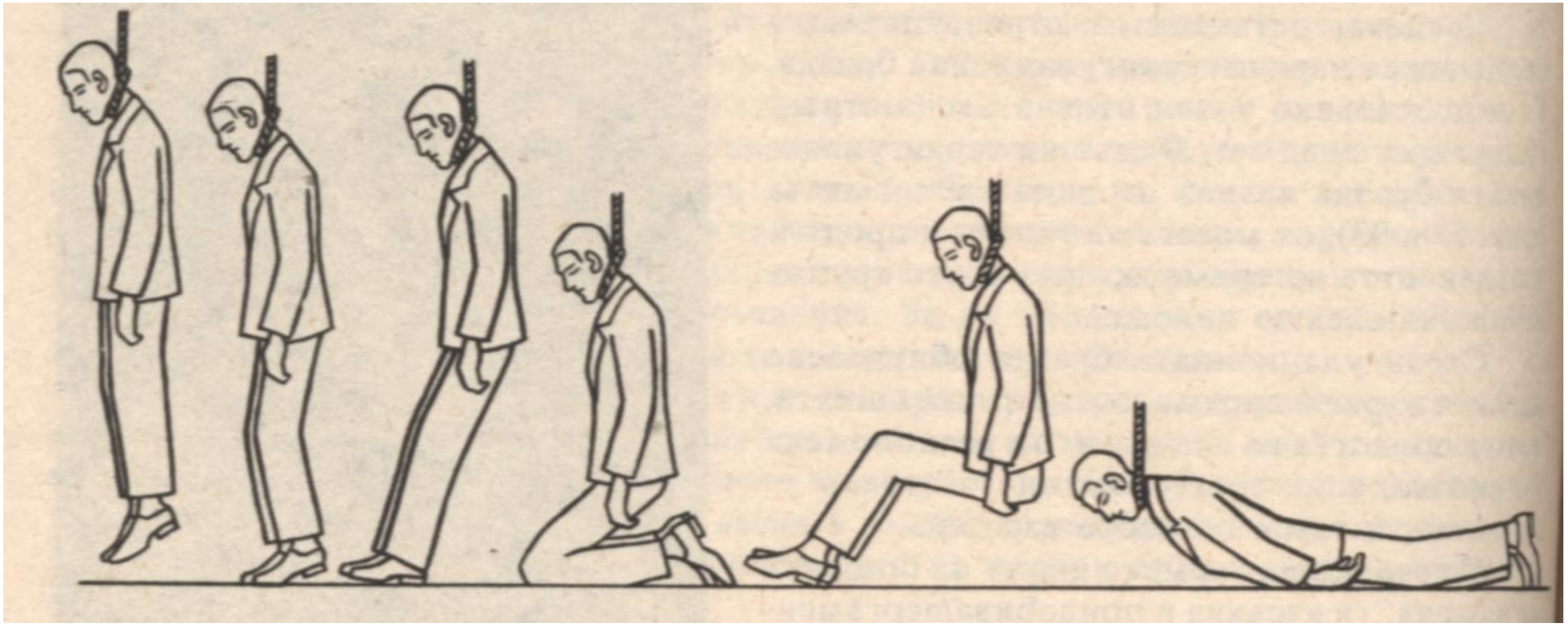
- Bottom – if the suspension point is low, the subject may lean away, and the mark can be horizontal.

Fig. 19.8: A: Knot; BC: Area where ligature mark in hanging is deficient





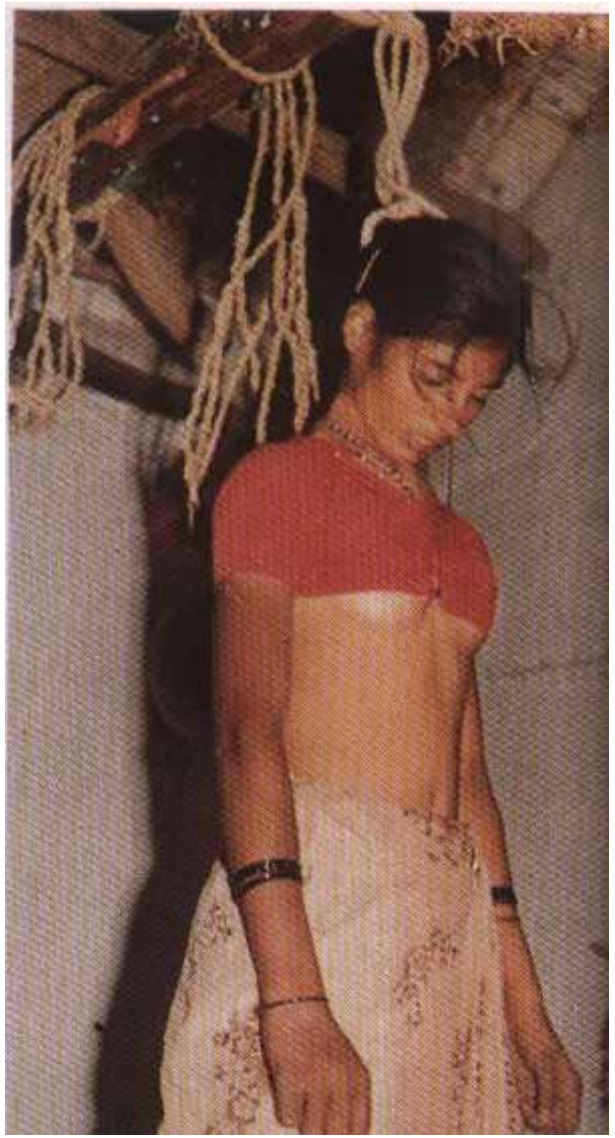
Hanging posture (complete, incomplete)

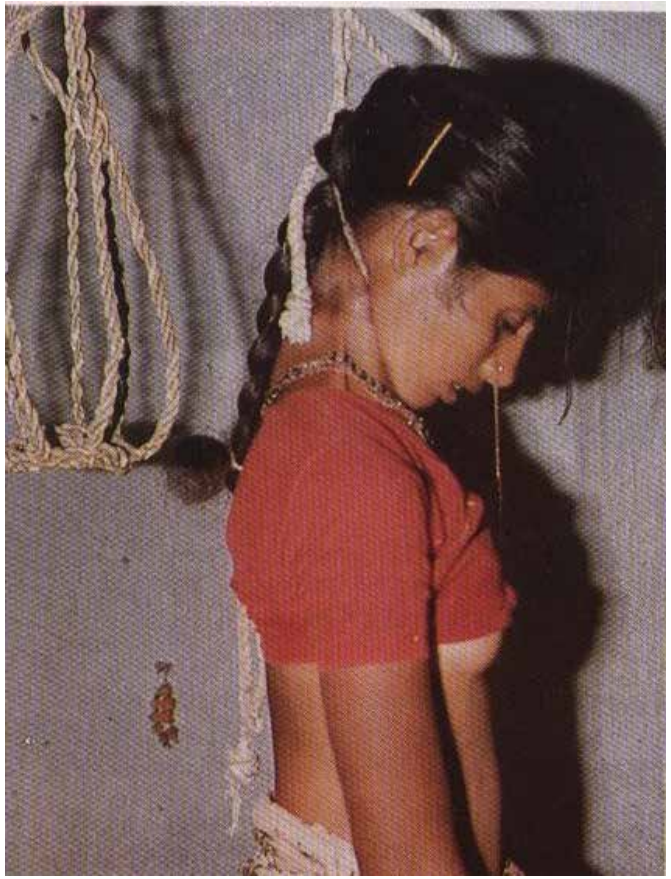


Complete body weight

COMPLETE HANGING

Complete hanging





Only part of body weight

PARTIAL HANGING

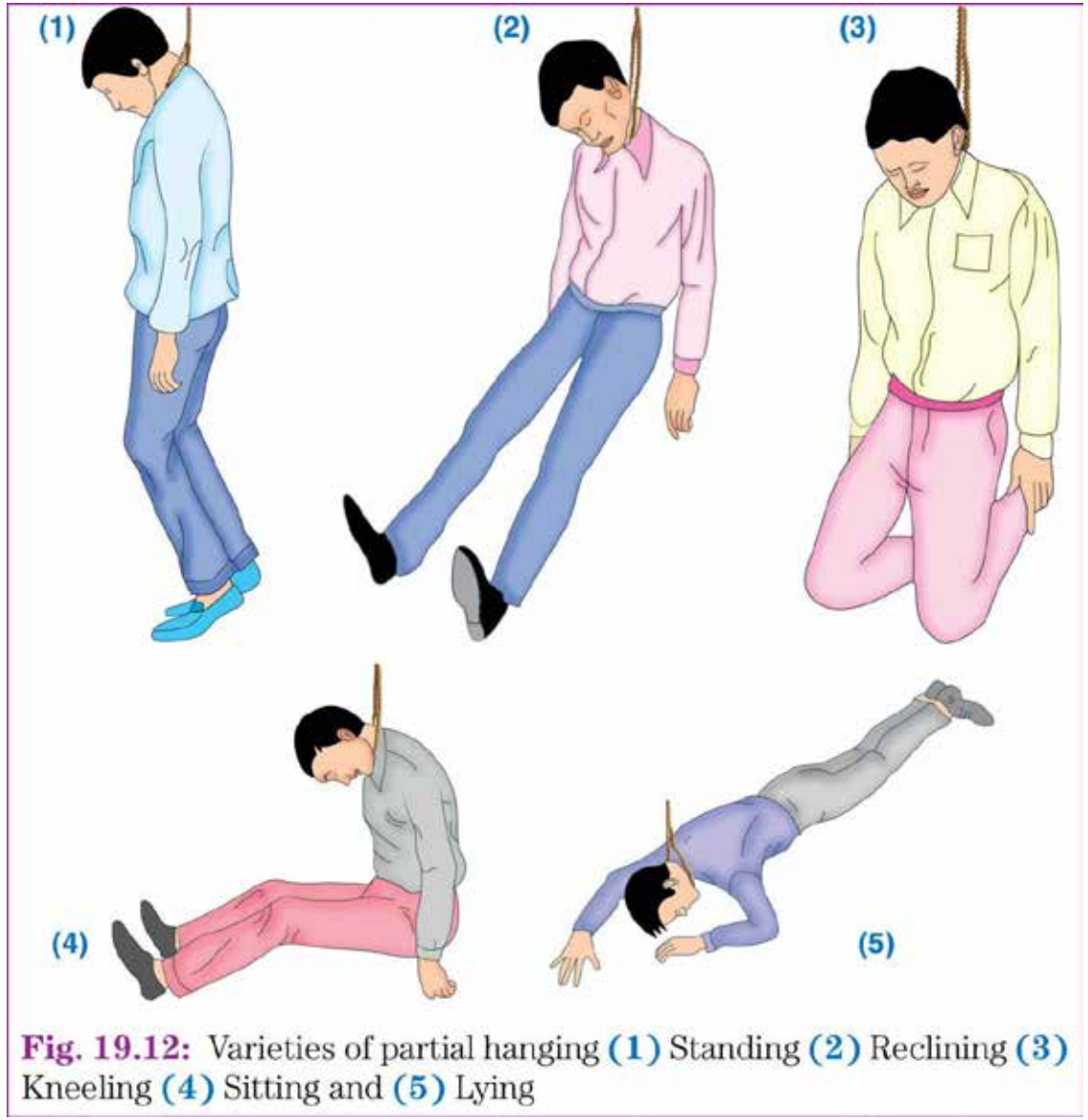
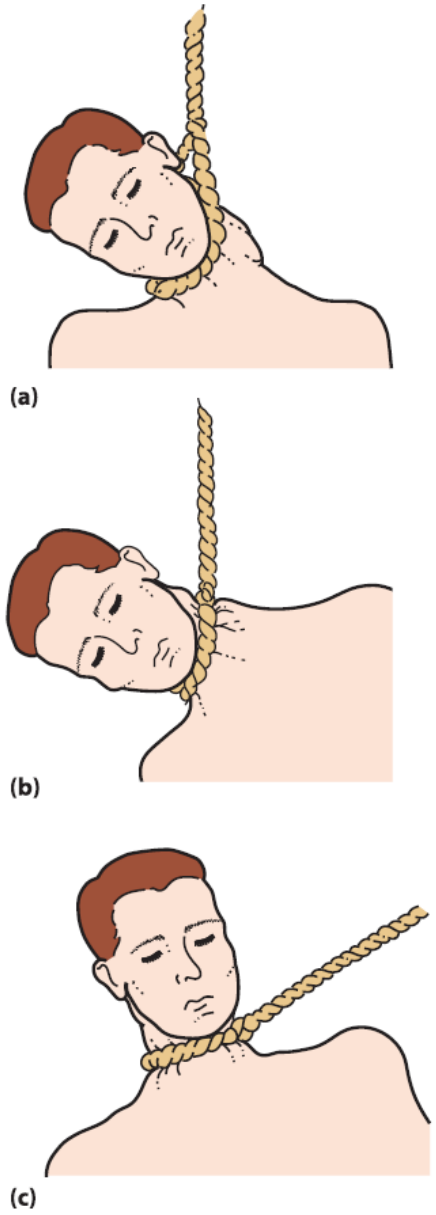


