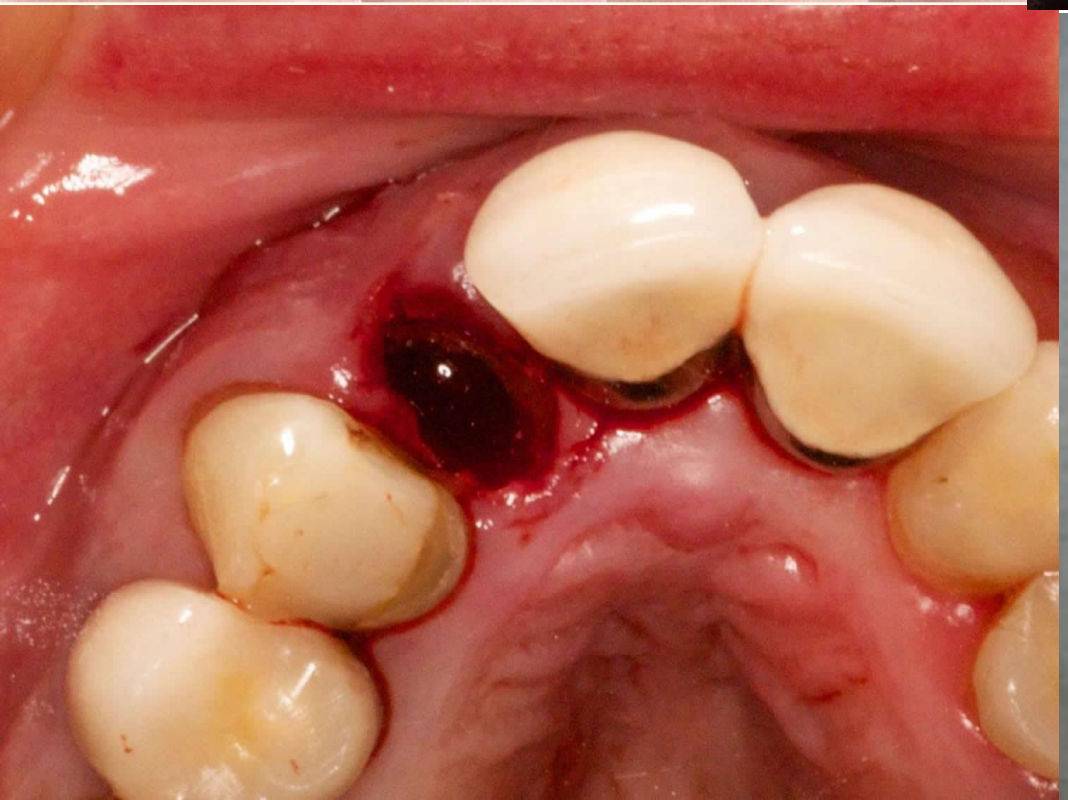


LEARNING OBJECTIVES:

- By the end of this session the learners will be able to:
- Describe events associated with wound healing
- Differentiate between old and fresh wound
- Explain injury zone on the basis of histo-chemical changes and Biochemical events taking place.

Medicolegal Aspects of Injuries

- **Assault**
  - An offer of threat
- **Battery**
  - Assault brought to completion
- **Cognisable offense**

