



# **Anthrax**

## **Anthrax**

**It is an acute bacterial disease that usually affects skin but may very rarely involve oropharynx, mediastinum or intestinal tract.**

### **A/Cutaneous anthrax**

**Presented with itching of an exposed skin followed by papule then vesicular lesion which within (2-6) days develops into a depressed black Escher surrounded by edema.** cutaneous anthrax infections normally do not cause pain. It is rarely fatal if treated, about 20% of cutaneous skin infection cases progress to toxemia and death.




Anthrax skin lesion

## B/Inhalation anthrax

Presented initially with mild nonspecific symptom ( flu like) followed by acute symptoms of respiratory distress with **x-ray** evidence of mediastinal widening , fever and shock within **(3 – 5) days** with death shortly thereafter.

## C/Intestinal anthrax

It is rare and difficult to recognize except it occurs in explosive food poisoning outbreaks, abdominal distress followed by fever ,signs of septicemia and death.



\***Diagnosis** :is made by determination of causative agent in blood , lesions or discharges by direct polychrome methylene blue stained smears or by culture or inoculation of mice, guinea pigs or rabbits. ELISA and PCR may be available in certain laboratories .

\***Infectious agent:** Bacillus anthracis (gram positive ,encapsulate spore forming non motile rods).



## Occurrence :

\*Primarily a disease of herbivores ;human and carnivores are incidental hosts.

Sporadic infrequent human infection in most industrialized countries .Endemic in agricultural regions.

\*Anthrax is considered a leading potential agent in bioterrorism or biowarfare.



## Reservoir:

Animals shed bacilli in terminal hemorrhages or split blood at death . On exposure to air ,vegetative forms sporulate and spores are resistant to adverse environmental conditions and disinfections .It may remain viable in soil for many years.



## Mode of transmission :

\*Cutaneous infection is by :

- 1.Contact with tissues of animals dying of the disease .
- 2.Possibly by fly bite.
- 3.Contact with hair , wool , hides or products.
- 4.Contact with contaminated soil .

\*Inhalational type through inhalation of spores in risky processes.

\*Intestinal and or pharyngeal is through ingestion of undercooked contaminated meat.

Can anthrax transmitted from person to person?





### Incubation period :

(1 -7 ) days ( may be up to 60 days).

### Period of communicability :

Person to person transmission is very rare.

Articles and soil contaminated with spores may remain infective for decades.

### Susceptibility and resistance:

Uncertain ,there is some evidence of inapparent infection among people. Second attack can occur but rare.



## Preventive Measures :

1. Immunize high risk persons with a cell –free vaccine containing protective antigen. Useful against cutaneous and inhalational anthrax.
2. Educate employees about mode of transmission ,care of skin abrasions and personal cleanliness.
3. Control dust and properly ventilate work areas.
4. Thoroughly wash, disinfect or sterilize hair , wool, bone meal ...etc.



5. Don't sell hides of exposed animals .

6. If anthrax is suspected ,do not necropsy animal but aseptically collect blood sample for culture then autoclave ,incinerate ,or chemical disinfection of all instruments or materials.

7. Control effluents and trade wastes from rendering plants .

8. Immunize and annually reimmunize all animals at risk.

## Control Measures :

1. Report to locate health authority .Obligatory case report.
2. Isolation .Standard precautions for the duration of illness.
3. Concurrent disinfection of discharges from lesions and articles.
4. Investigation of contacts and source of infection.
5. Specific treatment.

Penicillin is drug of choice for (5-7) days .

Alternatives are tetracycline ,erythromycin and chloramphenicol also parenteral ciprofloxacin.