

## **Anthrax Disease in Animal, Symptoms, Treatment and Control**

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### **Introduction**

India is the leading country across the world in milk production and secured second rank in cattle population. In India the livestock census is conducted across the country periodically since 1919. The total Livestock population of India is 535.78 million, and the country showing an increase the population of 4.6% over livestock census 2012. The total number of cattle's in the country is 192.49 million, buffaloes 109.85 million, goats 148.88 million, sheep 74.26 million, pigs 9.06 million, and poultry 851.81 million respectively, in 2019 showing an increase of 0.8 % over previous census. Among the all states, Uttar Pradesh has the maximum number of livestock of 67.8 million (68.7 million in 2012), after that on second position secured state is Rajasthan 56.8 million (57.7 million), followed by Madhya Pradesh: having 40.6 million (36.3 million) and West Bengal have 37.4 million (30.3 million). So, India has very poor and unhygienic kind of husbandry condition that's why many diseases cause in animals, Anthrax is one of them. Anthrax spread in animals by bacteria. Anthrax disease is a vital domestic animal disease, occurs majorly in goats, cattle, sheep, and horses. Anthrax also happens in wildlife, such as hippos and elephants. It is occasional in humans and occurs mainly in countries that do not prevent industrial or agricultural exposure to infected animals or their products like uncooked infected meat.

## Symptoms

The symptoms of anthrax depend on the type of infection and can take anywhere from **1 day to more than 2 months** to appear. All types of anthrax have the potential, if untreated, to spread throughout the body and cause severe illness and even death.

- ✚ Sudden passing away (often within 2 or 3 hours of being apparently normal) is by far the most common sign.
- ✚ Very occasionally some animals may show trembling, a high temperature
- ✚ Difficulty breathing, collapse and convulsions before death. This usually occurs over a period of 24 hours;
- ✚ After death blood, may not clot, resulting in a small amount of bloody discharge from the nose, mouth and other openings.
- ✚ Sometimes animals may have a fever and a period of excitement followed by staggering, depression, unconsciousness, difficulty breathing, seizures, and death.
- ✚ Dark blood may ooze from the mouth, nose, and anus. Signs in pigs, dogs, and cats may be less serious.



Fig. 1



Fig. 2



Fig. 3

### How animals get infected with anthrax

Domestic and wild animals such as cattle, sheep, goats, antelope, and deer can become infected when they breathe in or ingest spores in contaminated soil, plants, or water. In areas where domestic animals have had anthrax in the past, routine vaccination can help prevent outbreaks.

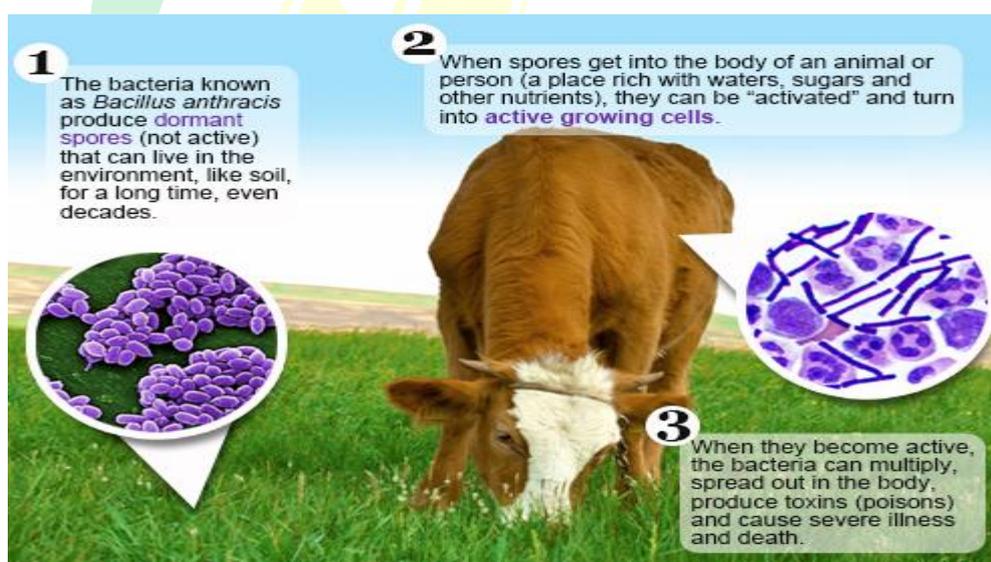


Fig. 4

### Anthrax and it's Cycle

Anthrax is an exceedingly infectious and deadly disease of livestock. Anthrax is affected by a relatively large spore-forming rectangular shaped bacterium called *Bacillus anthracis*. Anthrax can be found naturally in soil and commonly affects domestic and wild animals around the world. Although it is rare in the United States, people can get sick with anthrax if they come in contact with infected animals or contaminated animal products.