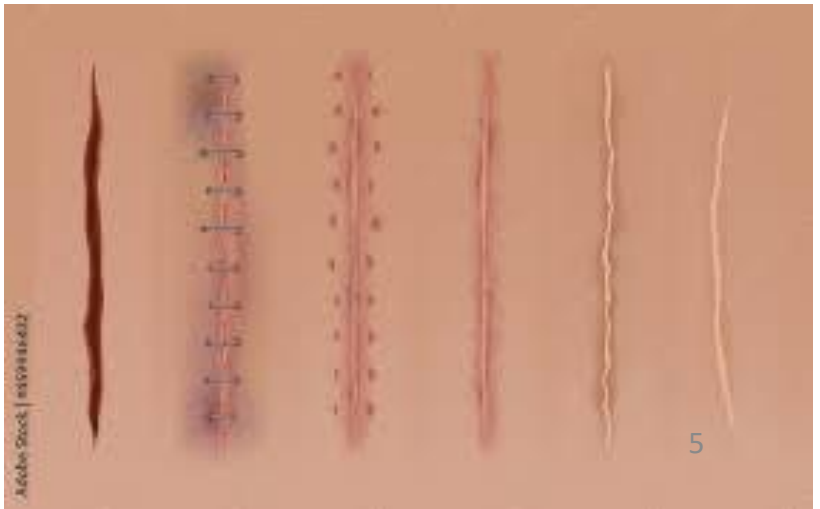
Healing of Wounds

- Factors affecting the healing process:

- **Age of injury**
  - Abrasions
  - Bruise
  - Lacerations

Healing of Wounds

- **Clean aseptic wound**
  - No granulation tissue
  - Edges
  - Scab
  - Epithelium grow
  - **Scar**
    - Vascular
    - Tender
    - Soft
    - Two weeks
    - Two months
    - Six months



Healing of Wounds

- **Septic wounds**
  - Inflammatory signs
  - Pus
  - Granulation tissue

Healing of Fractures

– **Histological examination**

- Clot
- Osteoid matrix
- Soft callus (immobilization)
- Hard callus
- Remodelling of callus

– **X-ray examination**

Healing of Fractures

- **Skull fractures**
  - No callus
  - Calcification
  - Osseous bands
  - Comminuted fracture
- Healing in case of broken tooth

- Necessarily fatal injury
- Injury likely to cause death
- Injury sufficient in the ordinary course of nature to cause death

Causes of Death

- Immediate
- Remote
- Proximate
- To substantiate the charge of murder

- Natural death – no responsibility
- Death attributed to injuries

Causes of Death in Injuries

- **Immediate (proximate)**
  - Haemorrhage
  - Vital organ injury
  - Neurogenic shock
- **Remote**
  - Infection
  - Renal failure
  - Thrombosis
  - Embolism
  - Secondary shock
  - DIC

Immediate Causes of Death

- **Haemorrhage**
  - Shock
  - Traumatic
  - Spontaneous
  - Petechiae
  - Ecchymosis
  - Hematoma
  - Effusion
  - Apoplexy

Immediate Causes of Death

- **Haemorrhage**
  - Rapid loss of two litres of blood causes death
  - Diagnosis
    - Skin
    - Lividity
    - Organs
    - Heart
    - External hemorrhage estimation
    - Internal

