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1. Learning Outcomes

After studying this module, you shall be able to know about-

- Incised Wound
- Characteristic features, ageing of incised wound
- Medicolegal Importance
- Differentiate between suicidal and homicidal cut throat wounds
- Chop wounds

2. Introduction

*“Come, thick night.....that my keen knife sees not the wound it makes”... Macbeth,
Shakespeare.*

Incised wound are type of mechanical injuries which are produced by sharp edged weapons, with clean cut separation of the tissues (usually skin, subcutaneous tissues and blood vessels). Incised wound is a three dimensional injury with length being the greatest of all the dimensions. It is produced by pressure and friction against the tissue, by an object having a sharp cutting edge such as razor, knife, scalpel etc. In this, the force is delivered over a very narrow area, corresponding with the cutting edge of the blade.

Causes:

- a) Striking of the body with the edge of the sharp cutting weapon.
- b) Drawing the sharp edge of weapon over the body.
- c) Sawing movement of the weapon over the body surface.

Characteristics:

- a) As incised wound is produced by drawing, striking or sawing of the weapon against the body, so length is the greatest dimension of the injury than breadth and width. However length has no relation to the edge of the weapon as the weapon can be drawn to any such distance creating an incised wound.
- b) The margins are clean cut unlike lacerated wound. However, if the knife has got a serrated edge, then it will produce a saw tooth cut. Edges are usually everted. The underlying blood vessels and muscles are clean cut and usually not associated with any abrasion or contusion of the margin if the edge of the weapon is sufficiently sharp.
- c) The width of the injury may be greater than the weapon's and usually doesn't correspond to it. It is mainly because of retraction of the divided tissues.
- d) The shapes of the injuries are usually spindle shaped due to greater retraction of the wound at the centre. If the underlying muscle fibers are cut transversely then gaping of the wound is more.
- e) In areas where skin folds are loose, like in axilla, scrotum etc, the shapes are zigzag type. So although it is produced by sharp weapon but it looks like lacerated wound. Such wounds are sometimes called as **lacerated looking incised wound**.
- f) The incised wound is deeper at the starting point (head end) and gradually becomes shallower at the termination (tail end). It is because of the pressure created by the first impact of the weapon. The deep end is called **the head of the wound**. As the assailant draws the knife away, gradually the wound becomes shallow towards the **tail end of the wound**. Finally as the knife leaves the tissue, the depth is so less that only the skin is cut alone. The length of the wound where the epithelium alone is cut is known as **tailing of the wound**. This indicates the direction of the wound.

- g) Direction of the infliction of weapon can be determined from the incised wound. If the weapon enters vertically, the edges of the wound would make a 90° angle with the skin surface. If the weapon enters obliquely, one edge will make 90° angle with the skin surface, while the other edge will make an angle less than 90° with the skin surface. If the weapon is nearly at a horizontal plane, then a wound flap will be produced. Thus beveling of the cuts usually gives an idea regarding relative position of the weapon and assailant.
- h) The hemorrhage is usually profuse in incised wound as the vessels are clean cut. Spurting of blood can occur due to cutting of artery.
- i) The dimensions of incised wound have no relation with dimensions of the sharp cutting weapon.

3. Age of the Incised Wound

(A) Gross Examination:

- 1) **Fresh:** Hematoma formation.
- 2) **12 hours:** Edges are red, swollen, adherent with blood and lymph.
- 3) **24 hours:** Dried clot in the form of crust or scab.

(B) Histopathology:

- 1) **Few minutes:** Reactive changes in the tissue histiocytes with dilatation of the capillaries, swelling of vascular endothelium and margination and emigration of neutrophils.
- 2) **12 hours:** Reactive changes in the fibroblasts along with appearance of monocytes in the exudates.
- 3) **16 hours:** Mitotic divisions begin in monocytes.

- 4) **24 hours:** Epithelium begins to grow at the edges and a continuous layer of endothelial cells cover the surface. Vascular buds begin to form.
- 5) **72 hours:** Vascularized granulation tissues are formed.
- 6) **04 to 05 days:** New fibrils are formed.
- 7) **01 week:** scar formation begins.

It has to be kept in mind that the changes described above are seen in an uninfected wound. In an infected wound, this chronology will be altered as the healing is by secondary intention.

4. Medico-Legal Importance of Incised Wound

- 1) The nature of the weapon can be concluded as sharp edged weapon.
- 2) The age of the injury could be determined.
- 3) The direction of the force could be commented by seeing the tailing of the wound.
- 4) The position and character of the wound gives an idea regarding the manner of the injury, whether suicidal, homicidal or accidental in nature.
- 5) Reconstruction of the crime scene can be done by corroborating with the findings of type of weapon, direction of force, nature of injury etc.
- 6) Manner of injury: In **suicidal injury**, multiple small superficial parallel incised wounds are seen along with one final deep incised wound, especially on the flexor aspect of the fore arm. These are called **hesitation cuts or tentative cuts or trial wounds**. These multiple superficial wounds are produced as the victim gathers courage and assesses the pain to inflict the final fatal wound. These wounds are usually uniform in depth and direction and only one of the several superficial wounds is fatal. In a suicidal cut, the finger tips also are blood stained and show superficial incised wounds due to handling the razor blade.

