

GANGRENE



Gangrene is the death of tissue in part of the body

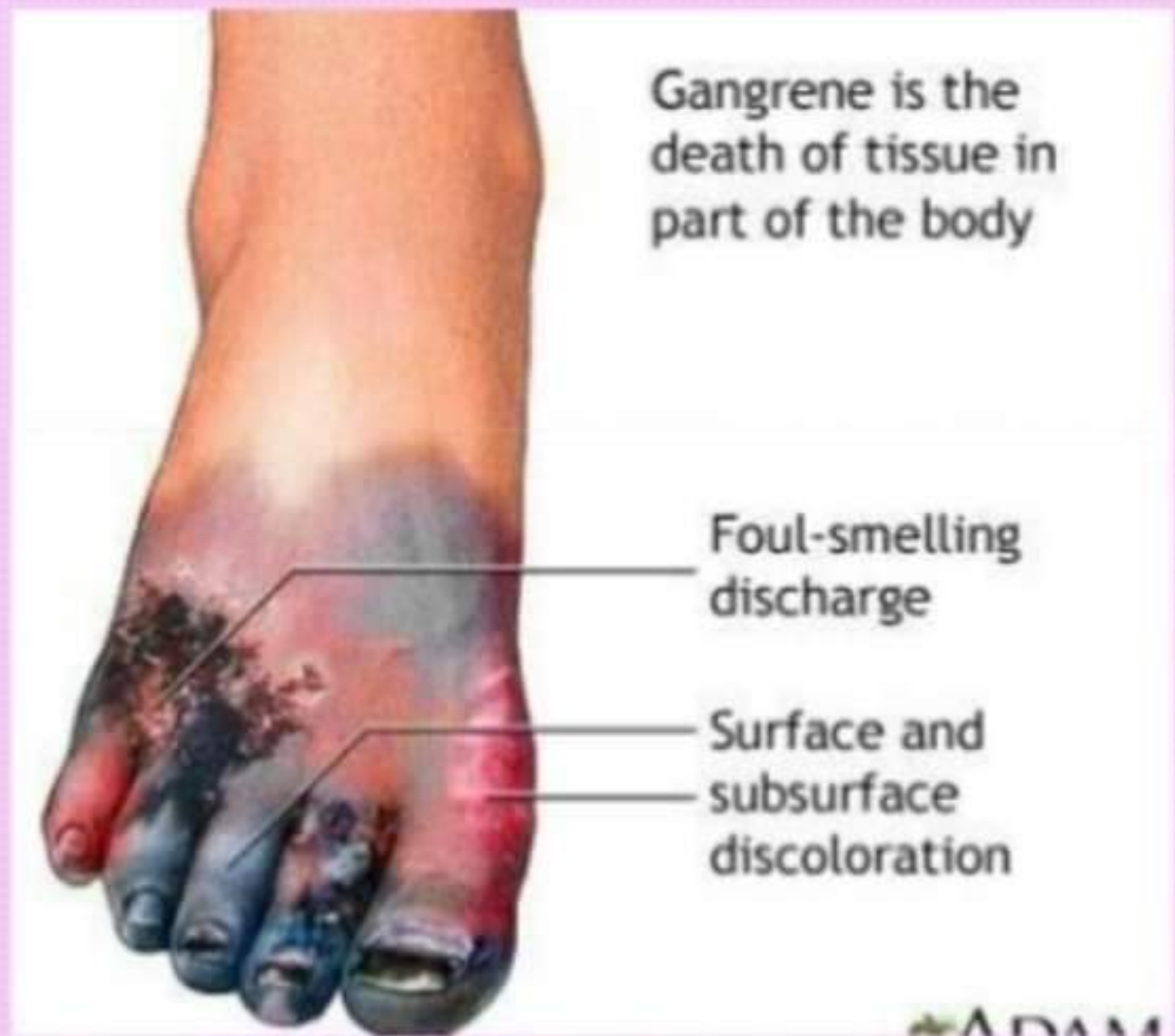
Foul-smelling discharge

Surface and subsurface discoloration

- Gangrene is a condition that occurs when body tissue dies. It is caused by a loss of blood supply due to an underlying illness, injury, and/or infection.
- Fingers, toes, and limbs are most often affected, but gangrene can also occur inside the body, damaging organs and muscles. There are different types of gangrene and all require immediate medical attention.