Causes of Death in Injuries

- **Immediate causes**

  1. Haemorrhage

  – Types

  – **Cause**

    - Traumatic
    - Spontaneous

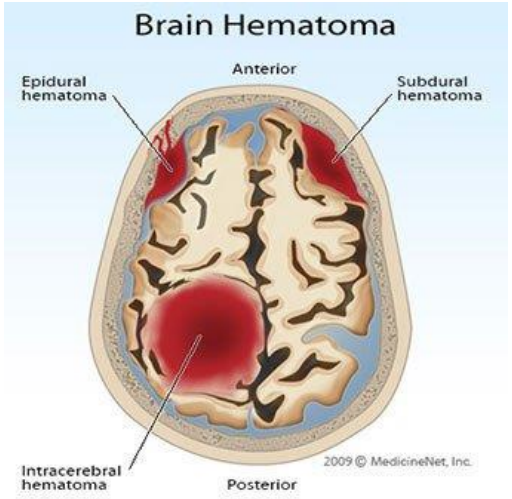
  – Presentation

  – Apoplexy

  – Death from haemorrhage

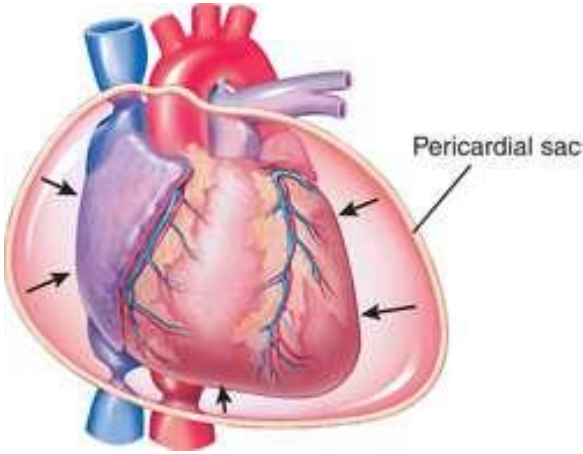
  – **Autopsy appearance**

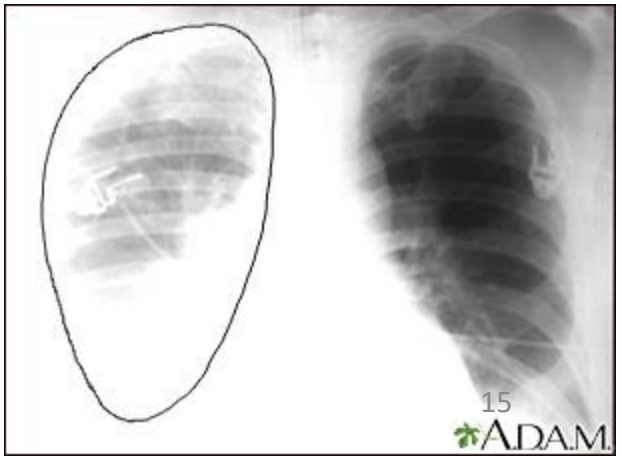
    - Skin, spleen, heart.



Haemorrhage

- **Estimation of blood loss**
- **Site of haemorrhage**
  - Extradural, subdural or subarachnoid
  - Medulla
  - Pericardial sac
  - Pleural cavity
  - Respiratory passages