Fig. 19.12: Varieties of partial hanging **(1)** Standing **(2)** Reclining **(3)** Kneeling **(4)** Sitting and **(5)** Lying

In partial hanging, ligature mark may be more horizontal.

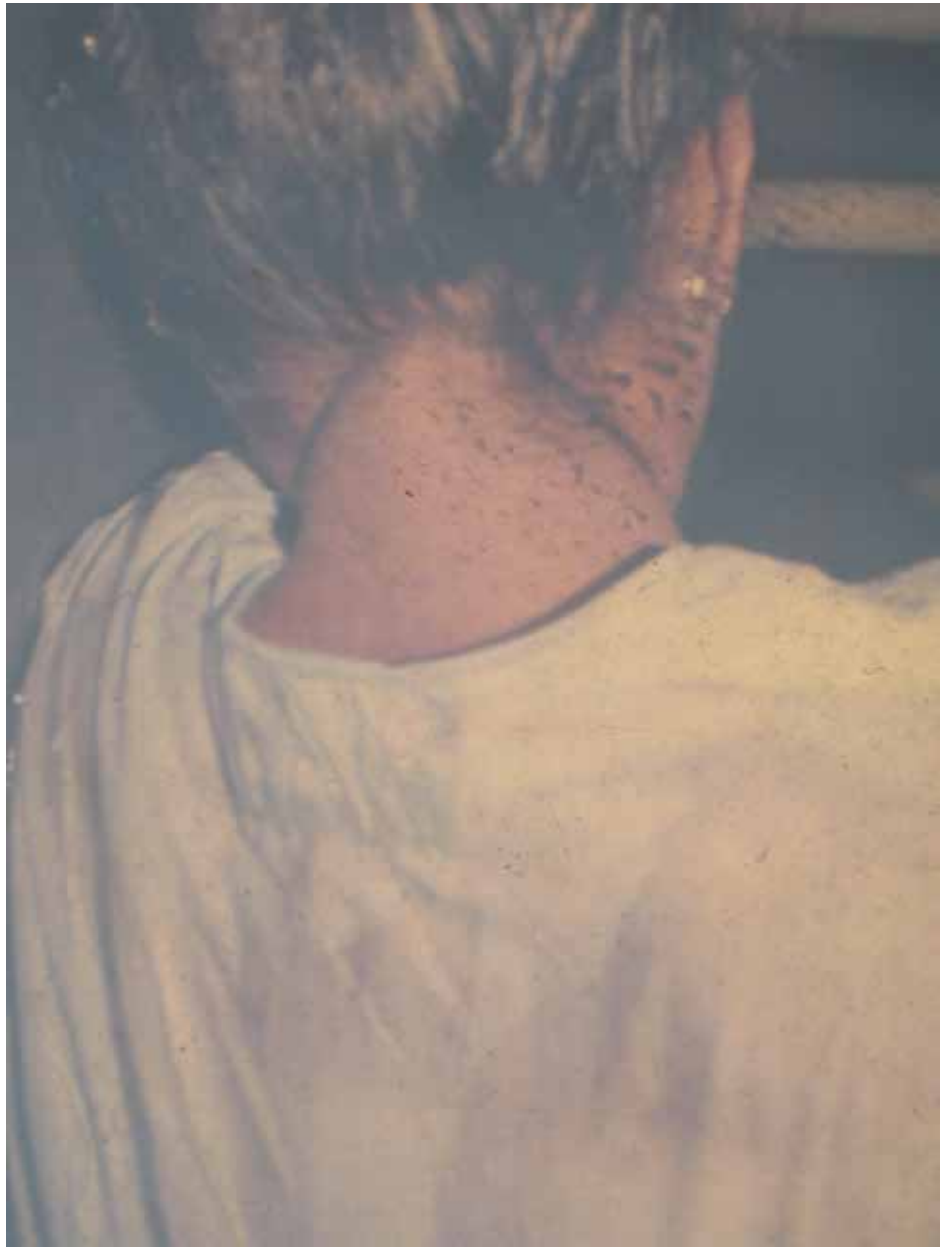
Congestion and petechiae can be present.

Should co-relate with Scene of Crime examination.



Knot of ligature is on the back side of neck.

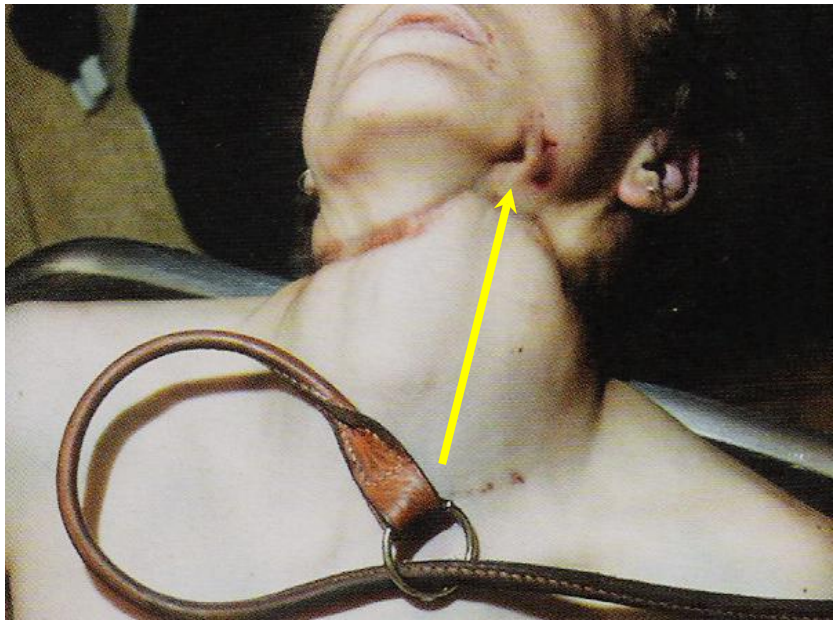
Typical Hanging



Atypical hanging

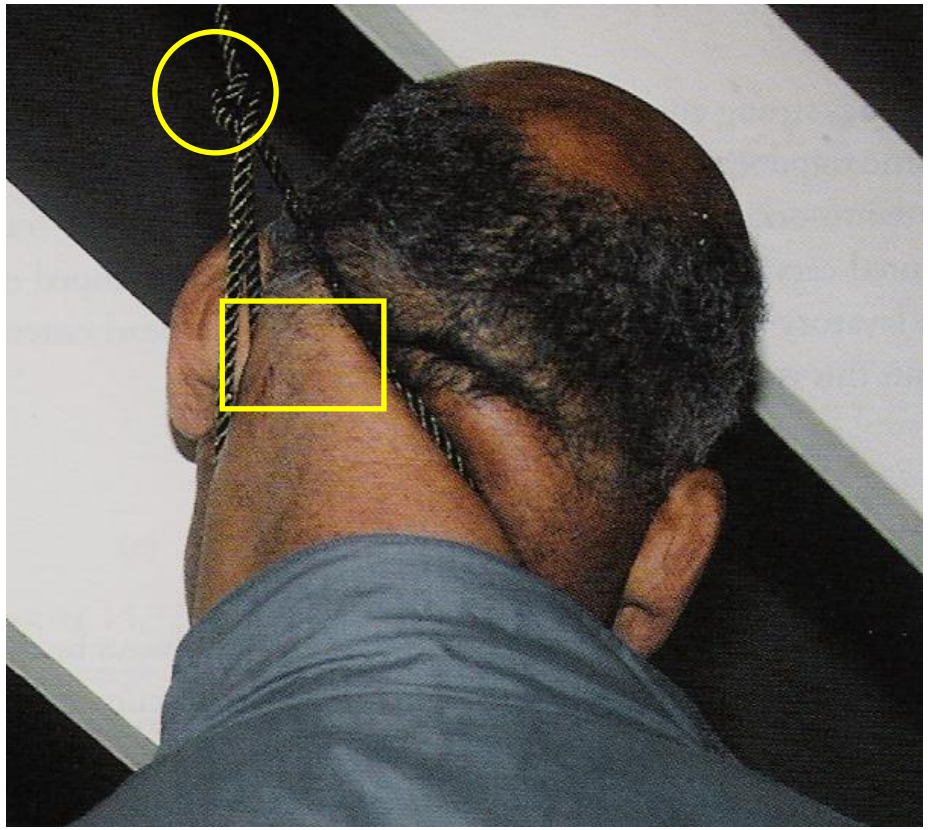
- Victim who used two neck ties to suspend himself from a hook placed on his door. The hook gave way, and he was found lying on the floor dead.

- Notice the pale, uncongested face indicating a rapid cardiac arrest.



Hanging by frontal suspension. A leather belt used as a noose.

Compression has occurred around the whole of the neck.



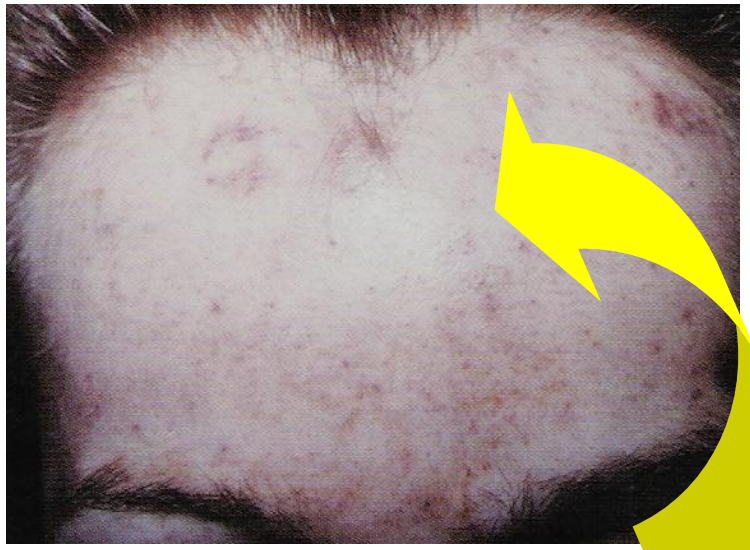
Suspension with a fixed knot in the chord so that there is a segment of skin free from the mark where the chord rises toward the knot.

