



Learning Objectives

By the end of this session the students of third year MBBS will be able to:

- Explain electrocution
- Discuss types of electrical injuries
- Describe PM findings
- Explain Lightning

Electrocution

- Effects of electricity on the body
- Factors determining the consequent pattern of electrical injury:

- **Types of current**

- Alternating current
- Direct current

- **Voltage**

- Domestic
- Industrial

- **Ampere**

- 1mA, 8-20mA, 70-80mA, 250mA, 4A.



Electrocution

- Factors determining the consequent pattern of electrical injury:
 - **Alternating current**
 - Cause tetany
 - Cardiac pacing
 - **Direct current**
 - Single contraction
 - **Amount of current**
 - <100 V
 - >200 V



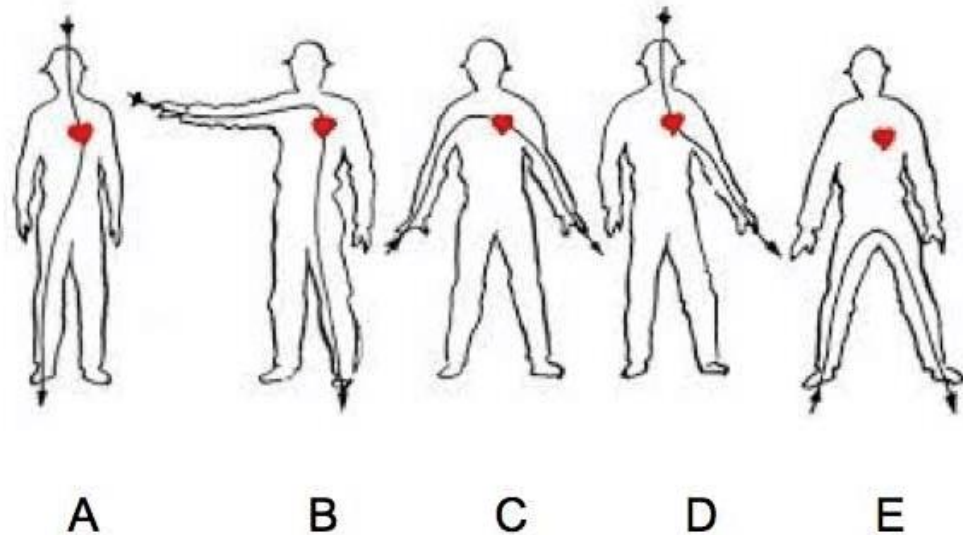
Electrocution

- Factors determining the consequent pattern of electrical injury:

- Path of current
- Duration of current flow
- **Resistance**

- Burns
- Dry skin
- Wet skin

- Site of contact
- Predisposing factors



Effects Due to Passage of Electricity

- **Low tension injuries**

- Skin burns
- Site
- Bathtub electrocution
- Torture

- **High tension injuries**

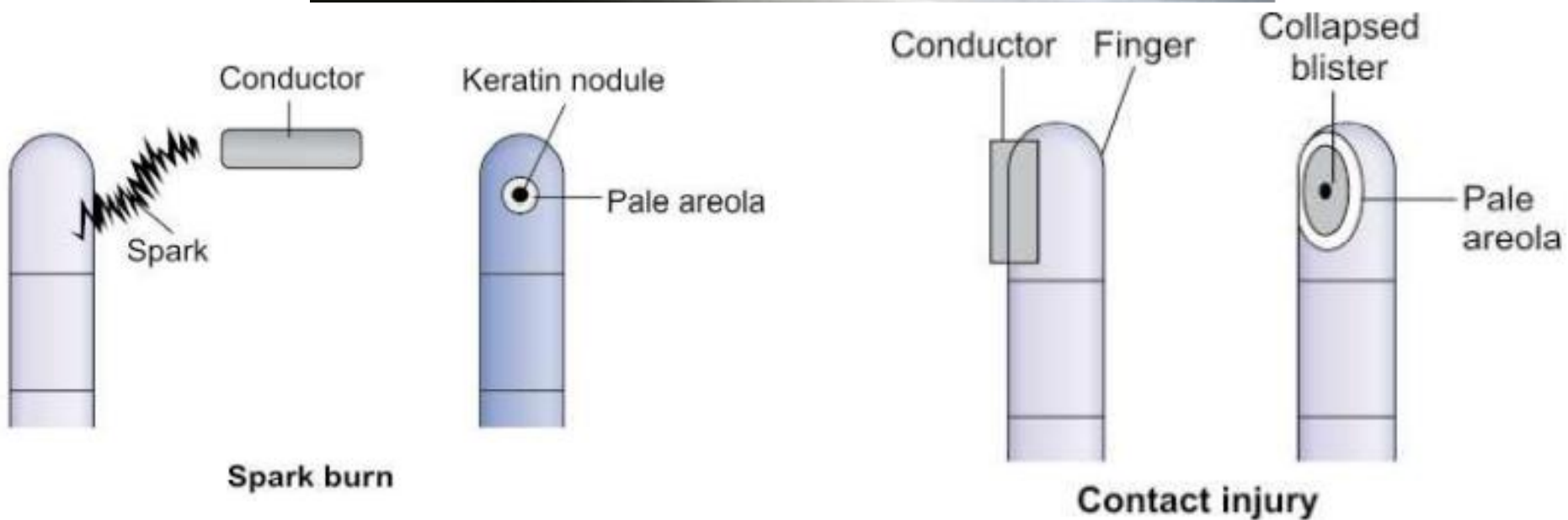
- Three sources
- Third degree burns
- Massive destruction of tissues