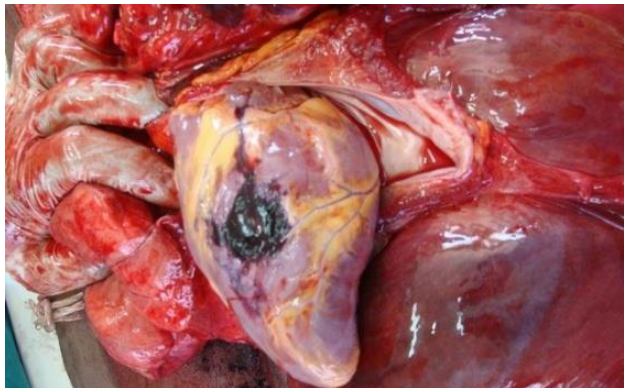




Causes of Death in Injuries

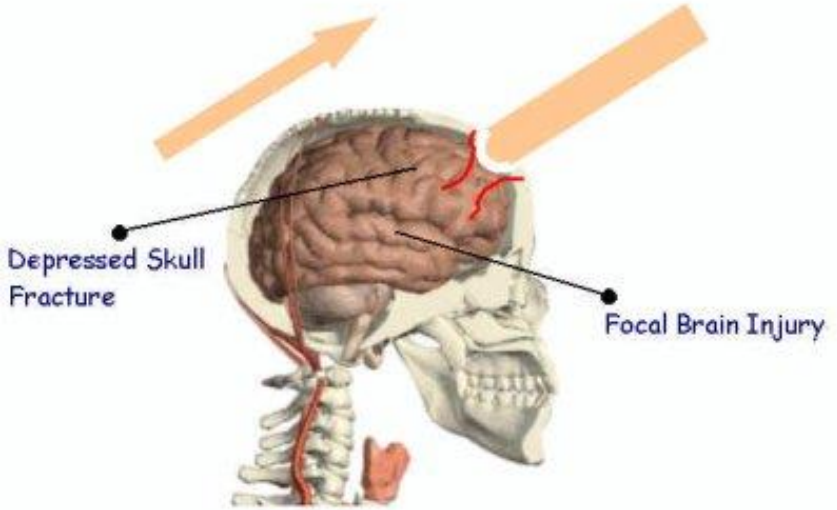
- **Immediate causes**

  2. Injury to the vital organ



  3. Neurogenic shock

  – Stimulation of trigger areas
  – Autopsy findings



Complications of Injuries

- **Remote causes**

1. Infection

  - Sepsis, necrosis, tetanus
  - Infective process in organs
    - Peritonitis, empyema, meningitis.

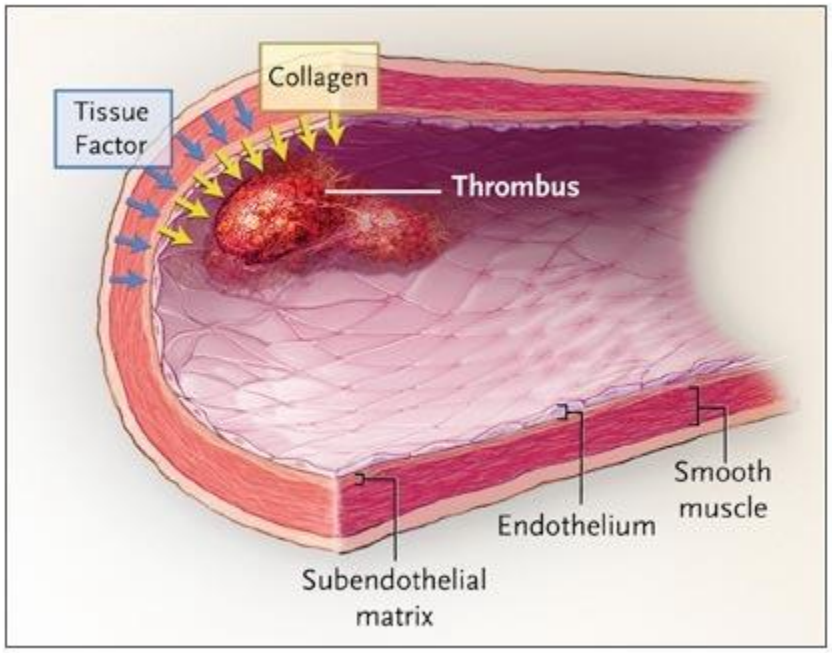
2. Renal failure (crush syndrome)

Complications of Injuries

- **Remote causes**

  3. Thrombosis

  – Thrombus
  – Complication of trauma
  – Emboli
  – Source, arterial
  – Time
  – Phlebothrombosis