Autopsy Findings

General external findings:

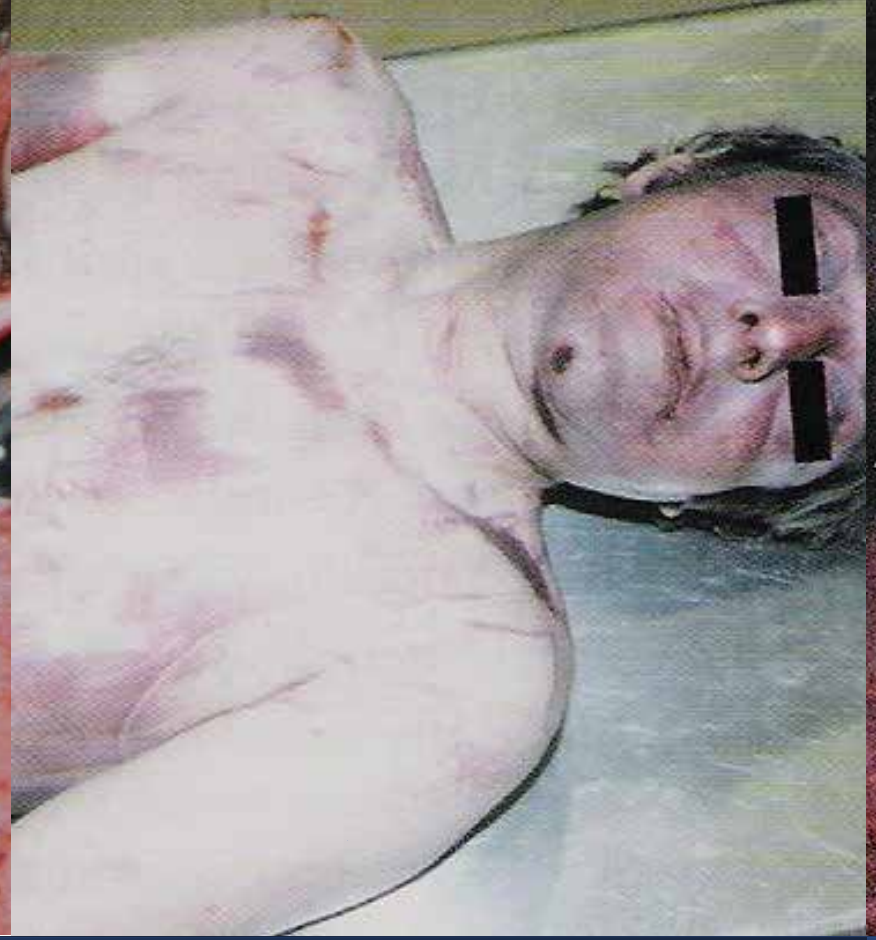
- Face
- Eyes
- Tongue
- Saliva
- Neck
- Hands
- Genitals
- Postmortem staining
- Cyanosis

External Appearances



Appearance of congestion cyanosed forehead.

After removal of ligature (scarf) the typical bruises are observed.

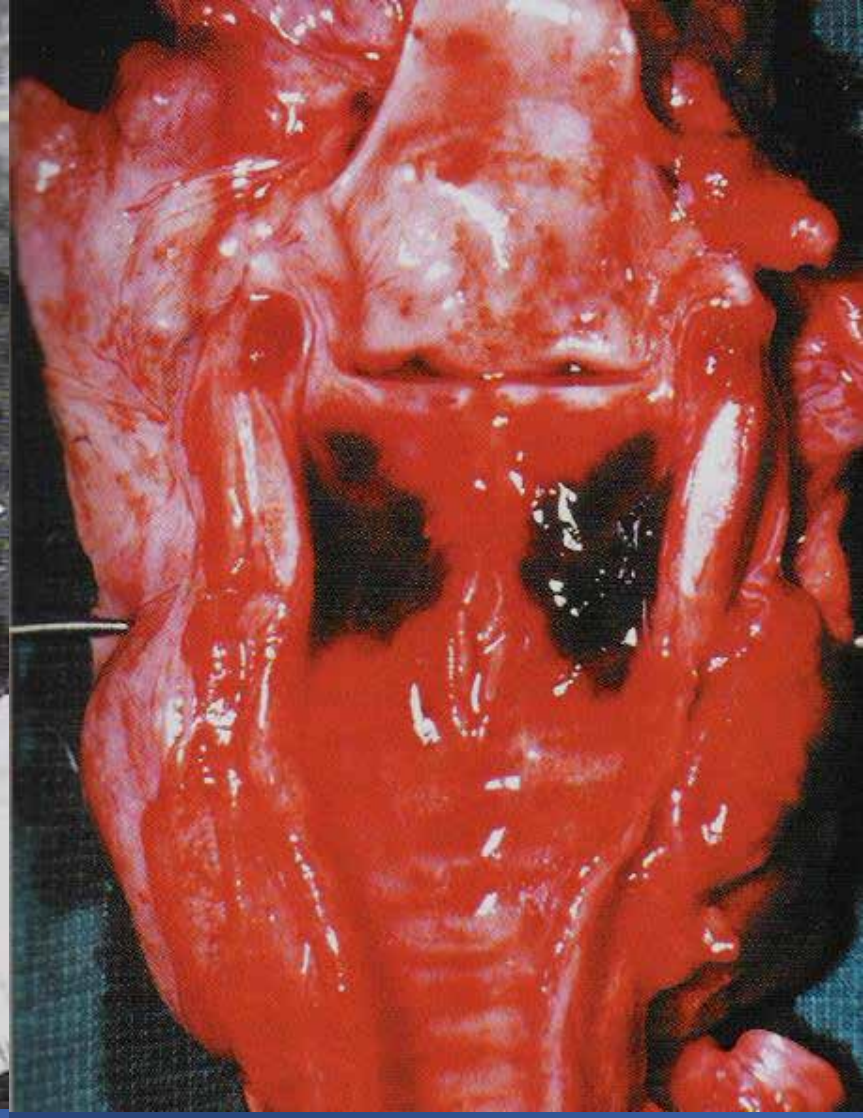

Visible Signs

Petechial Hemorrhages

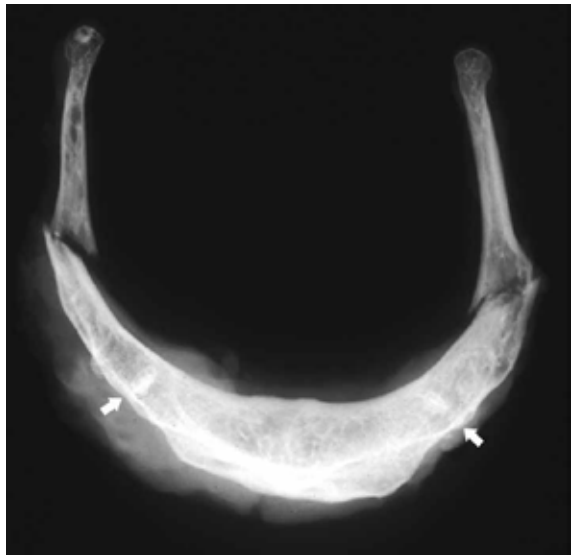
(cyanosis, petechial hemorrhages)

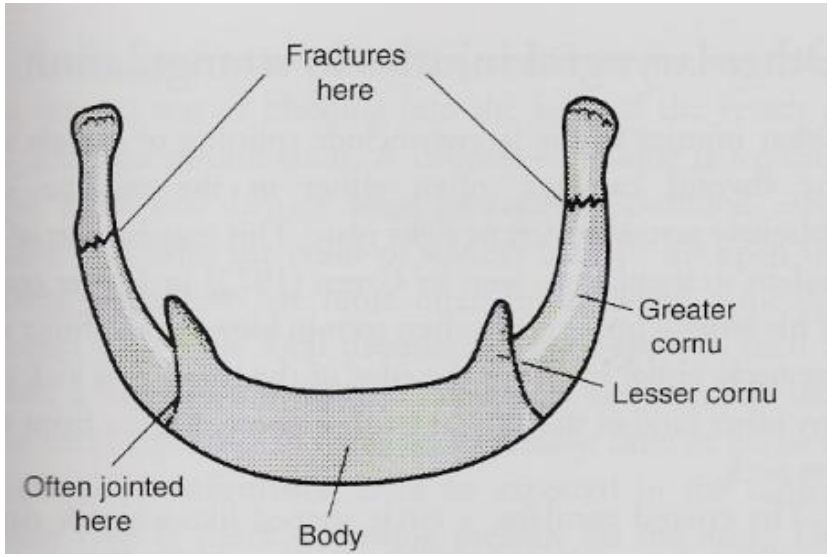
Fig. 19.9: Le facies sympathiques.

