

“Wound Recognition in Death Investigation”

Tom Hensley, F-ABMDI
Chief – Forensic Operations and Investigations
Jackson County Medical Examiner’s Office
Kansas City, MO

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Sharp Force Injury

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Sharp Force

➤Types of Sharp Force

- Stab Wounds
- Incised Wounds (Cut)
- Chop Wounds

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Sharp Force

- Definition

- Stab Wound

- Penetration of a pointed instrument into the depth of the body, causing a wound that is deeper than it is wide

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Sharp Force

- Characteristics

- * **Stab Wounds**

- Wound edges are clean...not jagged...Sharply outlined edges like a surgeon's scalpel cut
 - No tissue strands bridging below the surface of the skin. If tissue strands are present, it is more likely the wound was caused by blunt force trauma. Therefore, the terms laceration and stab wound (or cut) should not be used interchangeably.
 - Absence of bruise/abrasion on edge of the wound

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Factors that Affect The Shape/Appearance of Stab Wounds

1. Shape of the weapon
2. Angle of thrust
3. Movement of the blade within the wound, or movement of the person stabbed as the blade is withdrawn from the body. Either case, resulting wound may be Y- or L- shaped.
4. State of tension or relaxation of skin stabbed

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Factors that Affect The Shape/Appearance of Stab Wounds

5. Langer's Lines – Bundles of collagen and elastic fibers in the dermal layer of the skin are mostly arranged in parallel rows. The direction of these rows is referred to as the lines of cleavage or "Langer's Lines". In extremities, these lines tend to run longitudinally; in the neck and trunk, these lines tend to run circumferentially.

- If a stab wound is made parallel to the lines of cleavage, the wound will tend to be narrow, slit-like, or thin.
- If a stab wound is made perpendicular to the lines of cleavage, the fibers in the skin will tend to pull the edges of the wound apart, causing an open, gaping wound.
- If a stab wound is made diagonally across the lines of cleavage, a curved or semilunar wound may result.

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Stab Wound Shapes/Appearances...Gaping or Narrow?

- "Langer's Lines" (Tension or Cleavage Lines)

Used to define the direction within the human skin along which the skin has the least flexibility. These lines correspond to the alignment of collagen fibers within the dermis.

- "Langer's Lines" (Tension or Cleavage Lines)
Gaping Wound

A wound will be gaping open if cut against the *Langer's lines*
Narrow – Closed Wound

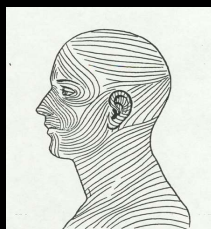
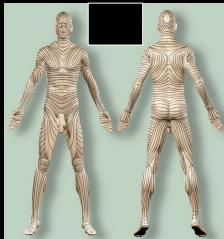
A wound will be more narrow/closed if cut along the *Langer's lines*

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Stab Wound Shapes/Appearances... Gaping or Narrow?

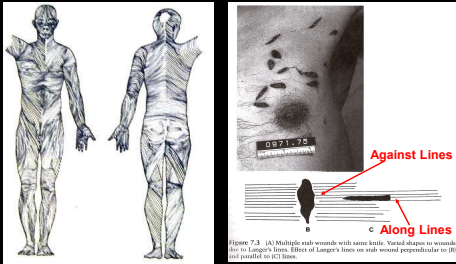
Langer's Lines



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Stab Wound Shapes/Apearances... Gaping or Narrow?



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Stab Wound Shapes/Apearances... Gaping or Narrow?

- “Langer’s Lines” (Tension or Cleavage Lines)

Gaping Wound

A wound will be gaping open if cut against the *Langer’s lines*

Narrow – Closed Wound

A wound will more narrow/closed if cut along the *Langer’s lines*

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Stab Wound Shapes/Apearances... Gaping or Narrow?

- “Langer’s Lines” (Tension/Cleavage Lines)

Gaping Wound

A wound will be gaping open if cut against the *Langer’s lines*



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Stab Wound Shapes/Apearances... Gaping or Narrow?

- "Langer's Lines"
(Tension/Cleavage
Lines)

Gaping Wound
A wound will be
gaping open if cut
against the *Langer's*
lines



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Stab Wound Shapes/Apearances... Gaping or Narrow?

- "Langer's Lines"
(Tension/Cleavage
Lines)

Narrow/Closed
Wound
A wound will more
narrow/closed if cut
along the *Langer's*
lines



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Most Common Weapon used for Stab Wounds

- Knife (most common...single edge, 3-5" long blade)
- Ice pick
- Scissors
- Forks
- Pencils or pens
- Screwdrivers
- Knitting needles
- Any other similar device with pointed end capable of
penetrating the skin

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Factors that Affect The Shape/Appearance of Stab Wounds

1. Shape of the weapon

- a. Sharp weapon produces a regular, linear wound without abraded margins
- b. Single edge weapon = external skin wound should have a squared-off or blunted margin (produced by dull edge or back of blade) and a V-shaped margin (produced by the sharp edge of the blade).