Anthrax can cause severe illness in both humans and animals. Anthrax causes acute mortality in ruminants. The germs produce extremely effective toxins which are responsible for the ill properties, causing a high mortality rate. Symptoms of the illness normally appear 3 to 7 days after the spores are swallowed or inhaled. Once symptoms begin in animals, they normally die within 2 days. Hoofed animals, like cattle, deer, goats, and sheep, are the major animals affected by this disease. They normally get the disease by swallowing anthrax spores while grazing on pasture contaminated with anthrax spores. Inhaling (breathing in) the spores come inside the animal, which have property like odourless, colourless, and tasteless, that cause infection in animals and human also.

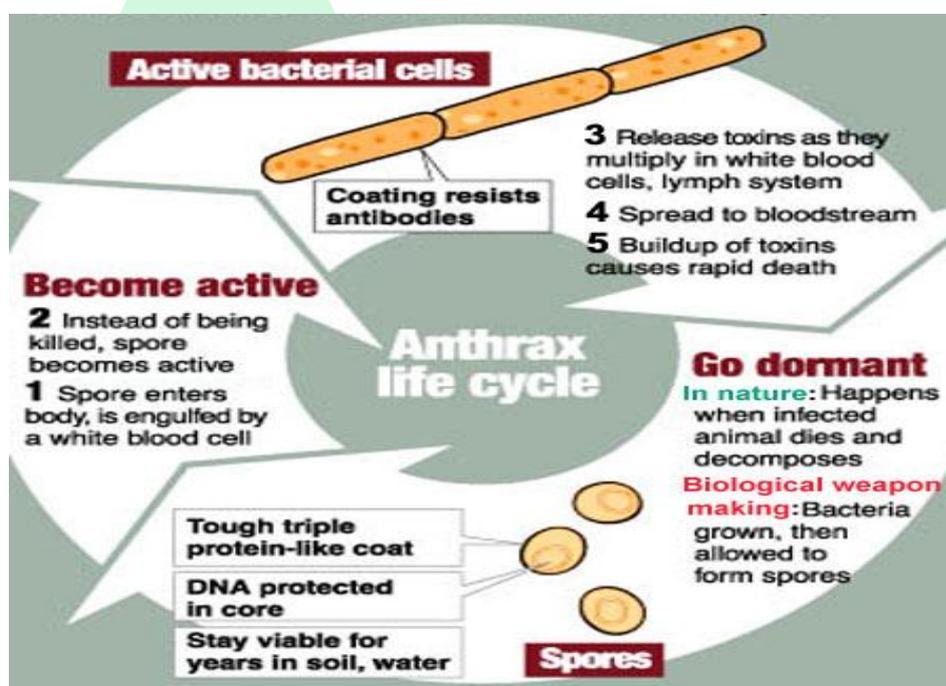


Fig. 5: Anthrax (*Bacillus anthracis*) disease cycle

### Preventive Measures for disease control

- ✚ Regular annual vaccination of animals in endemic areas will prevent the disease from occurring.
- ✚ Vaccination may be carried out at least a month prior to expected disease occurrence in endemic areas.
- 3. Never open a carcass of an animal suspected to have died from

anthrax. Contact a veterinarian immediately if the following symptoms are seen and seek advice on control measures to be adopted.

- i. Fever (106-108°F), loss of appetite, depression and dullness
- ii. Suspended rumination<sup>3</sup>. Rapid pulse and heart rates
- iii. Difficult breathing (dyspnoea)
- iv. Lameness in affected leg
- v. Crepitation swelling over hip, back & shoulder
- vi. Swelling is hot & painful in early stages whereas cold and painless inter.
- vii. Recumbency (prostration) followed by death within 12-48 hrs.

### **Treatment and Control**

- ✚ Due to the acute nature of the disease resulting in sudden death, treatment is usually not possible in animals even though Anthrax bacilli are clines. Treatment is of use in cases showing sub-acute form of the disease.
- ✚ In most cases, early treatment can cure anthrax. The cutaneous (skin) form of anthrax can be treated with common antibiotics.

### **Conclusion**

A vaccine for livestock is commonly used in areas that have anthrax. To be effective, it must be used before the animal is exposed to the bacteria. The vaccine for livestock is not the same as the one for humans. The human vaccine has limited availability, such as for military personnel. No vaccine is available for pets. Handling a dead or sick animal or eating a dead animal infected with anthrax can spread anthrax to humans and other animals. Anthrax is not spread by sneezing or coughing. Person-to-person spread of the disease is unlikely. Animals that die of anthrax can contaminate the soil with anthrax spores, so the bodies should be burned, not buried. Wear a mask and gloves when handling sick or dead animals. Vaccinate livestock as recommended.