

4. Estimating Time of Death (ToD)

A. Livor mortis - purplish discoloration on a body caused by blood settling to areas of the body closest to the ground.

(1) starts: 20 min. → 3 hours after death

fixed (permanent): after 16 hours

(2) before 16 hours, pressing on lividity will cause blanching (white spot) - is temporary

(3) can be used to tell if a body was moved

B. Rigor Mortis - stiffening of muscles in the position the body died.

(1) time after death

event

appearance

∩

circumstances

2 → 6 hr

begin

starts to become stiff

begins in the head (eyelids ∩ jaw), then center of body, then arms ∩ legs last

12 hours

complete

peak rigor

entire body is rigid

15 → 36 hrs

slow loss of rigor

lose rigor 1st in the head, then torso, then arms ∩ legs last

36 → 48 hrs

rigor disappears

muscles relax

(2) Variables - things that affect rigor

(a) ambient temperature

(i) hotter - speeds up rigor

colder - slows down rigor

(b) activity - exercise / physical activity speeds up rigor in the muscles being used

(c) amount of muscle mass -

(i) a lot - speeds up rigor

(ii) a little - slows down rigor

C. Algor mortis - process in which a body cools until it reaches ambient temperature

(1) CSI technician will take the body temperature

(a) internally - liver temperature

(b) rectally

(c) \approx research ambient temperature of the area the body was found.

(2) Determining Time of Death

Step 1

Subtract $- 37^{\circ}\text{C}$

body temp. at discovery

- If the answer is LESS THAN 9.36°C , do the following:

• Divide your answer by $\frac{.78^{\circ}\text{C}}{\text{hr}}$ \approx the answer is the #hours the person has been dead.

- If the answer is exactly 9.36°C , the person died 12 hours ago.

- If the answer is GREATER THAN 9.36°C , forget all the above \approx do the following:

new

Step 1 - Account for the 1ST 12 hours of death.

Subtract $- 37^{\circ}\text{C}$
 9.36°C

Step 2 - Subtract the temperature the body was discovered at from 27.64°C .

$- 27.64^{\circ}\text{C}$
body temp. at discovery

Step 3 - Divide your answer in step 2 by $\frac{.39^{\circ}\text{C}}{\text{hr}}$

This is the #hours beyond 12 hours the person was dead

Step 4 - Add your answer from step 3 to 12 hours
Step 3 + 12 hours = #hours person has been dead.