Internal Findings

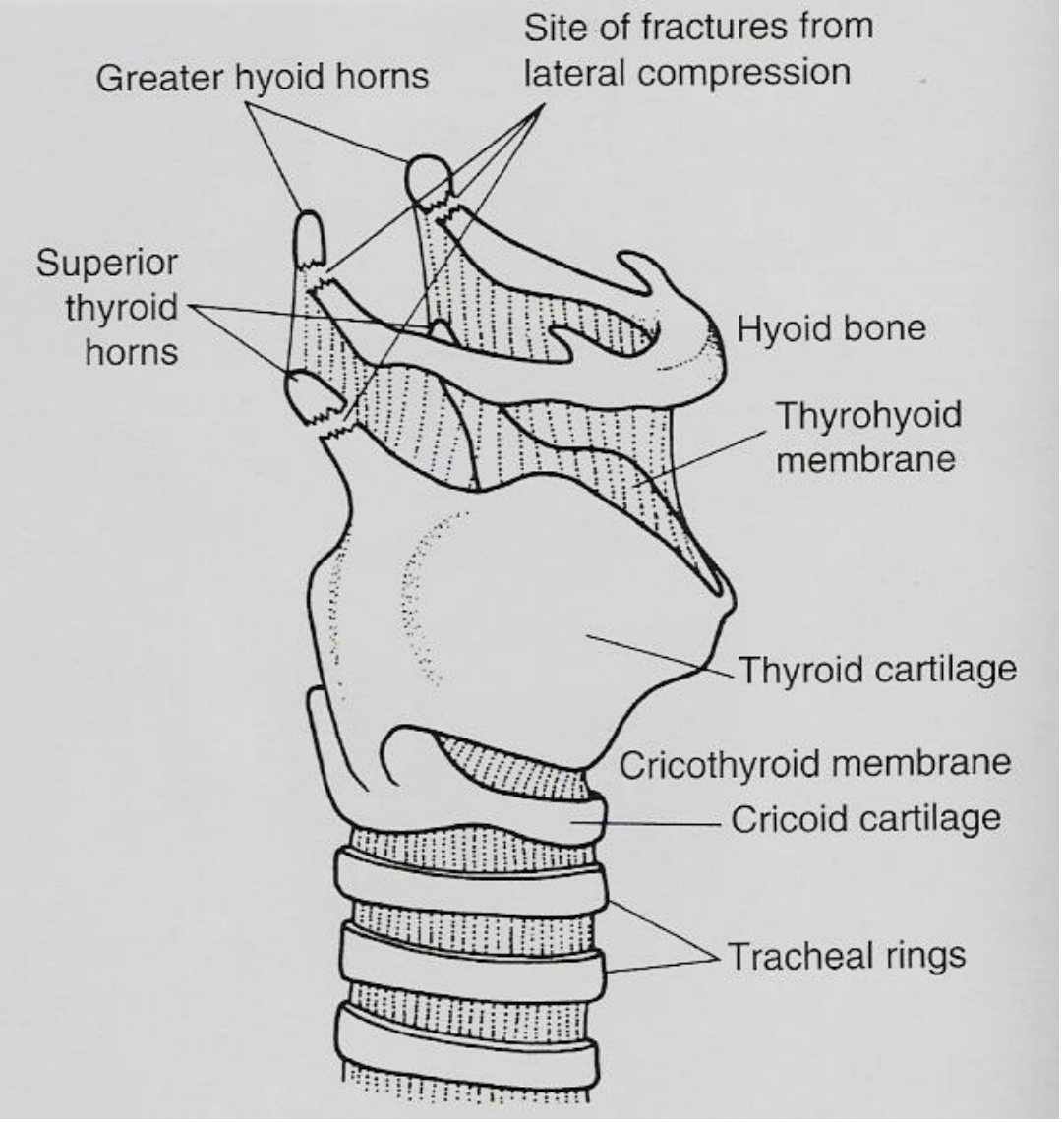


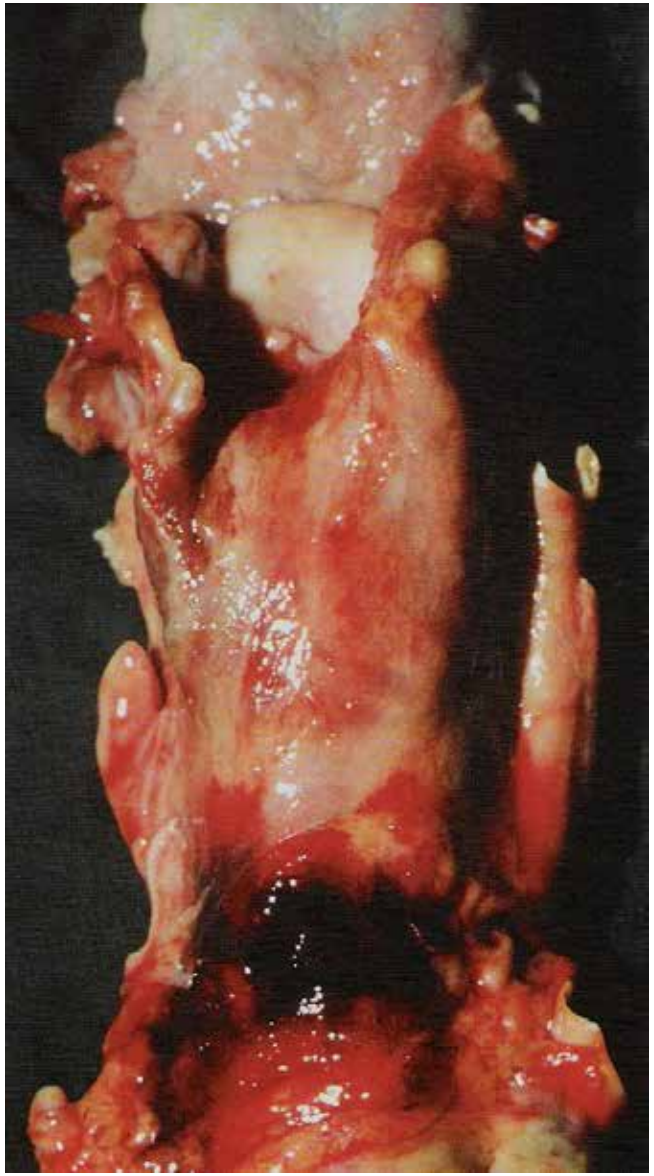
Mucosal hemorrhages





Fractured hyoid bones are often observed although, in younger subjects, calcification has not fully set in.


Site of fractures from lateral compression
Greater hyoid horns
Superior thyroid horns
Hyoid bone
Thyrohyoid membrane
Thyroid cartilage
Cricothyroid membrane
Cricoid cartilage
Tracheal rings



Medicolegal Aspects of Hanging

Pressures required to obliterate neck structures.

(i) **Jugular veins à 2 kg**

(ii) Carotid arteries à 5 kg

(iii) Trachea à 15 kg

(iv) **Vertebral arteries à 30 kg**

(v) Vertebral venous plexus
à undetermined, but between 5 and 30 kg.

Pale face - If force applied to neck is > 30kg as happens in complete hanging (when entire wt of body acts on neck), blood can neither go towards head nor return from there. The result is a pale face.

Congested face - If force applied to neck is between 2 kg and 30 kg (as happens in strangulation), blood can go to face, but can not return, resulting in intense congestion of face and bleeding from mouth, nostrils and ear (due to rupture of small capillaries). The same is true of partial hanging, when only part of the weight of body acts on the neck.

Accidental hanging

- **Sexual hanging** [syn, Asphyxiaphilia, Asphyxiophilia, Autoerotic asphyxia, Hypoxyphilia, Kotzwarrism, Masochistic hanging, Sexual asphyxia] is accidental death caused by a self-induced decrease in oxygenation of blood (hypoxia) produced most commonly by partial hanging.
- **Why is it an accidental hanging** - Death is not intended by the victim, but it usually results accidentally when the “safety” mechanisms employed by the deceased fail, or when there is an overdose of chemical inhalation.
- **Incidence –** Western countries: 1-2/million population/yr. Much less in India.
- **Sex -** male: female ratio > 50:1.

Homicidal hanging

- **Incidence -** Extremely rare, because it is difficult for a single person to overpower a man.
- **Lynching:** is an extrajudicial execution carried out by a mob by hanging without a fair trial. A popular belief is that it was done when a black man raped a white woman. However, only about 1/4th of lynch victims were accused of rape or attempted rape. Most blacks were lynched for outspokenness or other presumed offenses against whites, or in the aftermath of race riots.
- One of the common methods was to hang the suspect from a tree by a rope.
- PM findings would be same as those in homicidal hanging; signs of struggle may be found.

Postmortem suspension

- Postmortem suspension is when a person is first killed and then suspended to simulate suicide [simulated hanging].
- Ligature applied to the neck during **supravital period** will produce a ligature mark.

Antemortem hanging vs. Post-mortem suspension

S.No	Feature	Antemortem hanging	Postmortem suspension [simulated hanging]
1.	Ligature mark	Shows vital reaction. Tissues under ligature mark are dry, hard, condensed and parchment like	No such reaction. Tissues underneath show no appreciable change
2.	Salivary dribbling mark	Present	Absent
3.	Cyanosis	Seen, particularly in face, ears, lips etc	Not seen
4.	Tongue	Protruded	Not protruded
5.	Fecal and urinary expulsion	Yes	No
6.	PM Staining	On legs, soles, hands [glove-stocking like distribution]	If dead body hanged soon after death, distribution would be same as that in AM hanging. However if body was kept in a supine or prone position for >8 h and then hanged, PM staining would get fixed in respective positions, and would not show typical glove-stocking like distribution
7.	Struggle marks	No	Yes
8.	Evidence of injuries, defense wounds	No	Yes
9.	Cause of death	Hanging	Other than hanging [eg throttling, poisoning etc]
10.	Suicide note	Present	Absent
11.	Door closed from inside	Generally yes	Never
12.	Point of suspension	At such a height that victim could have reached it	May or may not be so.
13.	Overturned stool, chair etc below feet	Generally present	Generally absent
14.	Psychological autopsy	Points to suicidal tendency	Not so

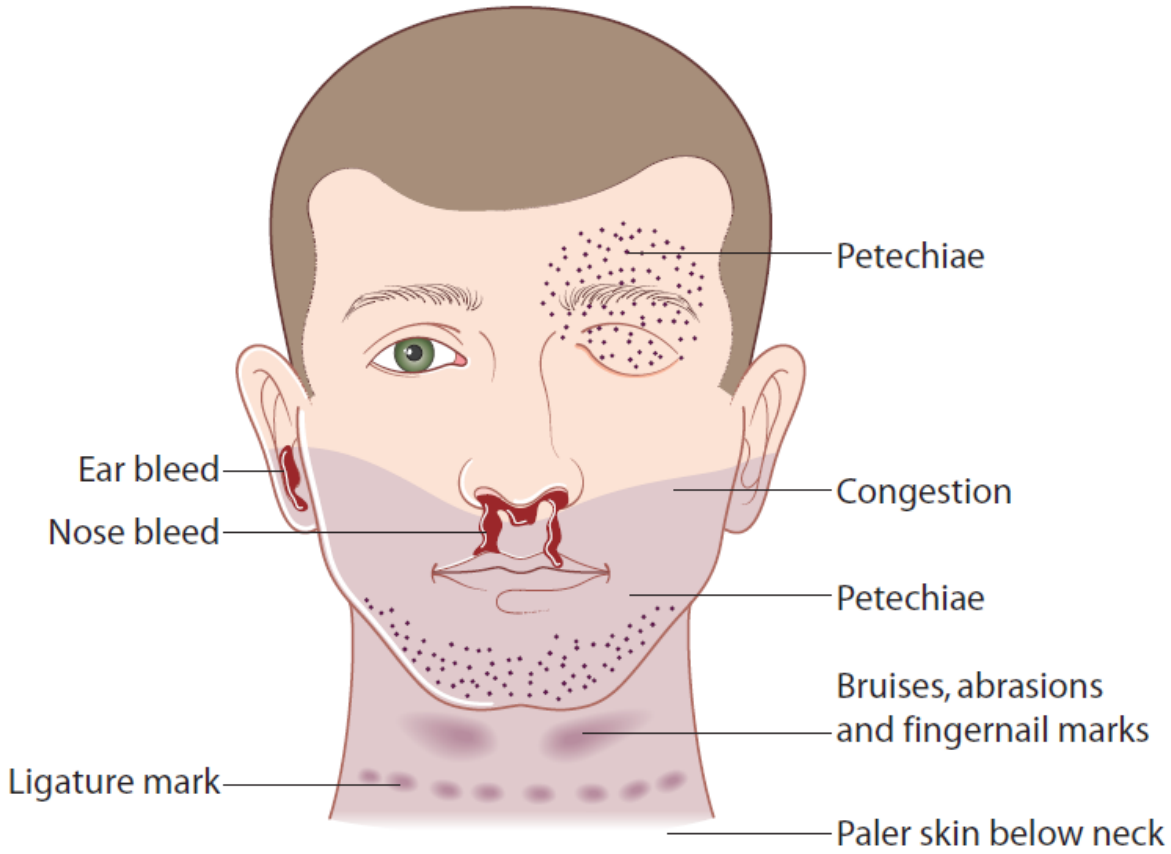
Judicial hanging

- Judicial hanging is a method of execution in which a noose is tied round the neck of condemned criminal, and he is made to drop between 1-5 m depending on his weight.
- It is an official method of execution in India and several other countries.
- **Position of knot –** Submental is most effective, but left subaural was used officially because it does not slip.

HANGING vs. STRANGULATION

HANGING	STRANGULATION
Suicidal	**Homicidal**
Maybe accidental, rarely homicidal	Maybe accidental, rarely suicidal
Constricting force: Body weight	External application of force
LIGATURE MARK: seen in hanging and ligature strangulation	
Usually oblique	Horizontal
Above thyroid cartilage (Adam's apple)	Below thyroid cartilage
Face and eyes are pale	Deep congestion of face and eyes
Rarely bleeds from nose and mouth	Bleeding from nose and mouth
Other injuries are rare, minimum	Signs of struggle
SOC intact, suicide note	Disturbed SOC


STRANGULATION


Petechiae
Ear bleed
Congestion
Nose bleed
Petechiae
Bruises, abrasions
and fingernail marks
Ligature mark
Paler skin below neck

STRANGULATION

- is that form of asphyxia which is caused from constriction of the neck by a ligature without suspending the body.