Injury Characteristics

- **Local effects**
 - **Burns & Blisters**
 - Blister
 - Joule burns
 - Endogenous burns
 - Round
 - Crater floor
 - Charring
 - **Exit marks**
 - Skin splits
 - Firm





Injury Characteristics

- **Local effects**
 - **Flash or spark burns**
 - Less firm contact
 - Melts the keratin
 - Crocodile skin
 - Exogenous burns
 - **Wounds**
 - Current pearls
 - Identified by microscopy
 - Bone pearls or wax drippings



Injury Characteristics

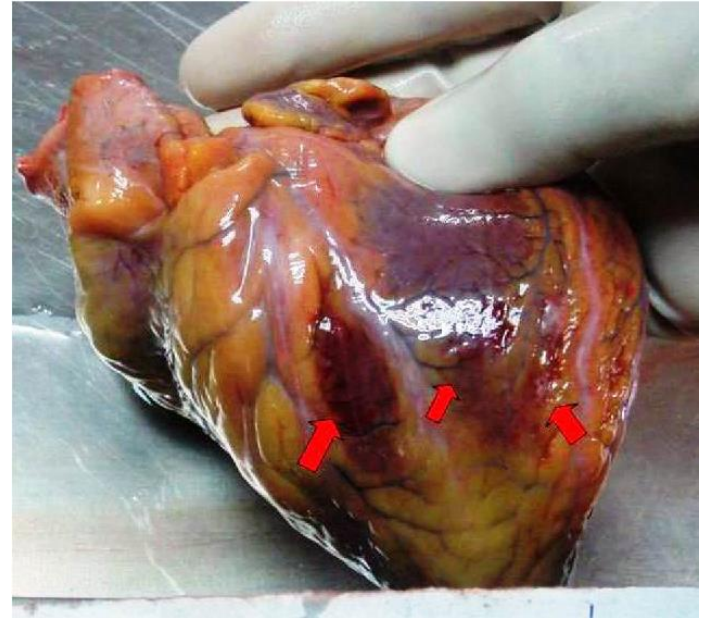
- **General effects**

- Death
- CNS
- Eye
- Arch eye
- Suspended animation like state



Electrocution

- **Cause of death**
 - Ventricular fibrillation
 - Asphyxia
 - Secondary causes
- **Postmortem findings**
 - Examination of entire body
 - External
 - Face
 - RM, PM lividity
 - Joule burn



Electrocution

- **Postmortem findings**
 - Internal
 - Lungs
 - Heart
 - Brain
- **Medicolegal aspects**
 - Accidental
 - Suicidal
 - Homicidal
 - Iatrogenic



Electrocution

- **Medicolegal aspects**
 - Differentiate between thermal burns and electrical burns
 - Judicial electrocution
 - Custodial torture
 - Child abuse



Lightning Stroke

- Natural electrical discharge
- Cloud-negative charge
- Ground-positive charge
- Current intensity



Lightning

- Natural electrical discharge in atmosphere
- Effects/symptoms & signs
 - Heat burns, Physical damage
 - Arborescent marks/Lichtenberg, Cardiac failure
 - Fusing of metallic articles, Skin oedema
- Cause of death
- Medicolegal aspects



Lightning Stroke, keraunographism

