

# INJURIES - III

# INCISED WOUNDS



# INCISED WOUNDS

Incised wound is clean cut through the tissues caused with sharp edged weapon, which is longer than its depth

Produced when any Sharp edged weapon e.g. Knife, end of a metal sheet, piece of a broken glass drawn across the skin.



# Characters

## MARGINS

- Length is the greatest dimension
- Margins are clean cut, well defined and no bruising
- All tissues are evenly divided
- Blood vessels cleanly cut
- No tissue bridges



## WIDTH

- Width greater than edge of the weapon

## LENGTH

- Length or depth has no relation to cutting edge

## SHAPE

- Spindle shaped
- Zigzag (if skin is lax)
- Crescentric (curved blade)

## HEMORRHAGE

- More (vessel cut)
- Spurting in arterial bleeding

## DIRECTION

- Deeper at beginning (head) and shallow at end (tailing)

# Age of Incised wound

- Fresh
  - Hematoma formation
- 12 hours
  - Edges swollen, red, adherent with blood and lymph,  
Leucocytic infiltration
- 24 hours
  - Continuous epithelial layer covers the surface of clot

# Histopathology

- Few Minutes: Capillaries dilation , Margination & emigration of neutrophils, swelling of endothelium
- 12 hours: Reactive changes in fibroblasts, monocytes appear
- 24 hours: Epithelium begins to grow at edges
- 72 hours: Vascularized granulation tissue
- 4-5 days: New fibrils formed
- 7 days: Scar formation



# Medicolegal importance

- Nature of weapon used
- Age of injury
- Direction of force
- Manner (Position and Characters)

# SUICIDAL

- Multiple & Parallel
- Uniform in depth and direction
- Hesitation cuts
- Sites of election: Accessible parts
  - Throat, wrists, elbows and groins
- Prior suicidal attempt
- Psychiatric help to prevent future attempts



# HESITATION CUTS

- In persons who want to commit suicide
- Makes preliminary cuts before final cut
- To find out how much painful
- TENTATIVE CUTS
  - Small multiple superficial cuts
  - Seen at the commencement



# HOMICIDAL

- Without hesitation cuts
- Multiple
- Involve face, neck and genitals
- Associated with defence injuries



# ACCIDENTAL

- Fall on broken glasses
- Appear irregular
  - With hand lens have clean cut edges
  - Edges everted
- In vehicular accidents
  - On exposed parts
  - Fragments of glass

# DEFENCE WOUNDS

- On palms
- On back of forearms
- Sometimes on front of lower legs



# Self Inflicted

- Superficial
- Accessible parts
- Motive
- On non-vital parts



# CHOP WOUNDS

Chop wounds are deep gaping  
wounds caused with  
sharp splitting edge of heavy weapon  
like axe, sword, meat cleaver



# CHOPPED WOUNDS

- Dimension of cross section of weapon
- Margins moderately sharp
- With abrasions and bruises
- Destruction of underlying tissue and organs
- Depth may be same throughout
- Head face neck shoulders and extremities



# CHOPPED WOUNDS

- Injuries to underlying bones
- Majority homicidal
- Few accidental
  - Recovered from water propellers of boats
- Rarely suicidal
- Microscopy helps to determine ante mortem nature

# STAB WOUNDS / PUNCTURED WOUNDS



# STAB WOUNDS

- When force is delivered along the long axis of a narrow or pointed object like Knife, ice pick, dagger, spear and arrow
- Depth is the greatest dimension



# Types of Punctured wounds

- Penetrating
  - Weapon enters a body cavity
- Perforating (transfixing wound)
  - Wound of entry and wound of exit

# WOUND OF ENTRY

- Shape
- Size
- Margins
- Foreign bodies



# Characters

- **Margins**
  - Clean cut with no abrasions or contusions of margins
  - Hilt mark may be present in full penetration
- **Length**
  - Less than the width of weapon
  - Movement of weapon may increase its length
- **Width**
  - Noted by bringing together the cut edges
  - Elasticity of skin produce – 1-2 mm difference





# DEPTH

- Depth is greater than length and breadth
- Does not depend upon only on the length of blade but thrusting force also if over abdomen
- Does not advisable to probe in living
- Broken part left behind in wound
- x-ray helps



# SHAPE

Correspond to blade of weapon

- Wedge shaped : one end blunt other sharp
- Elliptical: double sharp edge
- Circular: round pointed
- Cruciate: pointed square shaped

# SHAPE

- Double : repetition without complete withdrawal
- Paired pattern: two pronged sharp weapon
- Atypical: knife twisted



# CONCEALED PUNCTURED WOUNDS

- By pins and needles on concealed part
  - Inner canthus of eyes: brain
  - Fontanelle: brain
  - Up the nostrils
  - Down the throat
  - Nape of the neck: brain
  - Axilla
  - Vagina and rectum: peritoneal cavity
- Cause the death

# Type

- Punctured lacerated
- Punctured incised
- Penetrating lacerated
- Penetrating incised
- Perforating lacerated
- Perforating incised

# DIRECTION

- Drawing a line between wound of entry and wound of exit
- Bevel the side from which it enters
- Single track
- Double track if reinserted without completely withdrawing
- At autopsy by dissection



# PRECAUTIONS

- Stab wounds gape depending upon lines of Langerhans or cleavage lines of Langer
- Approximate the gaping wound and measure the dimensions – helps to find out the breadth of blade of weapon
- Such reconstruction should be normal while measuring every stab wound

# WOUND OF EXIT

- Smaller than entry wound
- Edges are everted
- Sometimes corresponding cut in the clothes present

# Remember

- Position of wounds in relation to holes in clothes
- Track of blood on clothes
- Position of organs different on standing and lying



# Remember

- Stab wounds with defence injuries homicidal
- If patient admitted – hospital file must
  - Wound may be sutured
  - Additional drainage wounds

# WHAT THEY TELL

- Suicidal
  - Over the heart
- Homicidal
  - Over abdomen, trunk and limbs
  - On back

# WHAT THEY TELL

- Accidental
  - By falls
  - Absence of defence wounds
  - Circumstances of case
- Nature of weapon
- Dimensions of weapon
- Thrusting force



# WHAT THEY TELL

- Position of assailant
- Direction of wound
- Identity of weapon
- Nature of injury
- Manner of injury

# FRACTURES

- It is the break in the continuity of the bone
  - Traumatic fractures
  - Pathological fractures



# CLINICALLY FRACTURES

- Diaphysial impaction (axial compression)
- Transverse fractures (bending load)
- Spiral fractures (torsion load)
- Oblique transverse or butterfly fracture
  - Axial compression+bending
- Oblique
  - Axial compression+bending+torsion
- Comminuted (variable)



## MEDICO – LEGALLY IMPORTANT

- Amount of force
- Kind of weapon

### Rule out

- Insane persons who are restrained
  - Undue violence
- Convulsive therapy
  - Informed consent
- Cardiopulmonary resuscitation
  - violence
- Postmortem fractures

# MEDICO – LEGALLY IMPORTANT

- All fractures are grievous
- X – ray should be done
  - to have a permanent evidence
  - Not to have stigma of negligence
- Fat embolism
  - punctate hemorrhages
  - Sudan III or Osmic acid stain
- Postmortem fractures
  - no vital reaction and no fat embolism

# FRACTURES

- Simple fractures (single break)
  - Linear fractures (very thin)
  - Green stick fractures (partial)
  - Transecting fractures (complete)
- Comminuted fractures (multiple)
- Closed fracture – skin intact
- Open (compound) fracture – with wound