Complications of Injuries

- **Remote causes**

  4. Embolism

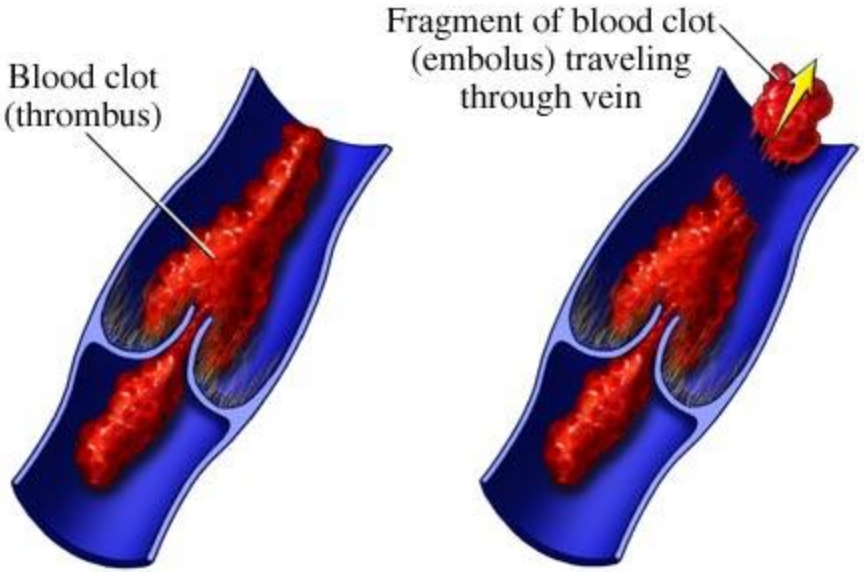
  – Classification

  – Types

  – Fat embolism

    - Intrinsic (adipose tissue, disease, fracture, injuries)
    - Extrinsic

  – Variety



Complications of Injuries

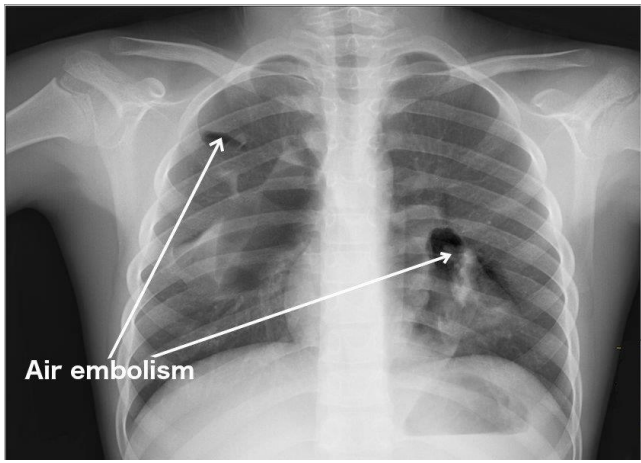
- **Remote causes**

  4. Embolism

  – **Pulmonary fat embolism**
    - Asphyxia
    - Autopsy findings
    - Demonstration
    - Diagnostic confirmation

  – **Systemic or arterial fat embolism**
    - Perivascular hemorrhages
    - Presentation (coma)
    - Autopsy findings: punctate hemorrhages
    - Diagnosis

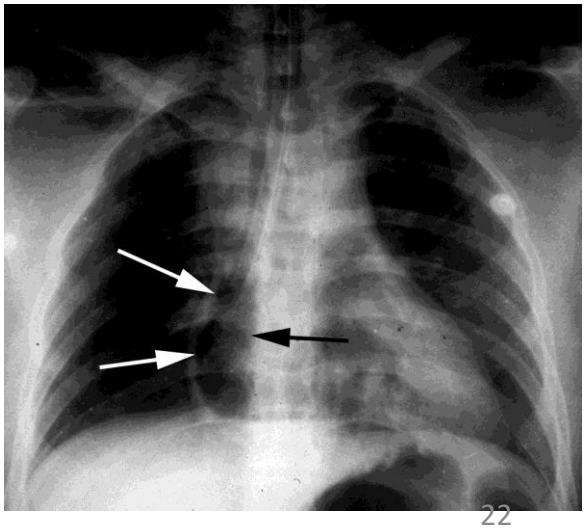
Complications of Injuries



- **Air embolism**
  - Brain, coronaries
  - Heart, major blood vessels
  - Fatal period
  - **Pulmonary/venous air embolism**
    - Mechanism
    - **Causes:** i/v inj. Cut throat, abortion, chest injuries, therapeutic complications.
    - **Autopsy findings:** heart, under water dissection, x-ray.