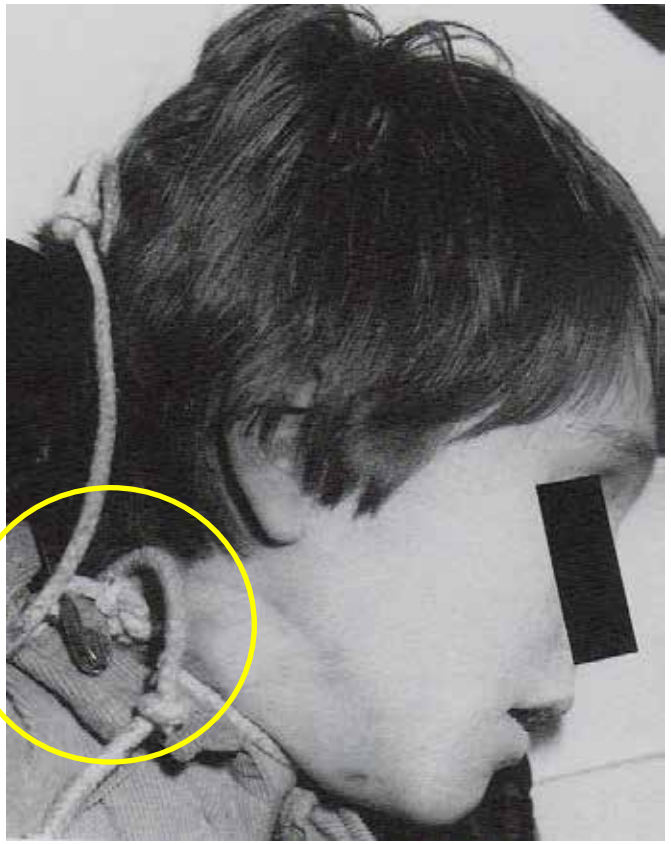
- It is of two types :
  - **Strangulation by a ligature.**
  - **Manual strangulation or throttling.**

Strangulation by ligature

- May consist of a wide variety of objects, some not obviously suited for the purpose.
- Cords, wires, ropes, and some belts are strong enough to cause death.
- A U-shaped ligature is often times sufficient to occlude the airway.
- In the majority of cases the ligature is crossed over itself after passing a full circle around the neck.

Types

- **Self strangulation** by ligature with three turns around the neck and a complex knot.



Ligature strangulation by means of a "Spanish windlass." A penknife has been thrust through the knot to twist the ligature tight.

Manual Strangulation

- Common method of homicide
- Most often associated with power and size of assailant.
- Most commonly seen in domestic homicides
- Also common in sex related homicides.
- Rarely committed by women unless committed on a child.

Cause of Death

Death may be due to:

- Asphyxia,
- Cerebral anoxia or venous congestion.
- Combined asphyxia and venous congestion.
- Vagal inhibition,
- Fracture-dislocation of cervical vertebrae,

Post-mortem Appearances

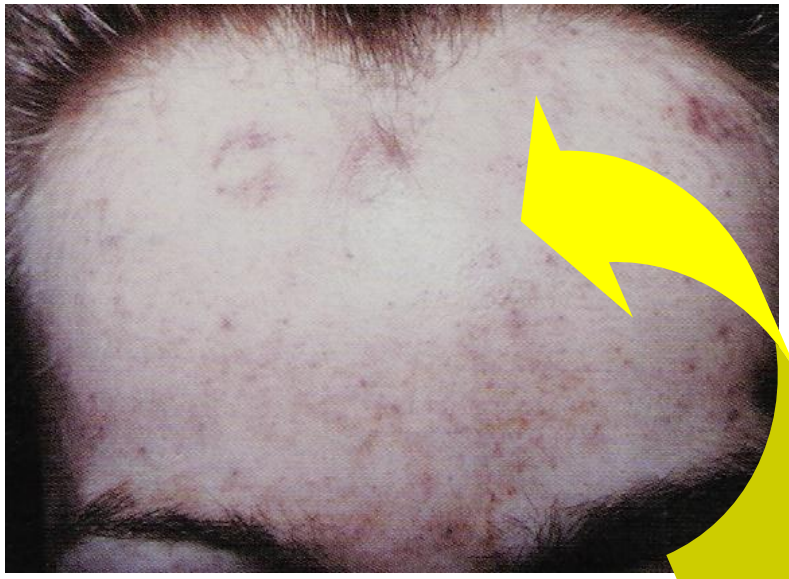
(A) External:

- **The ligature mark on the neck, over middle or below the thyroid cartilage.**
- **The mark completely encircles the neck transversely but is more prominent at the front and' sides than at the back. ‘**
- **The mark may be absent on the back due to the presence of clothing or long hair between the ligature and the skin.**

The ligature Mark

- The appearance at autopsy depends on the nature and texture of the ligature.
- When there is a pronounced pattern such as a weave of a chord pattern abrasions are commonly noted.
- Fabric sometimes leaves marks that are difficult to interpret.
- Fabric may also leave a sharp mark which may be confused for a chord.

External Appearances



Appearance of congestion cyanosed forehead.

After removal of ligature (scarf) the typical bruises are observed.

Autopsy appearances of Manual Strangulation

Bruising on the neck

Abrasions on the neck

Manual Strangulation with Decomposition present

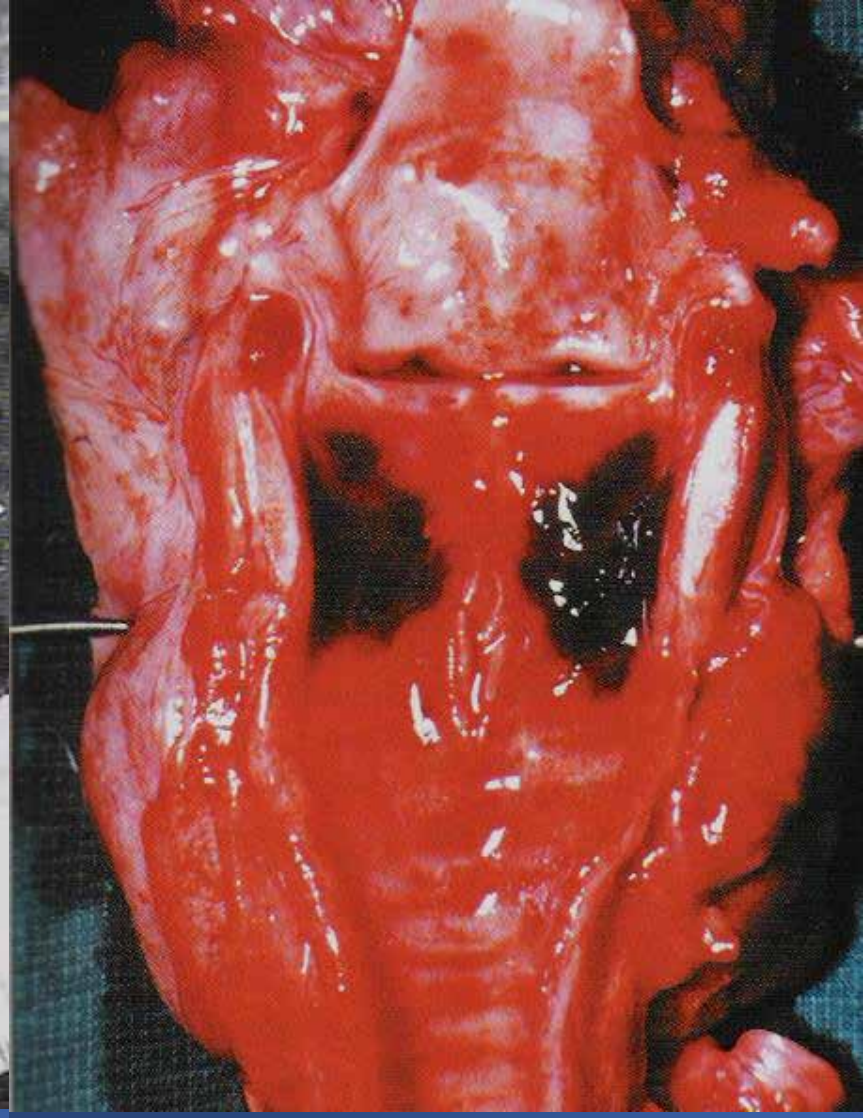
- Manual strangulation with bruising from the assailant and fingernail abrasions from the victim.

- The face is pale as a result of rapid vasovagal cardiac arrest before congestive signs could appear.

Internal appearances in Manual Strangulation

- Bruising may be visible internally
- At autopsy, it is critical to release venous pressure before dissecting the neck to avoid artefactual hemorrhages.
- This is done by excising the jugular after opening the neck.
- Radiography may be performed before the neck is opened.
- Careful layer by layer dissections can then be carried out.

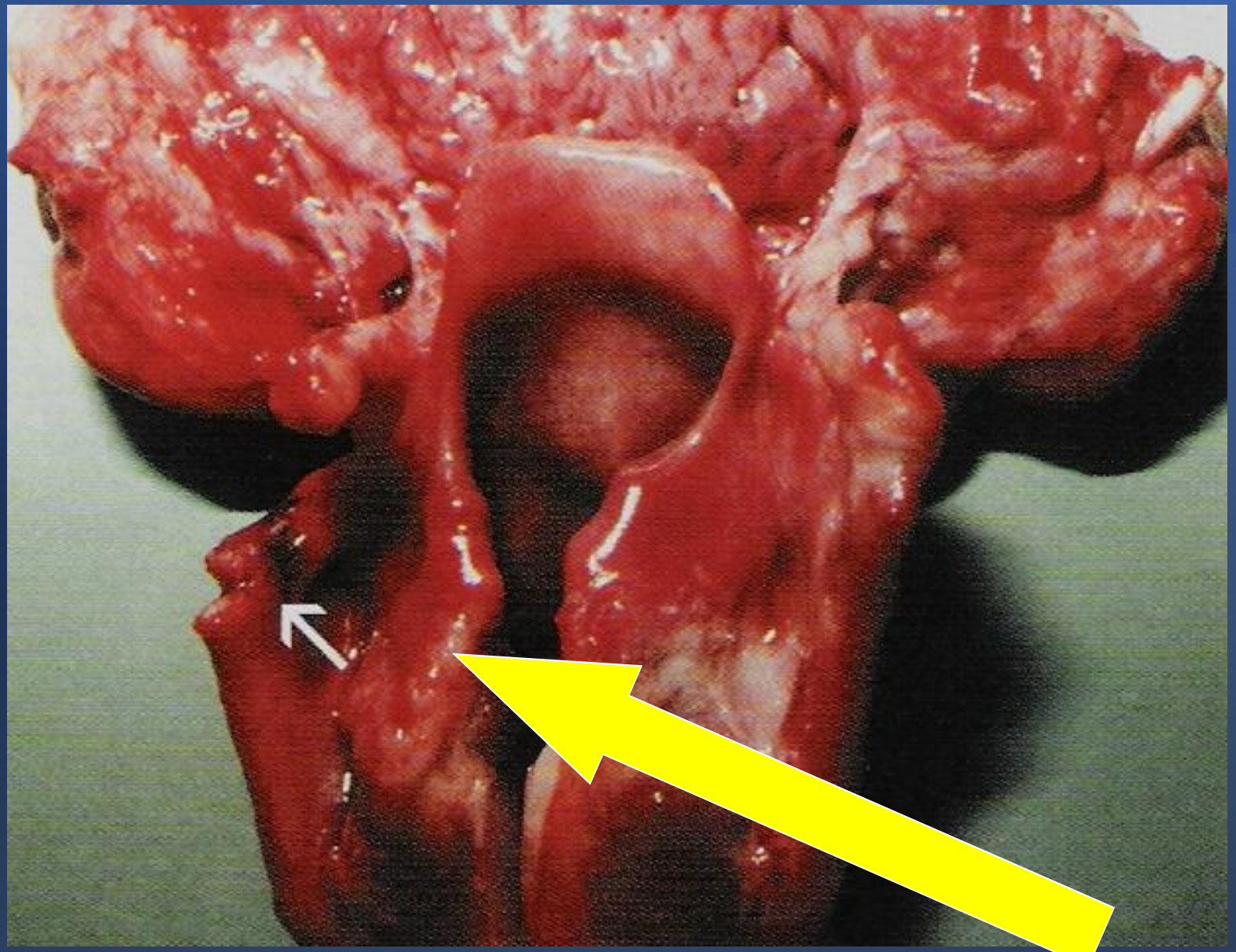
Bruising in Manual Strangulation



Mucosal hemorrhages

Bleeding behind the larynx

- Bleeding over the front of the larynx is usually genuine if venous pressure was released before dissection.
- The best way to release this venous pressure is incising the jugulars or removing the brain.
- Banding on the esophagus is also a common finding in normal autopsies and not to be confused with strangulation.

