

FORENSIC MEDICINE

Notes compiled by PJ Louw for LLB from the UNISA Study Guide & other material. Whilst care has been taken to ensure accuracy you are advised to also verify facts independently.

FIRE / BURN VICTIMS / HEAT

(20) Discuss **PATHOLOGY** of **DEATHS** due to **BURNING** (heat)

- » **Deaths due to thermal injuries can be**
 - almost immediate if severe
 - can occur later due to complications (infection)

CLASSIFICATION of THERMAL WOUNDS

- **According to DEPTH**
- **According to % of skin surface involved**

1st degree

- » only epidermis is involved
- » Heal without scar tissue formation

2nd degree

- » epidermis & part of dermis involved
- » Heal **without** scar tissue formation

3rd degree

- » epidermis & full thickness of dermis involved
- » Heal **with** scar tissue formation

4th degree

- » **charring** of part of the body

Discuss **post-mortem findings in burn victim**, incl. **problems** which may arise during identification.

Identification → **difficult in charred bodies**

- 1) **DNA** analysis
- 2) **Dental** records
- 3) **Identification by comparison** may be of value

Post-mortem examination

MUST NOTE degree of burn wounds + % of body surface involved

IMPORTANT (6) - to **establishing whether person was alive** when fire occurred-
(concealment)

a) **Carbon monoxide level in body**

- » level of < 5% in non-smoker & <10% in smoker indicates that person was alive when fire started

b) **Soot & ash** in airways / stomach / oesophagus

c) Also mentioned is the **presence of fat embolism in pulmonary vessels**

FAT EMBOLISM

- » When fat cells / bone-marrow tissue enter into blood circulation
- » Conditions where fat cells enter VENOUS circulation & trapped in capillary vessels of lung
- » A **fat embolism** is a type of embolism that is often caused by physical trauma such as fracture of long bones, soft tissue trauma, and burns.

» **Inhalation of smoke & toxic substances found in smoke**

- can also cause death by damaging airways

» **Old people & children**

- especially **susceptible to thermal injuries**

» **Deaths due to burns** may be

- 1) an accident 2) a homicide 3) a suicide

» **In certain areas (face & genital region)**

- there is high risk of complications

COMPLICATIONS of BURNS

1) Local complications

- Most important - **sepsis due to infection** of open wounds
- **Loss of movement** over **flexor aspects (elbow / knee)**

2) Systemic complications

- Due to **fluid & electrolyte loss** through injured surface of skin
 - **Lung complications** due to inhalation of hot air
 - In cases of **charring** - body will be in boxer position
 - If body is totally charred – MANDATORY to X-rays body for identification purposes + to locate possible projectiles & other injuries
-