Complications of Injuries

- **Air embolism**
  - **Systemic air embolism**
    - **Causes:** Chest injuries, surgical procedures
    - **Autopsy findings:** Segmented arteries, x-ray



Complications of Injuries

- Secondary shock
- Disseminated intravascular coagulopathy
- Pneumonia
- Transfusion infections
- Acceleration of pre-existing disease

Medicolegal Significance Of Antemortem & Postmortem Wounds

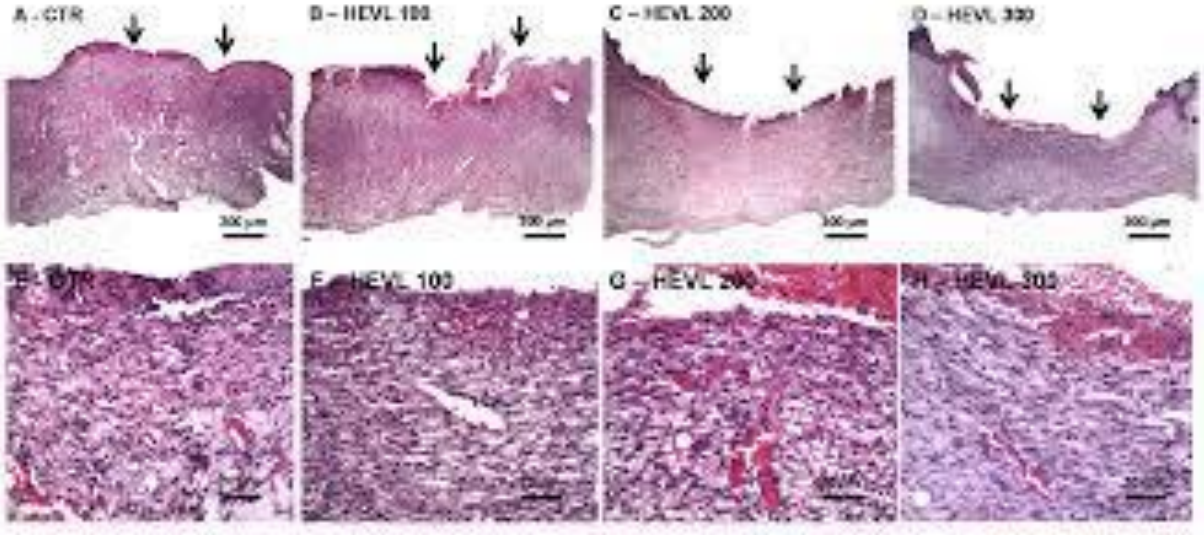
- Naked eye appearance of the wounds
- Histological timing of wounds
- Histochemical timing of wounds
- Biochemical timing of wounds