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Factors that Affect The Shape/Appearance of Stab Wounds

1. Shape of the weapon

- c. Double Edge - Both margins of external skin wound produced by double edge weapon should appear V-shaped.



- d. Scissors tend to produce linear wounds if closed, but paired perforations if open.

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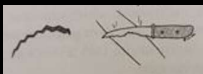
Factors that Affect The Shape/Appearance of Stab Wounds

1. Shape of the weapon

- e. Phillips screwdriver may produce a circular wound with four equally spaced cuts or abrasions.



- f. A serrated knife may leave a saw tooth cut on the body, if the blade encounters the skin at an oblique or shallow angle; usually, no markings are present.



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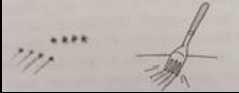
Factors that Affect The Shape/Appearance of Stab Wounds

1. Shape of the weapon

g. Ice Pick produces a circular wound.



h. A four prong dinner fork may produce linear scratches with circular puncture wounds that may have abrasion rings.



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Factors that Affect The Shape/Appearance of Stab Wounds

- Underlying Structures – Location on the body
- Sharpness of the weapon edge
- Victim Movement
- Overlapping stab wounds

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Stab Wounds

- Stab wound:
 - Sharpness of the weapon will determine the appearance of the margins

Sharp Weapon

- Sharp & squared

Dull Weapon

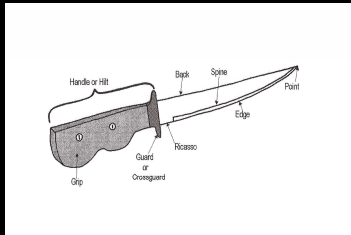
- Abraded or bruised

- Jagged edges

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Knife Components



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Stab- Multiple



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Sharp Force – Stab Wound



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Stab Wound - Single Edge Weapon

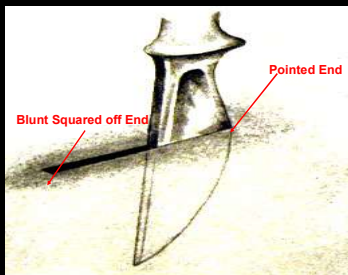
• Characteristics

- *One end is blunt – squared off due to non sharp back edge of knife
- *Other end is pointed due to edge side of blade
- *Wound edges are clean, not jagged
- *Dimensions - Deeper than wide
- *Stab wounds may not be straight lines of injury but may be irregular shaped stab wounds due to movement of the victim. Usually, the wound edges should still be clean edges and not jagged.

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Stab Wound - Single Edge Weapon



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Stab Wound with "Hilt Abrasion"



- Hilt abrasion caused by "Guard or Cross guard" impacting the skin after blade thrust into the body.

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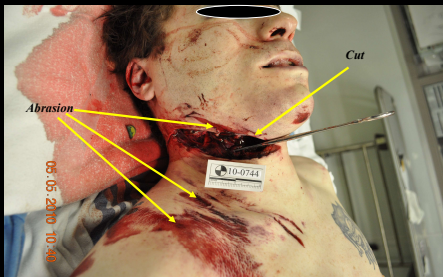
Sharp Force – Stab Wound



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Cut & Abrasions



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Stab



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Stab



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Previous Sutured Stab Wound



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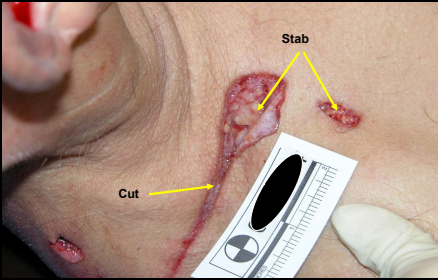
Stab