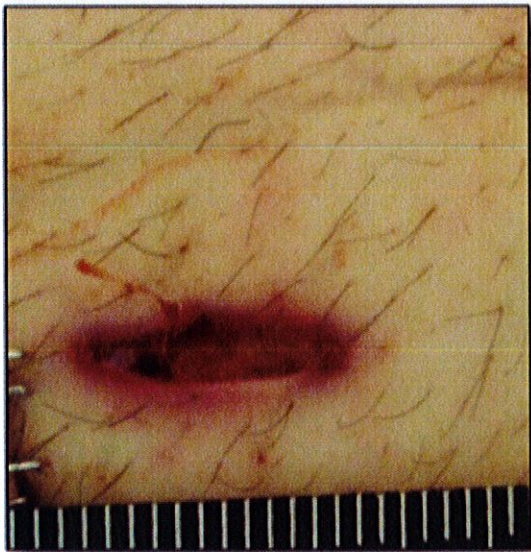
Contusion



Cut



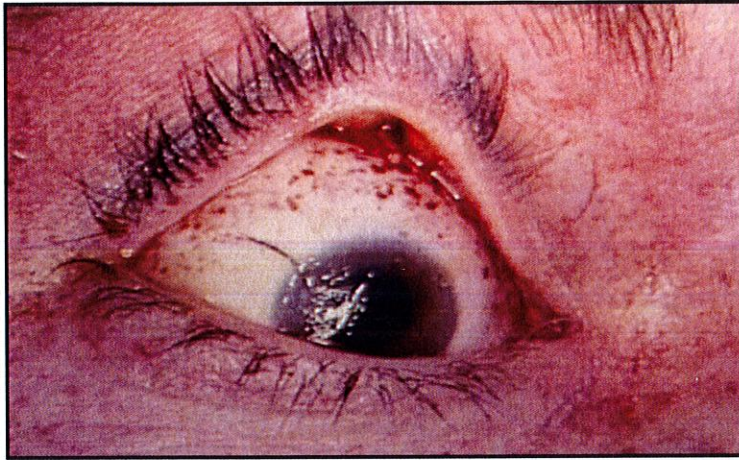
Stab Wound



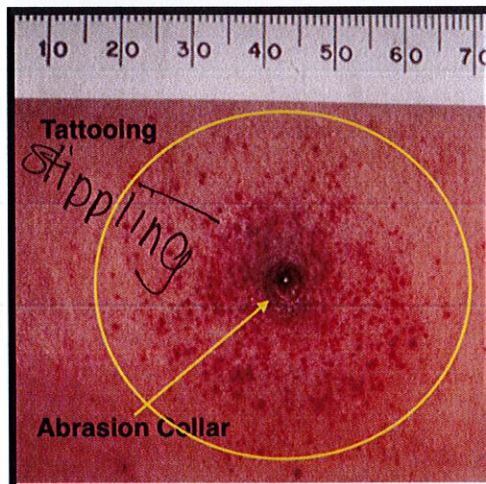
Defensive Wounds



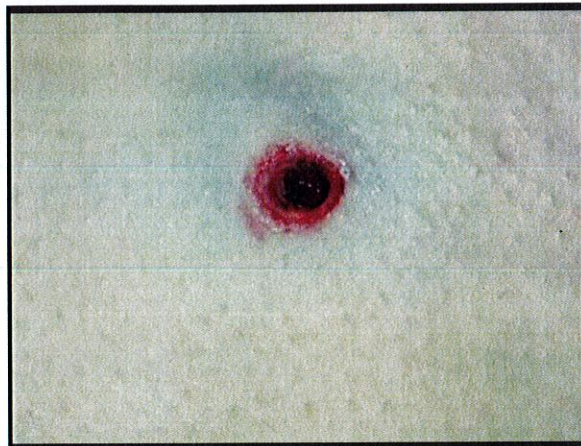
Petechiae in Eyes



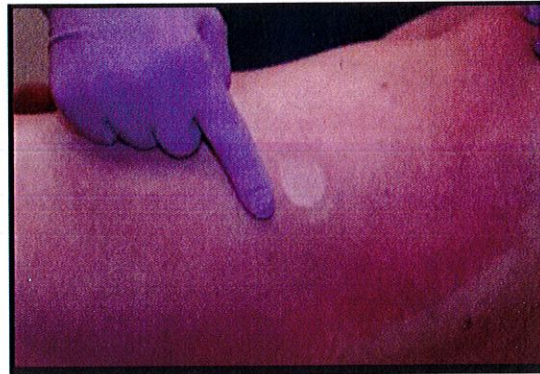
Close Range gunshot wound



Far Range gunshot wound



Livor Mortis



Rigor Mortis

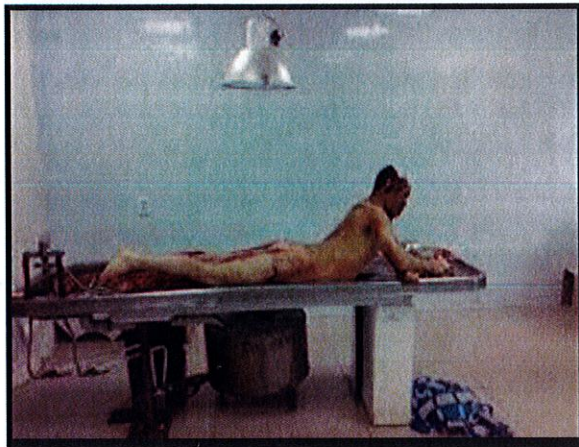


Figure 1: Unusual position with the right foot defying the gravity