Naked Eye Appearance Of The Wounds

- Bleeding
- Infiltration
- Margins
- Spurting
- Coagulation

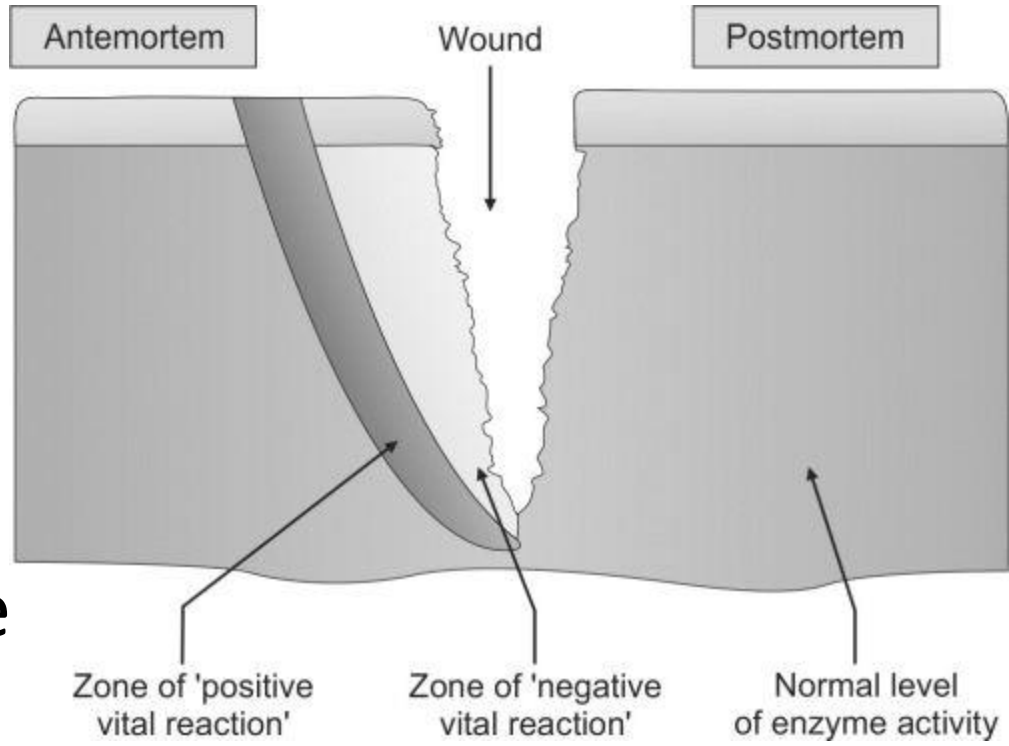
Naked eye appearance of the wounds

- **Histological timing of wounds**
  - Morphology of wound healing
  - In 4 hours
  - In 4 – 16 hours
  - In 16 – 24 hours
  - In 1-2 days
  - In 4-5 days
  - In 5-8 days
  - In 8-12 days



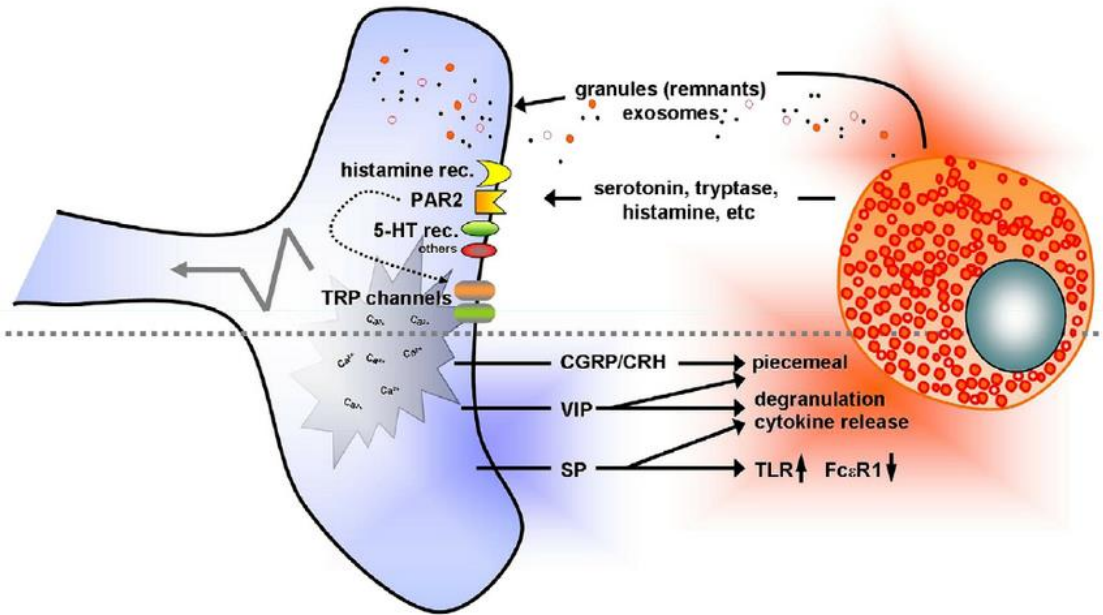
Histochemical timing of wounds

- ATPase
- Aminopeptidase
- Acid phosphatase
- Alkaline phosphatase
- Recognisable period



Biochemical Timing of Wounds

- **Vascular response**
  - Histamine
  - Serotonin
- **Difference between antemortem & postmortem wounds**



Questions