- 7) If there are more of such deep wounds without any hesitation cuts, then they usually point towards homicidal injury. In **homicidal injury**, usually, there are multiple injuries and fatal to cause death. Generally located on vital areas, but can be present anywhere on the body. Injuries on breast, genitals, inner aspects of thigh or perineum can be due to torture as well.
- 8) **Accidental injury** occurs very commonly while ladies are working in the kitchen with kitchen knife or happens with butchers, surgeons, hair dressers etc.

Difference between Suicidal and Homicidal Cut Throat Wounds

Trait	Suicidal Cut Throat	Homicidal Cut Throat
Site	Left side of neck and passing across the front of neck, and rarely both sides.	Usually extends on both sides.
Level	High above the thyroid cartilage.	Below the level of thyroid cartilage.
Direction	Above downwards from left to right in right handed persons	Transverse or from below upwards. But if attacked from back, then may resemble suicidal cut.
Number of wounds	Multiple and gradually runs from superficial to deep, rarely single	Usually single and is deep.
Edges	Ragged due to overlapping of the superficial incisions	Sharp and clean cut with beveling.
Hesitation cuts	Present at the beginning of the wound.	Absent.
Tailing of wound	Present	Absent.

Severity	Usually less severe and only one wound will be fatal	More severe. All tissues including vertebra may be cut.
Wounds in other parts of the body	May be present on accessible parts of the body.	Sever injuries over head and neck may be associated.
Defense wounds	Absent	Present.
Hands	Weapon may be firmly grasped due to cadaveric spasm.	No weapon is seen. Fragments of assailants clothing or hair may be grasped.
Vessels	Carotid artery usually escapes as head is thrown back and carotid artery is drawn beneath the sternocleidomastoid and against the spine.	Jugular vein and carotid artery is likely to be cut.
Blood stain	If in standing position then blood stains are spattered over the mirror, front of body and clothings above downwards and splashes over feet	If asleep, blood will be splattered all over the bed, side of neck and over the palms. In case of scuffle blood may be spattered in and around the walls of the room
Clothing	Not damaged	May be disarranged or torn.
Circumstantial evidence	The room is locked from inside with no evidence of forced entry. Usually stands in front of the mirror for the act and may be associated with a farewell note.	Disturbance at the scene of crime is seen as disarranged furniture, evidence of forced entry, blood may be splattered all over the floor or walls.

4. Chop Wound

Chop wounds are deep gaping wound caused by a blow with the sharp cutting edge of a fairly heavy weapon like axe, hatchet, sword, chopper, saber or meat cleaver.

Salient features:

1. The dimension of the wound corresponds to the cross section of the penetrating portion of the blade.
2. The margins are usually sharp cut along with associated abrasion and contusion of the margins with marked destruction of the underlying organs and tissues. If the edge is partially blunt the margins are ragged and bruised.
3. Undermining of the edge occurs in the direction to which the chop wound is made.
4. The depth of the wound stays same throughout, when whole blade strikes the body. In case of weapons like axe, the lower end strikes first making it the deeper end. Hence, the deeper end indicates the position of the assailant.
5. If the extremities are attacked, then there will be complete or incomplete amputation of the fingers, or joints.
6. A chop wound over head and neck is always fatal and neck may be completely separated.

5. Medico-Legal Importance of Chop Wound

1. Manner of the injuries are most commonly homicidal in nature.
2. Accidental chop wounds may occur in persons working with heavy cutting weapons like butchers or industry workers using heavy cutting machineries. Children may insert their fingers in the power fans to get accidental amputation of the fingers.
3. Suicidal chop wounds are very rare and the victims of such wounds are usually mentally unstable.

6. Summary

- Incised wound is produced by sharp cutting weapon with length being the greatest of all the dimensions.
- The hemorrhage is usually profuse in incised wound as the vessels are clean cut. Spurting of blood occurs due to cutting of artery.
- The direction of the application of sharp force could be commented by seeing the tailing of the wound.
- Beveling of the cuts usually gives an idea regarding relative position of the weapon and assailant.
- The dimensions of incised wound have no relation with dimensions of the sharp cutting weapon.
- In **suicidal injury**, multiple small superficial parallel incised wounds are seen along with one final deep incised wound, especially on the flexor aspect of the fore arm. These are called **hesitation cuts or tentative cuts or trial wounds**.
- Suicidal and homicidal cut throat injuries can be differentiated on the basis of various features.
- Chop wounds are deep gaping wound caused by a blow with the sharp cutting edge of a fairly heavy weapon like axe, hatchet, sword, chopper or meat cleaver.
- Manner of the injuries in chop wounds is usually homicidal.