Types of Gangrene

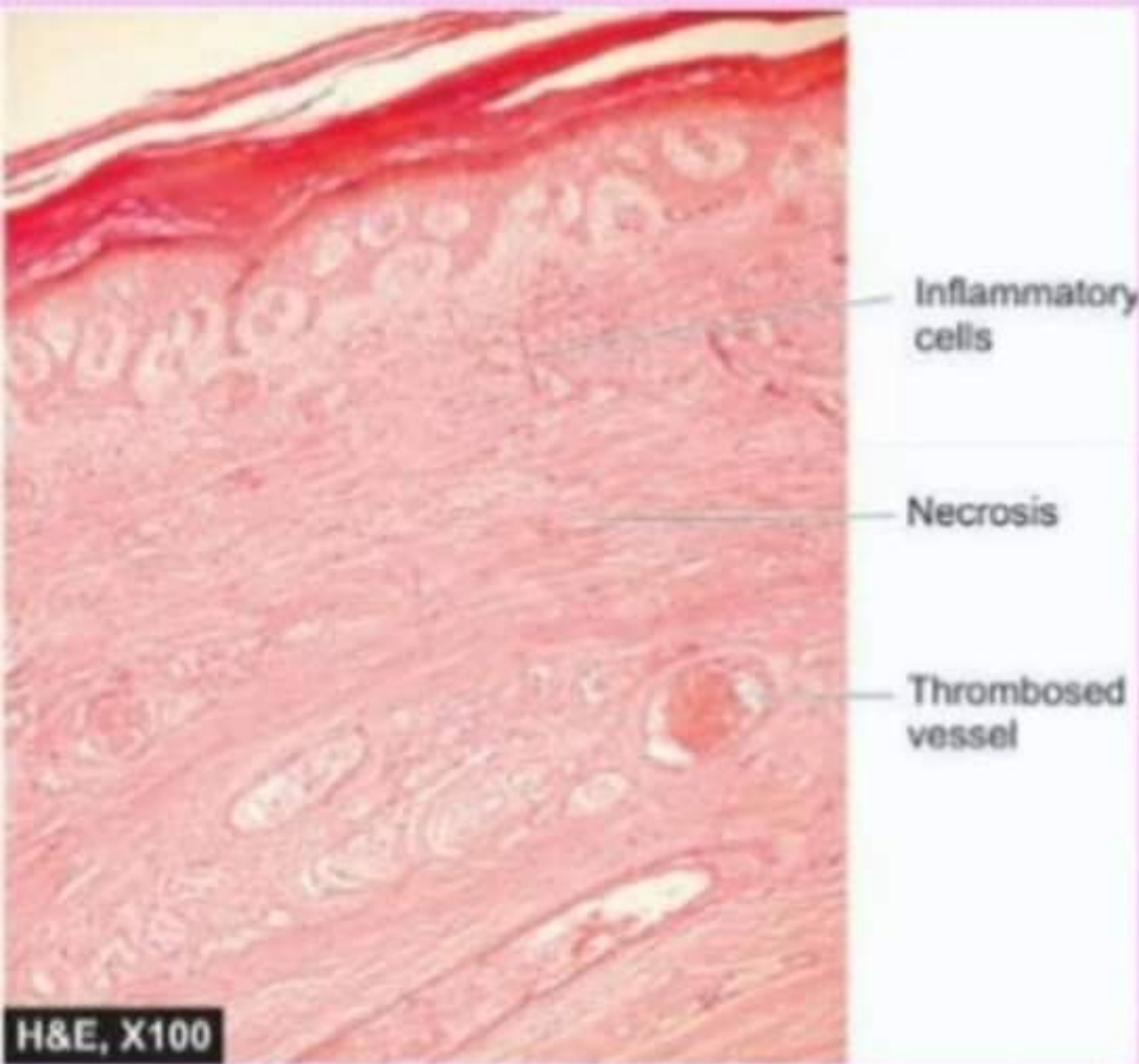
- 2 main forms of gangrene
- **Dry gangrene**
- **Wet Gangrene**
 - **Gas gangrene:** a kind of wet gangrene



GAS GANGRENE

- Special form of wet gangrene caused by gas-forming **clostridia** (gram-positive anaerobic bacteria).
- gain entry into the tissues through open contaminated wounds,
- especially in the muscles, or as a complication of operation on colon which normally contains clostridia.
- It produce various toxins which produce necrosis and oedema locally
- Also absorbed producing profound systemic manifestations.

Morphology



- **Grossly**

- the affected part is dry, shrunken and dark black, resembling the foot of a mummy.
- It is black due to liberation of haemoglobin from haemolysed red blood cells which is acted upon by hydrogen disulfide (H_2S) produced by bacteria resulting in formation of black iron sulfide.
- The line of separation usually brings about complete separation with eventual falling off of the gangrenous tissue if it is not removed surgically

Histologically

- Necrosis with smudging of the tissue.
- The line of separation consists of inflammatory granulation tissue

Contrasting Features of Dry and Wet Gangrene

Feature	Dry Gangrene	Wet Gangrene
<i>Site</i>	Commonly limbs	More common in bowel
<i>Mechanisms</i>	Arterial occlusion	More commonly venous obstruction, less often arterial occlusion
<i>Macroscopy</i>	Organ dry, shrunken and black	Part moist, soft, swollen, rotten and dark
<i>Putrefaction</i>	Limited due to very little blood supply	Marked due to stuffing of organ with blood
<i>Line of demarcation</i>	Present at the junction between healthy and gangrenous part	No clear line of demarcation
<i>Bacteria</i>	Bacteria fail to survive	Numerous present
<i>Prognosis</i>	Generally better due to little septicaemia	Generally poor due to profound toxemia

Bacterial Diseases of the Skin and Wounds

- **Gas Gangrene**



- Signs and symptoms
 - Blackening of infected muscle and skin
 - Presence of gas bubbles
- Pathogens and virulence factors
 - Caused by several *Clostridium* species
 - Bacterial endospores survive harsh conditions
 - Vegetative cells secrete 11 toxins