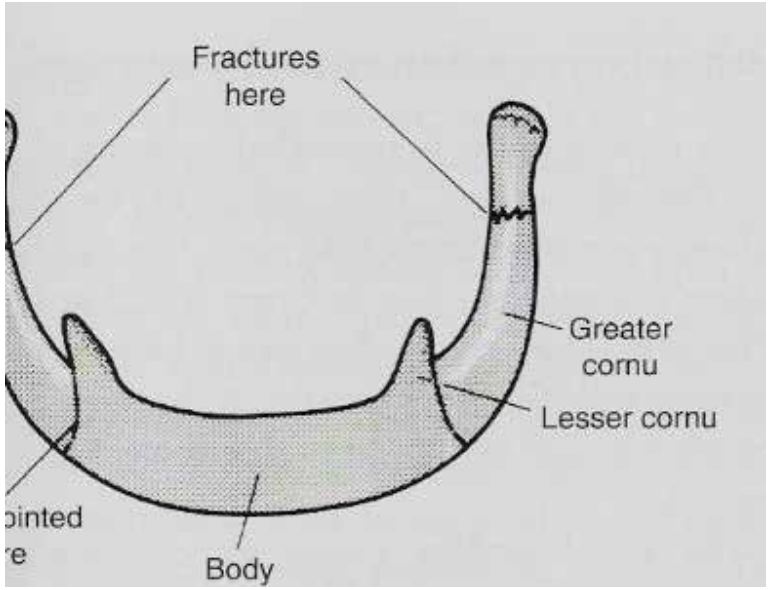


Fracture of the left laryngeal horn with a hemorrhage.

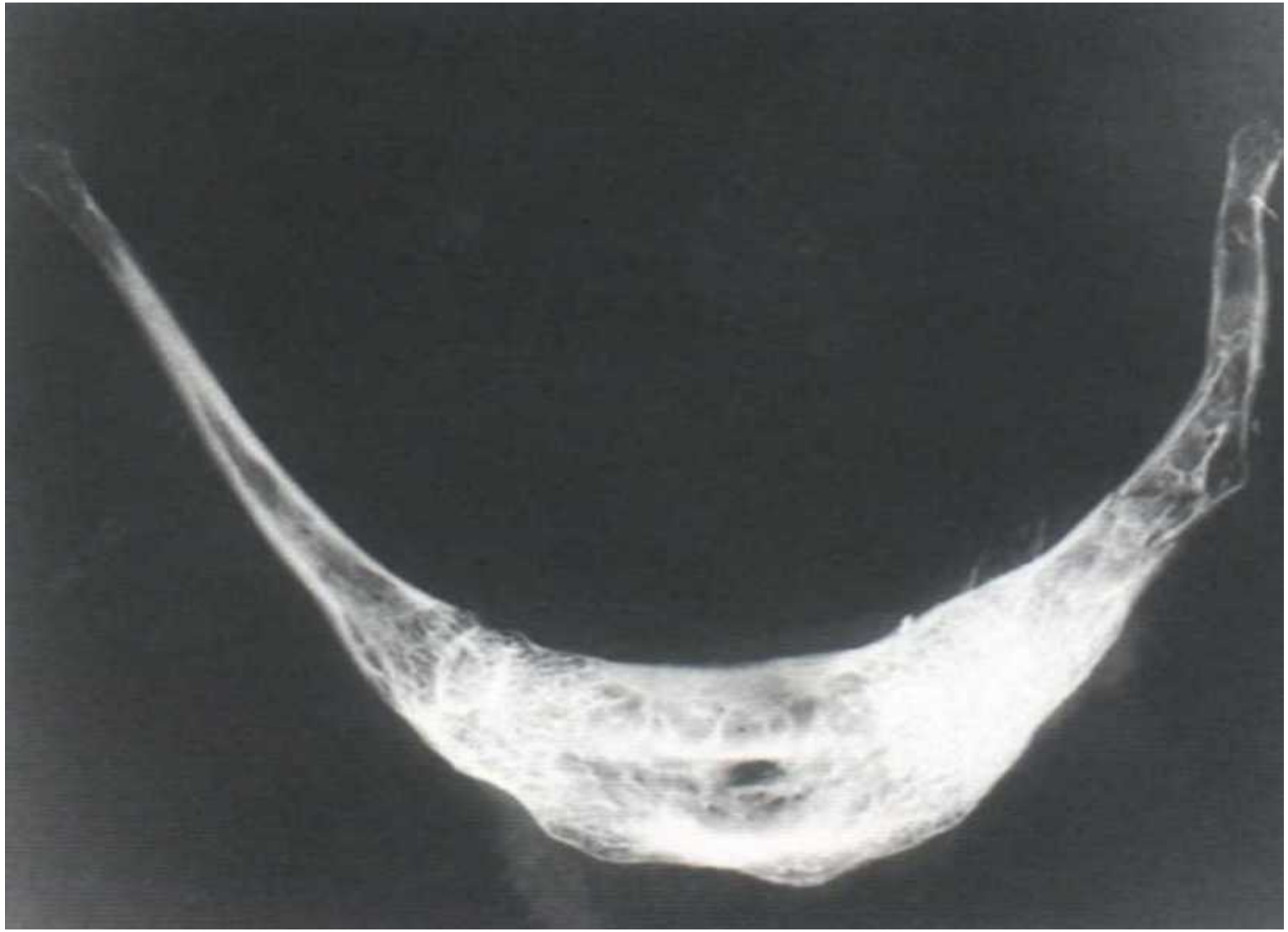
Injury to the larynx

Damage may occur in many ways

- The superior thyroid horns are often fractured because of bi-lateral compression of the larynx.
- Fractured hyoid bones are often observed although, in younger subjects, calcification has not fully set in.



Hyoid fracture



Hyoid bone, Thyroid cartilage, Cricoid cartilage

Psedo-Strangulation

- Occasionally marks are seen on the dead bodies of infants and children.
- In whom the neck is short. These depressed marks are produced from folds in the skin due to bending of the head.

Also seen in:

- Short-necked persons after death,
- Decomposing bodies with tight collars.

BANSDOLA

- Strong bamboo or stick is placed across the back of the neck and another across the front. Both the ends are tied with a rope due to which the victim is squeezed to death.

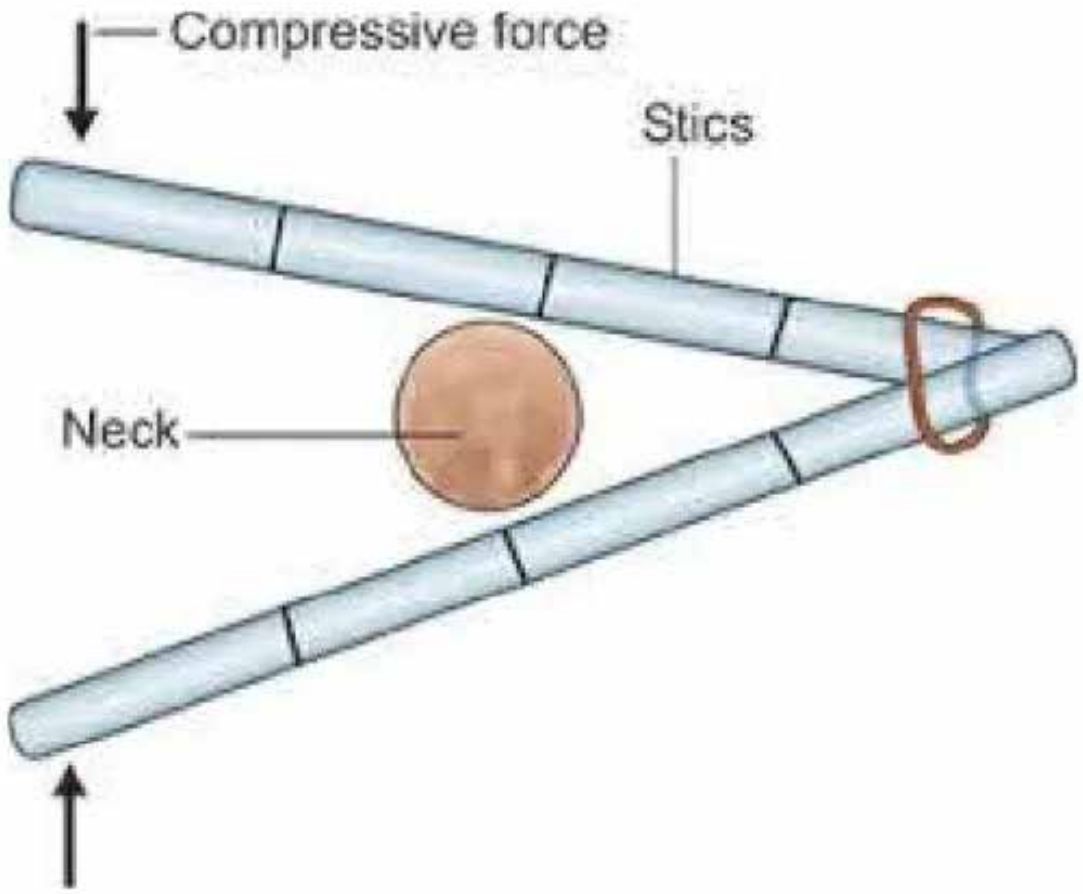
- Sometimes. a stick is placed across the front of the neck. and the assailant stands with a foot, at each end of the stick.

- If a stick or foot is used. a bruise is seen in the centre of the neck across the windpipe.

- If two sticks are used -- a similar mark will be seen on the back of the neck.

- Sometimes. the chest may be squeezed forcibly between two sticks placed across the back and front of the upper part of the chest. This interferes with respiration and causes laceration of the muscles and fractures of the ribs.

