FORENSIC TRAUMATOLOGY

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Lecture items

• General concepts of forensic traumatology
• Principles of examination the injuries
• Signs of injury vitality
• Causes of death in mechanical trauma
General concepts of forensic traumatology

Traumatology – science about trauma (Greek - τραύμα)

As a rule notions of trauma and traumatism are used with the same meaning

In forensic medicine

**Trauma** – injury, lesion, wound

**Traumatism** – a set of traumas that occur in populations with identical conditions of work or living (manner of trauma).

E.g.: domestic (household), work, sport, transportation, and military
Injury is a disorder of the anatomical integrity of tissues or organs or a disturbance of their function due to environmental factors.

Environmental factors that cause injuries are called vulnerable or traumatic factors and they are:

- **Mechanical** (sharp and blunt objects, firearms)
- **Physical** (high and low temperature, pressure, radiation)
- **Chemical** (chemical agents, poisons, toxics)
- **Biological** (bacterium, virus, fungus, etc.)
- **Psychological** or psychical
General concepts of forensic traumatology

Action of vulnerable or traumatic factors

By character
• local
• general
• combined

By duration
• short
• long
Consecution of injury examination

• Cranio-caudal
• Right-Left
• Antero-posterior

!!! Do not describe injuries by their importance, gravity, etc.
Scheme of injury describing:

- **anatomical localization** (the position of the wound in relation to anatomical landmarks)
- **the nature of the wound** (abrasion, bruise, laceration, cut wound)
- **shape** (in comparison with geometrical figures or others)
- **orientation** (direction)
- **dimensions** (Its length, width and depth)
- **the height of the wound** above heel level (if the need arises)
- **color**
- **morphological appearance** (margins, ends, walls, surface)
- **adjacent tissue**
- **dirties on the surface** (oil, paint, soil)
- **hemorrhages, sings of healing**
Signs of injury vitality

Local:

- **Inflammation** (maro- tumor, rubor, calor, dolor, functio lesa & microscopic)
- Hemorrhage & bleeding
- Coagulation of the blood
- Tissue retraction
- Dystrophic and necrotic processes
- Changes of hemoglobin
Signs of injury vitality

General:
- Myoglobininuria
- Aspiration
- Reaction of the lymphatic system
- Neuroendocrine changes (shock)
- Other medico-legal specific signs:
  - lethal concentration of poisons (e.g.: COHb)
  - submersion liquid in alveoli or in the sinus of sphenoid bone (drowning)
  - etc.
Causes of death in trauma

**Cause of death** - injury or disease that independently or through its complications conduces to death of the person

**Direct cause of death** - trauma or its complication that causes directly the death

**Thanatogenesis** – the mechanism of death induction
Causes of death in trauma

The death may be caused by:

**Trauma** – important injuries of vital organs

**Complications** - traumatic shock, bleeding, aspiration of blood, compression of vital organs by blood or air, reflector cardiac arrest, embolism, traumatic aneurysms, traumatic toxicosis, renal failure, respiratory complications and orders as infectious