

Outbreak of Anthrax and its management in Bangalore rural district

B.R. Suchitra*, M.C. Anil Kumar, G.P. Kalmath, and L. Prakash

Veterinary Dispensary,
Hanabe, Doddaballapur, Bangalore rural District, Karnataka
* Corresponding author email: suchitraraju2003@yahoo.co.in

Anthrax, an acute to per acute infectious disease of all domestic animals and human beings, is caused by *Bacillus anthracis* and characterized by septicemia and sudden death with the exudation of dark tarry colored and unclotted blood from the natural orifices. Human beings can get anthrax from contact with infected animals, wool, meat, or hides. Occurrence of anthrax in humans is correlated with industrial activities such as handling potentially contaminated materials like hides, fur, wool, hair, meat, or bone meal (Ammann and Brandl, 2007). The spores are very resistant to unfavorable environmental extremes of heat, cold, desiccation, chemicals and irradiation. The incidence of anthrax varies with the type of the soil and climate. It is many times restricted to a particular area where it is endemic and such areas are known as "Anthrax belts". Cattle and sheep are very susceptible to anthrax and dogs and cats are quite resistant. There are only few reports of anthrax outbreak in domestic animals in India. Venkatesha, et al., (2006) reported 2 anthrax outbreaks in Hassan and Kolar districts of Karnataka State.

History and Clinical Examination

There was a history of sudden death of seven cows and two bullocks in Jaligere village of Doddaballapur taluk, Bangalore rural district during the month of June, 2008. Upon external examination of the carcass, it was found that there was unclotted blood near the nostril, at anal orifice and on the floor, where the animals were lying dead. There were around seven (7) ailing animals showing the clinical signs like high fever (105°F), dyspnoea, highly congested mucous membrane and absence of ruminal contractions. Blood smears were made from all the dead and ailing animals, fixed with methanol and stained by methylene blue staining as per standard procedures.

Diagnosis, treatment and control measures

All the blood smears examined were positive for *Bacillus anthracis* organisms. Smears showed characteristic McFadyean reaction characterized by purple capsule around the gram positive bacilli which were seen in short chains with truncated or rounded ends. Based on history of sudden death, oozing of unclotted blood at natural orifices and blood smear examination it was diagnosed as anthrax outbreak and control measures were undertaken immediately. Ailing animals were isolated in a separate shed and treated for the disease as follows. They were administered with intramuscular injections of Streptopenicillin@1 LD twice daily, 10 ml of Melonex® once in a day, Chloril® 10 ml once in a day and Tribivet® 10 ml once in a day for 7 days. All the 7 animals clinically recovered after 7 days. Blood smear examination of these animals after 7 days of treatment revealed no *Bacillus anthracis* organisms. The carcass of the dead animals, feed, Manure, bedding materials of dead and ailing animals were burnt. The healthy animals were vaccinated with anthrax spore vaccine (IAH & VB, Bangalore), which contains a suspension of live spores of Sterne's strain of *Bacillus anthracis* in 50% glycerine saline. The cattle were injected with 1 ml of anthrax vaccine and sheep were given with a dose of 0.2 ml subcutaneously. The left over vaccines were disposed as per the standard procedures. From then, till date no further anthrax outbreaks were noticed in this region.

Discussion

Anthrax remains endemic in many parts of the world with regular infections of livestock presenting a consequent risk to public health. (Sharp and Roberts, 2006). Field diagnosis or tentative diagnosis of anthrax mainly depends on history like sudden death with

1. Veterinary Officer and Corresponding Author
2. Asst. Professor, Department of Veterinary Preventive Medicine, Veterinary College, Hebbal, Bangalore-24.
3. Assistant Professor, Department of Veterinary Physiology, Veterinary College, Hebbal, Bangalore-24.
4. Deputy Director, Department of A.H. & V.S, Bangalore rural District, Bangalore, Karnataka.

oozing of blood from natural orifices which will not clot. Mongoh et al., (2005) reported that predominant clinical signs of anthrax affected animals are sudden death and bleeding from natural orifices. The sporadic outbreak of anthrax in this region might be due to ingestion of spores from soil which may be associated with previous anthrax outbreaks and burial of anthrax affected carcasses. In the present outbreak, animals had suffered from two categories of infection. Per acute form, where the animals have died suddenly without showing any clinical signs and acute form, where the animals showed clinical signs which were treated later and they recovered subsequently. Mandeep sharma, et al., (1996) reported that the *Bacillus anthracis* organisms were sensitive to penicillin, chlortetracycline, gentamicin and ampicillin and resistant to co-trimoxazole and cloxacillin. Hence the Streptopenicillin was used in the treatment of affected animals along with the antipyretics, antihistamines and B-complex injections. The control measures undertaken were also very effective since there were no further anthrax outbreaks in and around that region.

Acknowledgment

The authors are thankful to Deputy Director, Department of A.H. & V.S, Bangalore rural District, Bangalore, and IAH & VB, Bangalore who helped to confirm the disease and to undertake effective vaccination programme.

References

1. Ammann, A. B, Brandl, H (2007): Anthrax in the canton of Zurich between 1878 and 2005. *Schweizer-Archiv-fur-Tierheilkunde*. 149(7):295-300.
2. Odontsetseg, N., et.al.(2007): Anthrax in animals and humans in Mongolia. *Revue-Scientifique-et-Technique-Office-International-des-Epizooties*.26(3):701-710.
3. Venkatesha, M. D, et.al.(2006): Anthrax - a study in Karnataka State. *Intas-Polivet*. 7(2): 307-312.
4. Sharp, R. J and Roberts, A. G. (2006): Anthrax: the challenges for decontamination. *Journal of Chemical Technology and Biotechnology*. 81(10): 1612-1625.
5. Mongoh, M. N., et.al.(2005): Characterization of an outbreak of anthrax in animals in North Dakota: 243 cases. *Bovine-Practitioner*. 41(2): 101-109.
6. Mandeep Sharma, et.al. (1996):*Buffalo-Journal*. 12(1): 109-113.

* * * * *