

# BACTERIAL INFECTION



- **Definition:** Invasion of the body by pathogenic bacteria and development of pathological changes.

**Mode of Infection:**

(1) ***Exogenous infection:*** From the environment.

(2) ***Endogenous infection:*** By pathogenic bacteria normally present in body as streptococcus viridans in the mouth, pneumococci in nasopharynx and E. coli in the intestine. Infection occurs when defensive mechanisms of the body are overcome.

**Effects of Infection:** (1) Inflammation. (2) Toxaemia. (3) Blood invasion bacteria (bacteraemia, septicaemia and pyaemia). (4) Immunity hypersensitivity.



- **TOXAEMIA**

**Definition:** Circulation of bacterial toxins in the blood causing pathological and clinical manifestations.

**Types:**

(1) ***Acute toxemia:*** Occurs in acute infections as diphtheria.

(2) ***Chronic toxemia:*** Occurs in chronic infections as tuberculosis.

**Manifestations of Toxaemia:**

(1) ***Constitutional signs and symptoms:*** Fever, rigor, headache.

(2) ***Degeneration and organ failure:*** Mainly in the heart, kidney and liver. .

(3) ***Necrosis and haemorrhage of the adrenal cortex:*** May be fatal acute adrenal cortical insufficiency.

(4) ***Anaemia:*** Due to bone marrow depression by the toxins.



- **BACTERAEEMIA**

**Definition:** Transient presence of small number of bacteria in the blood without toxic manifestations.

e.g. that occurring after tooth extraction.

**Effects of Bacteraemia:**

(1) The bacteria are usually phagocytosed and destroyed by the cells of the reticulo-endothelial system.



- **SEPTICAEMIA**

**Definition:** The circulation and multiplication of large number of virulent bacteria and their toxins in the blood. The condition is highly fatal

**Causative**

**organisms:** (1) Pyogenic bacteria as streptococci, staphylococci.

(2) Bacilli as bacillus anthrax. Sources are infected pin prick, septic wounds, and puerperal sepsis. **Manifestations of septicemia:**

(1) Red cell haemolysis causing anaemia.

(2) Petechial haemorrhage in the skin, mucous and serous membranes due to capillary destruction by the streptococcal toxins.

(3) Cloudy swelling, fatty change and focal necrosis in the heart, liver and kidney.

(4) Inflammation in the serous sacs.

(5) Acute splenic swelling.

(6) Acute bacterial endocarditis may occur.



- **PYAEMIA**

**Definition:** Pyaemia is the circulation of septic emboli in the blood and their arrest **in** different organs causing multiple small abscess (Pyaemic abscess).

**Types:**

(1) ***Systemic pyaemia.*** The septic emboli circulate in **the** systemic venous blood.

(2) ***Portal pyaemia:*** The septic emboli circulate in the portal venous blood.

**Pathological Picture:**

(1) The affected organ shows multiple small abscesses. The abscesses are nearly of the same size, peripheral in position, rounded **in** shape, yellow in colour and surrounded by a dark red zone of congestion.

(2) Cloudy swelling and fatty change in the parenchymatous organs caused by toxæmia.

(3) Leucocytosis may occur in pyaemia.