Bansdola

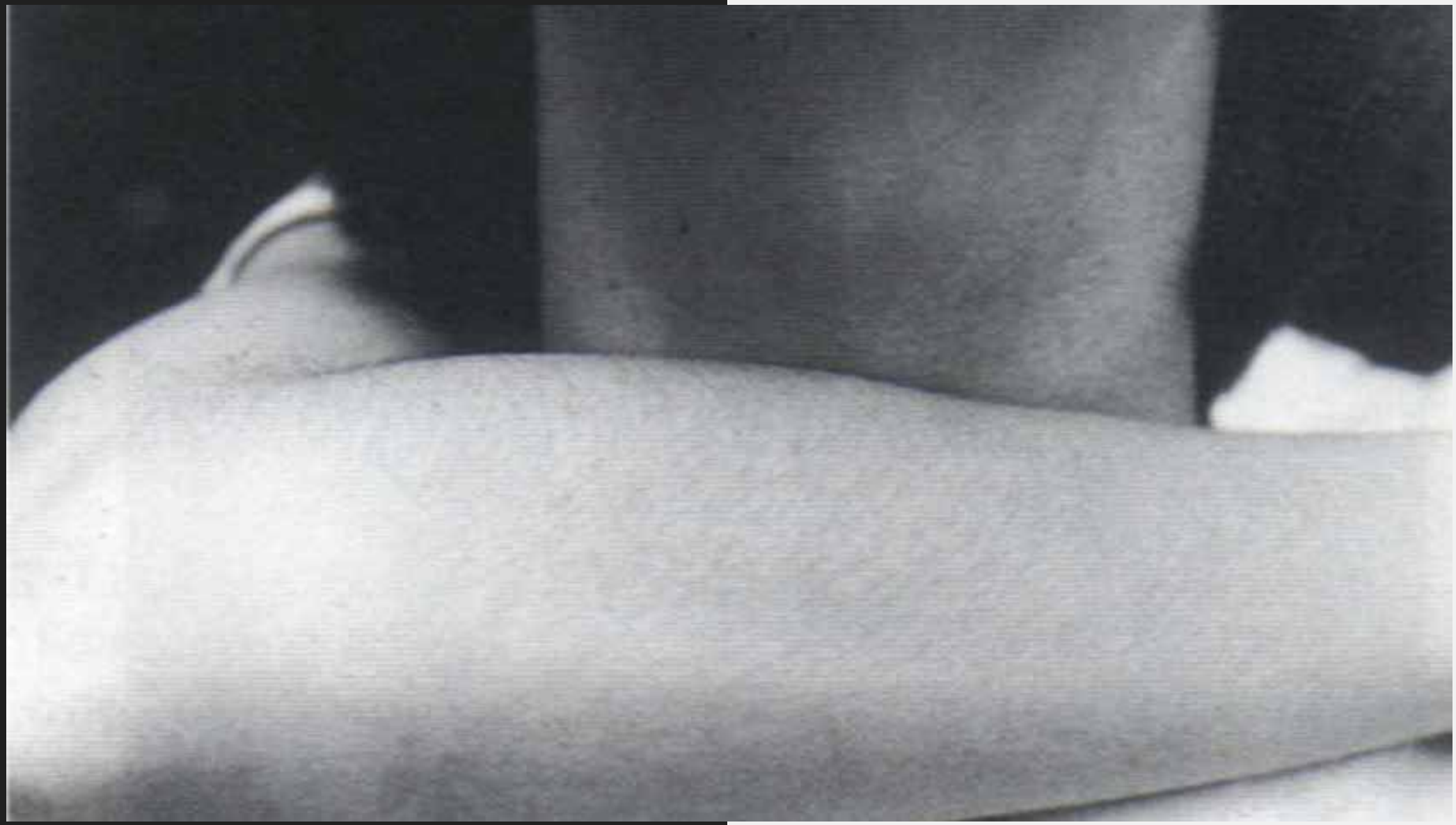


GARROTTING

- The victim is attacked from behind without warning.
- The throat may be grasped, or a ligature is thrown over the neck and quickly tightened.
- In this way a single assailant can kill a healthy adult male.
- Garroting as a mode of execution was once employed in Spain.
- An iron collar around the neck is tightened by a screw for strangling (Spanish Windlass).

MUGGING

- Strangulation is caused by holding the neck of the victim in the bend of the elbow.
- Pressure is exerted either on front of the larynx, or at one or both sides of the neck by the forearm and upper arm.
- The attack is usually made from behind.
- The post-mortem appearances are those of ligature strangulation.



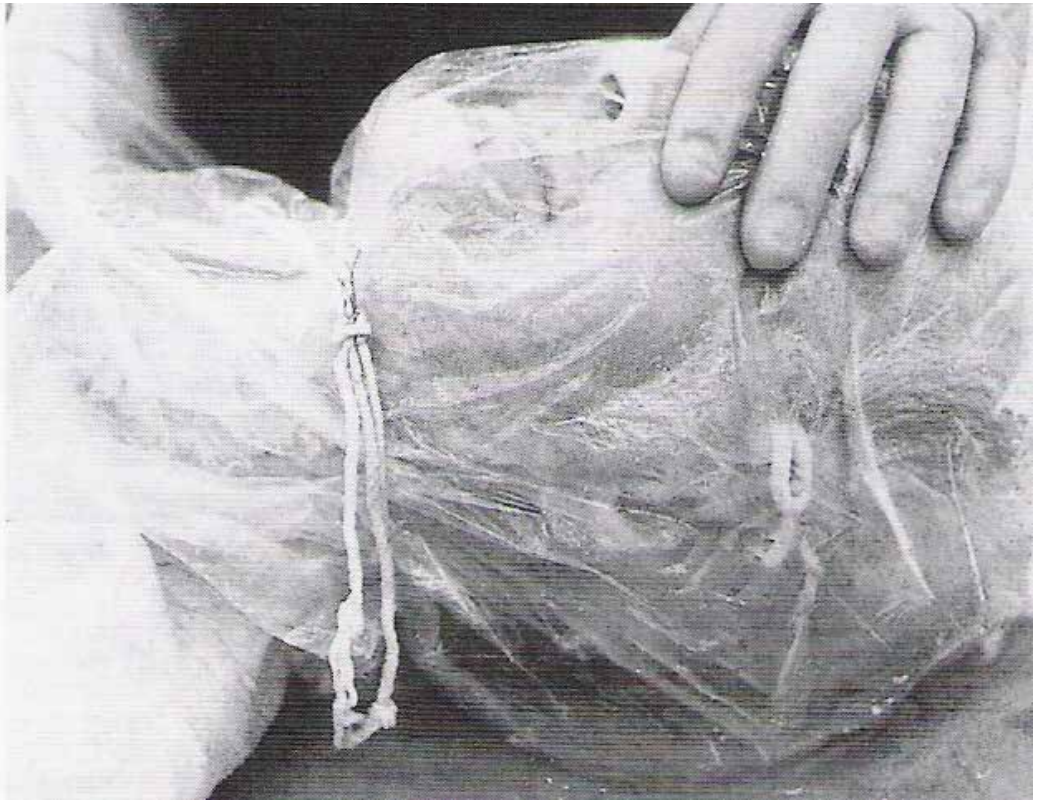
Arm-lock

- Sometimes, a diffuse abrasion may be seen along the margin of the jaw due to the friction of the forearm.
- Internally, there may be diffuse bruising, but this may be slight or absent.
- There may be bruising behind the larynx and in the strap muscles of the neck.
- Fracture of superior horn of thyroid or hyoid is rare.

Hyoid Bone Fractures

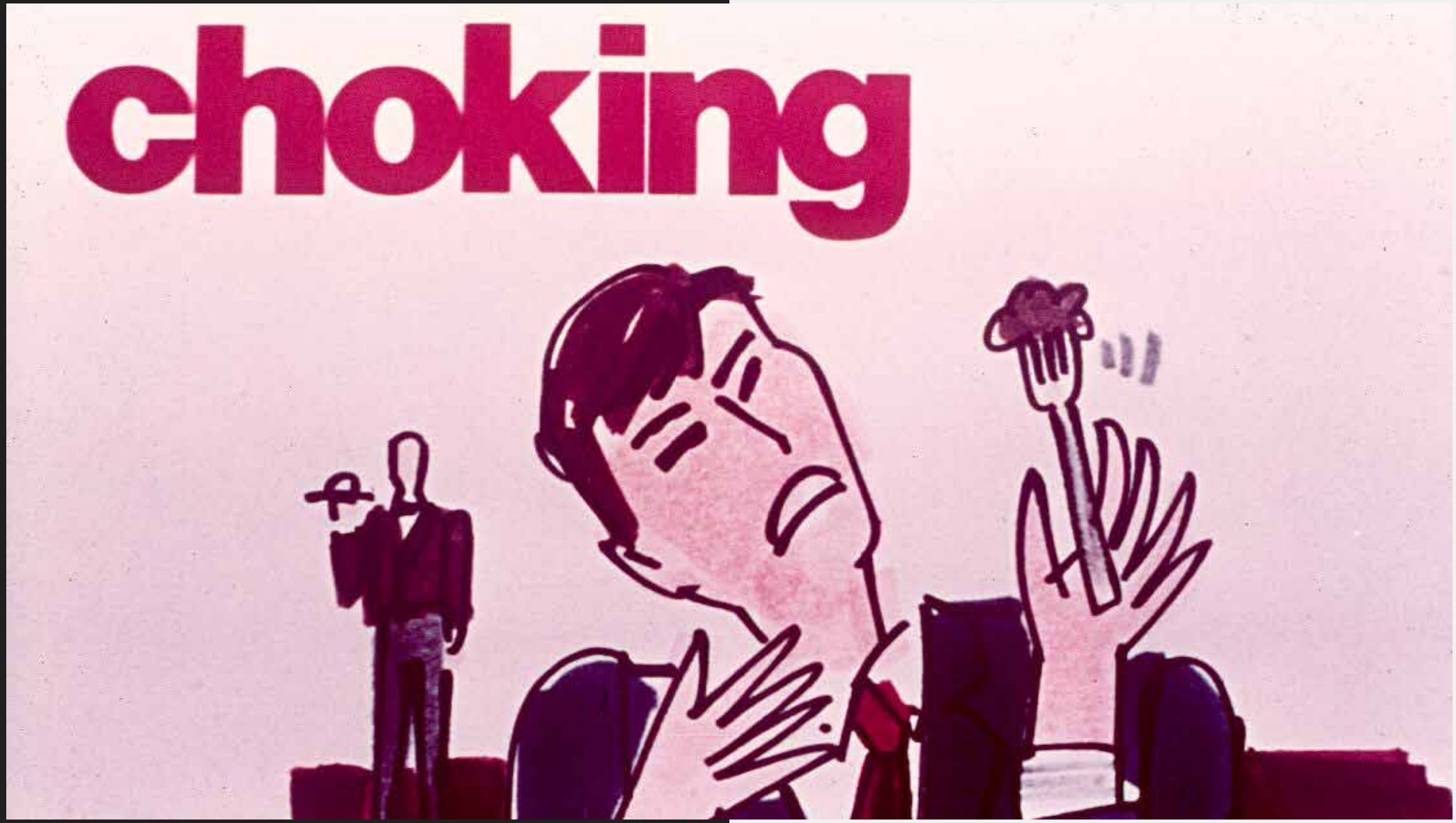
- Inward fracture
- Antero posterior compression fracture
- Avulsion fracture.