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Stab & Cut



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Stab

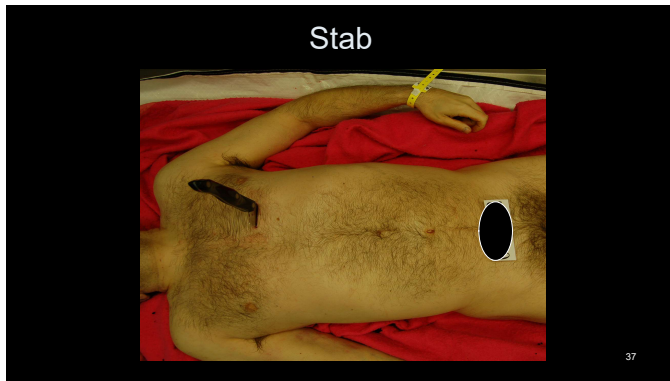


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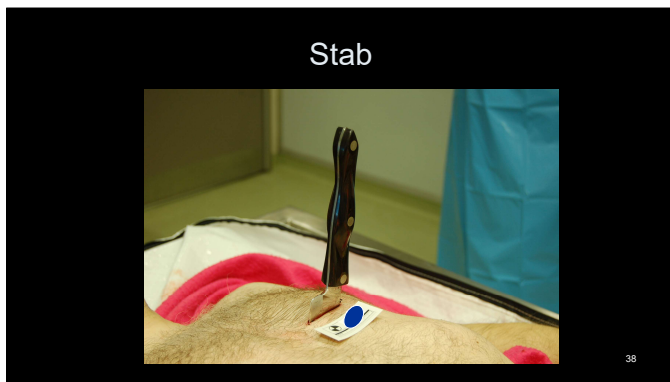
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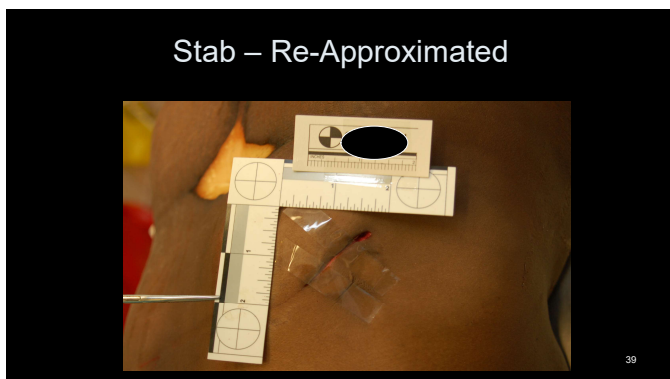
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Stab



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Sharp Force

- Definition

- Incised Wound (Cut)

- Whenever a sharp-edged instrument is drawn over the skin with sufficient pressure to produce a wound in which the length of the wound on the surface is longer than the depth of the wound

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Sharp Force

- Characteristics

- Incised Wound (cut)

- Wound edges may be straight or jagged, depending on the shape of the cutting instrument, but they are not abraded or undermined.
 - Defense Wounds
 - Usually seen on the hands, legs, arms..

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Sharp Force – Incision (superficial cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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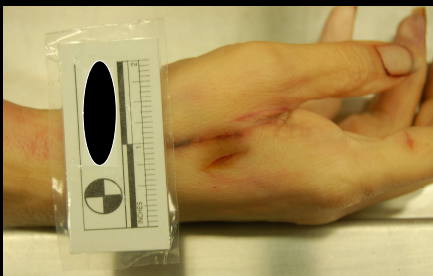
Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Sharp Force – Incision (cut)



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Chop Injuries/Wounds

• Definition

- The wound is caused by a heavy weapon or instrument which has at least one sharp cutting edge (e.g. hatchet, axe, bush knife, machete, tobacco knife).
- A chop wound has characteristics of both sharp force and blunt force injury therefore falls into a category of its own

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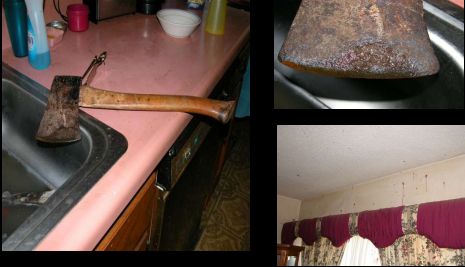
Chop Injuries/Wounds

- | | |
|--|---|
| <ul style="list-style-type: none"> • Characteristics <ul style="list-style-type: none"> – Shapes: May be a combo of: <ul style="list-style-type: none"> • Irregular shaped edges and/or • Smooth wound edges – Abrasion/s on wound edges may be seen – Underlying bone may be fractured – Bruising may be seen around wound | <ul style="list-style-type: none"> • Characteristics <ul style="list-style-type: none"> – Disruption of tissue may be partial or full thickness in depth |
|--|---|

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Chop Injuries/Wounds



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Chop Injuries/Wounds

- Abrasion/s may partially be seen around the wound edges
- Wound edges may be irregular in shape

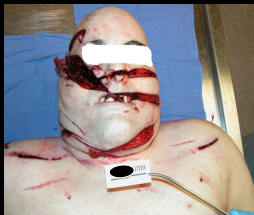


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Chop Injuries/Wounds

- Large gaping wounds
- Fractures (facial)



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Chop Injuries/Wounds

- Large gaping wounds
- Fractures (facial)



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Chop Injuries/Wounds



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Chop Injuries/Wounds



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Chop Injuries/Wounds



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Penetrating Trauma – Impaled Object



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Penetrating Trauma – Impaled Object



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Penetrating Trauma – Impaled Object



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