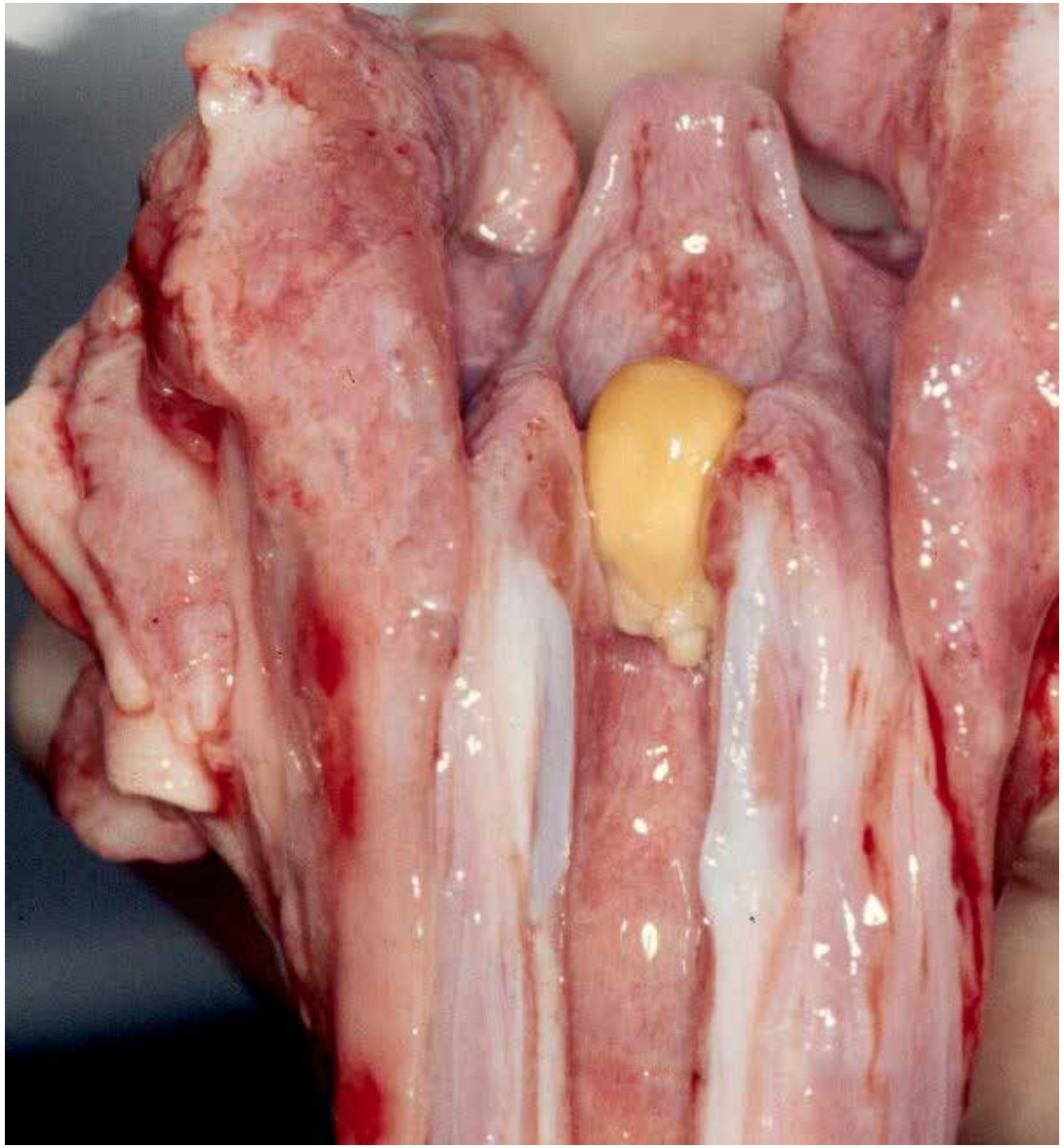
SUFFOCATION

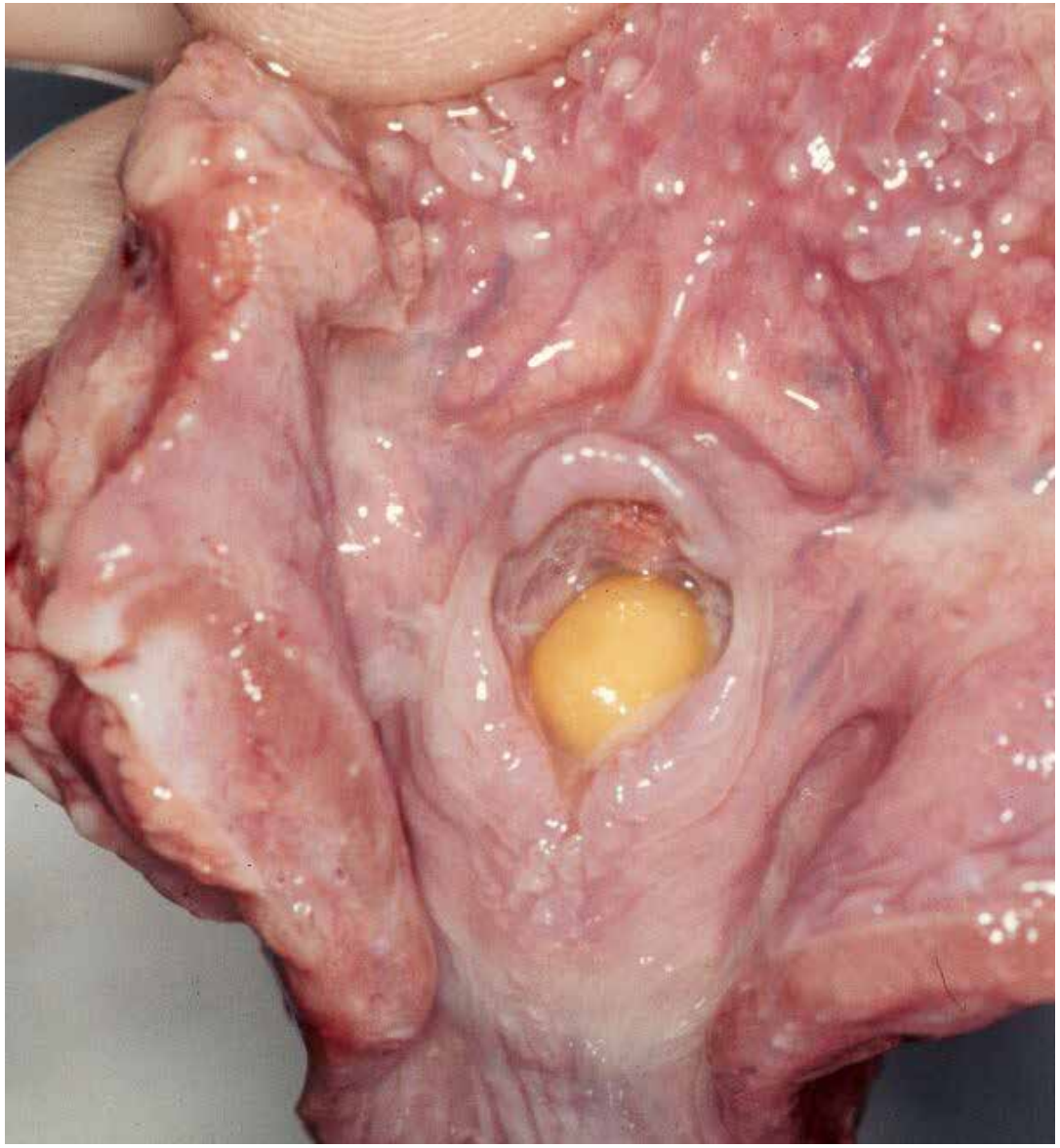


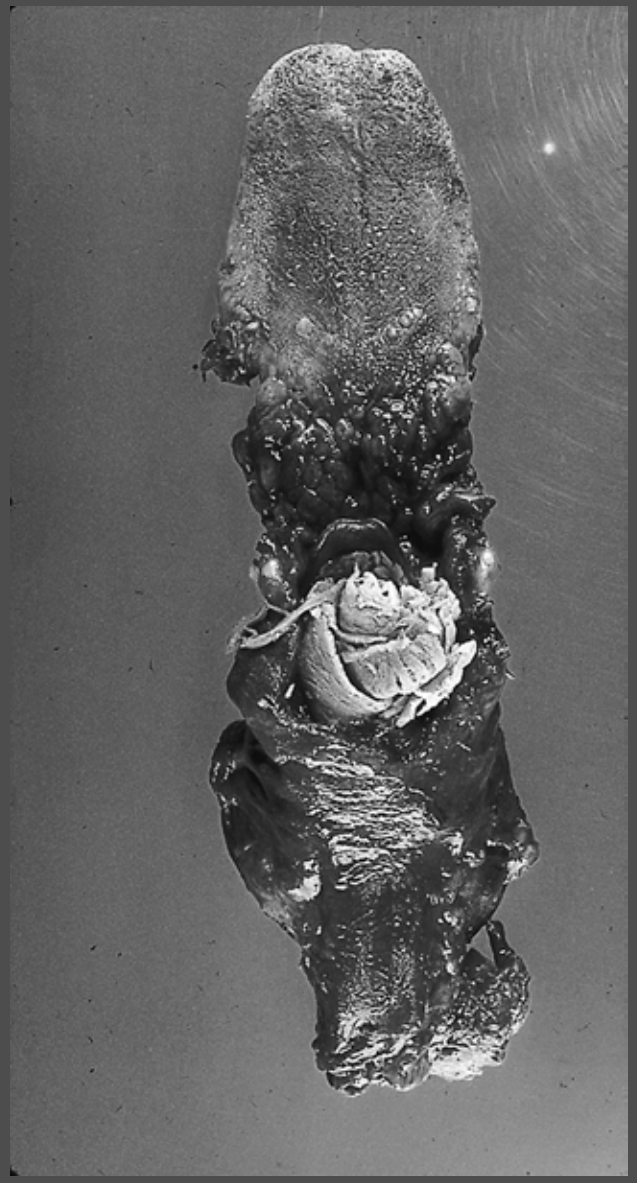
Smothering

GAGGING


choking







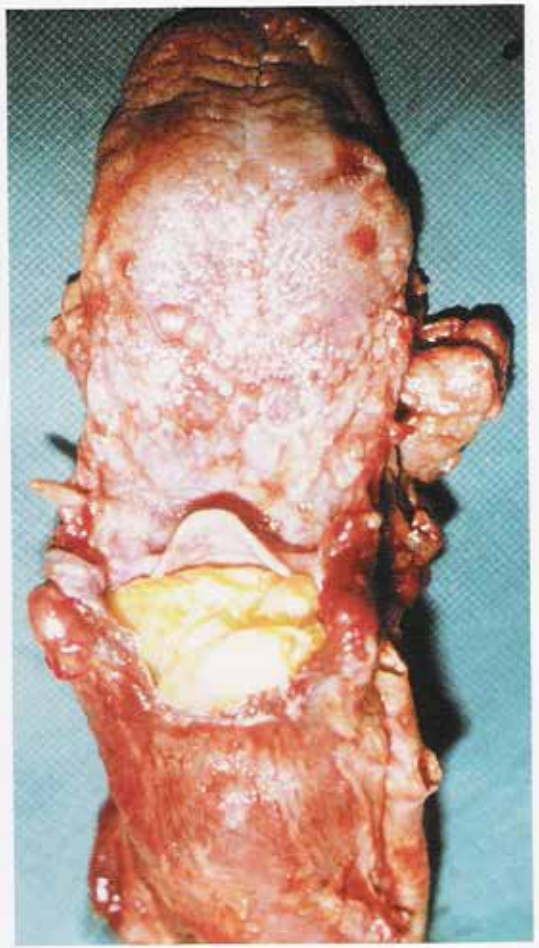


FIGURE 14.9 *Blockage of the larynx by a complete small orange in a mentally disturbed patient. The fruit had just been swallowed and was not regurgitated from the stomach. The face was pale and death was rapid, unaccompanied by symptoms of choking.*


THANK YOU