Review Article

Journal of Animal Feed Science and Technology
Volume 8 Number 1, January–June 2020
DOI: http://dx.doi.org/10.21088/jafst.2321.1628.8120.4

Glanders and Farcy Sero-Suerveillance in Uttar Pradesh: An Overview

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How to cite this article:

R P Diwakar, Rajesh Kumar, Glanders and Farcy Sero: Surveillance In Uttar Pradesh: An Overview. Journal of Animal Feed Science and Technology. 2020;8(1):25–27.

Abstract

Glanders and Farcy is a contagious and fatal disease of horses, donkeys and mules caused by infection with gram negative bacteria ***Burkholderia mallei***. The pathogen causes nodules and ulceration of mucus membrane in upper respiratory tract and lungs. A skin form also known as Farcy, which may be zoonotically importance in human beings. The disease was successfully controlled in UP state by continued sero surveillance at regular interval in each district of UP by National Research Center on Equines, Hisar with the help of veterinarian of department of animal husbandry UP and also adoption of Glanders and Farcy Act, 1899. It is rare disease in humans with cases having occurred in veterinarians and other people working closely with handling of horses and susceptible laboratory animals.

Key words: Glanders and Farcy; B mallei; Horses; Sero surveillance; Veterinarian.

Introduction

Glanders is a highly infectious and often fatal zoonotic disease[1,2,3] primarily affecting horses, donkeys and mules (solipeds) caused by gram negative rod shaped, non spore forming, facultative intracellular bacterium ***Burkholderia mallei***[4,3], characterized by nodules and ulcerations in the upper respiratory tract and lungs.[5,6,7] Carnivores like lion may be infected by eating meat. Lymphadenitis of submaxillary and retropharyngeal nodes is commonly seen.[8,9] A skin form also known as Farcy.[10] Entry of bacteria occurs through the skin abrasions, cuts and wounds through surface of eyes and nose. The bacteria can also infect humans through body fluids of an infected horse.

Laboratory animals are also susceptible to glanders including hamsters, mice and guinea pigs. Veterinarian, farriers and animal worker are susceptible to this important occupational disease.[11] The ***B. mallei*** are sensitive to the external environment and destroyed by direct sun light and common disinfectants. It can also be used as biological weapon and also as warfare agent.

Clinical findings

The incubation period for glanders in equines ranges from few days to many weeks (2-8 weeks). There is chronic nasal grey color discharge from the nostrils. Submaxillary lymph nodes are oedematous in nature. The skin of the lower limbs and abdomen

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are found to be mostly affected. The skin affection is ascribed as Farcy. There is high rise of temperature, dyspnoea. Animal die due to anoxia or septicaemia in case of acute infection where as in chronic case, intermittent fever, cough and respiratory distress, affected animal looses their hair coat,oedema of the hind limbs and ulcer of the skin healing leave an irregular star shaped scar.

Policy

In 20 March 1899, Governor General of India passed Glanders and Farcy Act, 1899 (Act 13 of 1899) for testing and destruction diseased horses with glanders and the outbreak is notifiable by the veterinary authorities. It was the first act on animal diseases to be propogated in India and now substituted by the Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009 which was implemented in India to prevent, control and eradicate the infectious diseases.

Diagnostic test

Mallein test and Complement Fixation Test are international prescribed diagnostic test for diagnosed glanders in equine species by Sero surveillance. Besides, enzyme linked immunosorbent assay (ELISA) may be used for human glanders diagnosis.

Sero surveillance Programme

Since 1988 there was no outbreak till August 2006 when the same was reported from Maharashtra after a long gap almost 20 years from Maharashtra after a long gap almost 20 years. This was followed by outbreaks in UP, Punjab, Uttarakhand, Andhra Pradesh and Himanchal Pradesh. The sero positive sporadic incidence were also reported at regular interval ranging from 6-12 in a year via sero surveillance by scrutinized 3-5 ml serum samples/lymphnode biopsy aseptically of equines with great care handling through NRCE Hissar in almost each district of UP i.e. Banda, Hamirpur, Kanpur, Raebareli, Lakhimpur khiri, Fatehpur etc. Thereafter, the Department of Animal Husbandry, Dairying and Fisheries is continuously issuing advisories to states for prevention and control of glanders including public awareness. The state animal husbandry department of UP should carry intensive physical and clinical surveillance of susceptible animal population throughout the year on regular basis and covers all the equines in the villages/equine movement routes/stables/ fairs for glanders so as to detect latently infected carrier horses. However, in endemic states 100 percent equine population within 5 km radius of foci of glanders outbreak and 50 percent equine population in next 5 km radius should be covered under surveillance programme. The suspected cases should be quarantined and subjected to test for which samples need to send to National Research Centre on Equines (NRCE) Hisar working as national reference laboratory for diagnosis of many equine diseases and tested as per the OIE approved tests, if found positive on CFT and/ or by approved test, animal should be culled and eliminated immediately and all the zoo sanitary measures should be followed at the time of culling and disposal of carcasses. The compensation paid by UP Government through chief veterinary officer of corresponding district to the livestock keepers/ equine owners with a rate Rs 25,000/- and Rs 16,000/- for culling of each horses and donkeys respectively.

Awareness Programme

The state animal husbandry department also conducts mass public awareness programme at state, district, taluka, village or fair level to sensitize the stakeholders and also enhance awareness regarding importance of the disease, its implication on equines and human health with capacity building of livestock keepers, village people to infectious zoonotic disease Glanders and Farcy. Instead of this, another FMD control programme of immunization of 23 rd round in all states of India under RKVY of highly contagious viral origin Foot and Mouth disease also continued with hundred percent of immunization of cattle and buffaloes except animal calf below 4 months age, advanced stage of pregnancy and diseased animal status of livestock with sero surveillance of vaccine titre against four strain of FMD before vaccination and 21-30 days after vaccination.

The infected equines particularly the asymptomatic horses as carrier animals are the greatest risk to humans. Therefore, local, regional animal and public health authorities need to pay careful attention and work together in the eventually of a suspected outbreak to expedite identification and control of human infection. Lack of awareness among horse and donkey owners and the limited availability of veterinary services are key factors responsible for under reporting of the disease. Hence, control of glanders and farcy need strict implementation of ongoing policy comprising education by training of trainees, awareness of owners and stakeholders (Veterinarian, Livestock

Extension Officers, Paravets, Pashumatry, Young youth, Equine Owners, Fair organizers etc) and continuous veterinary education programs as well as using social media, facebook, twitter, whatsapp base for skill development or through collaboration with common national programme like "Swachhta Mission" with regular sincerely monitoring of sero surveillance of equine species samples by state coordinator or agency in keen interest of both humans and equines. Strict implementation of testing for glanders and destroying the positive ones has further reduced the occurrence of disease.

Treatment/ Prevention

No treatment is available except only for prophylaxis and control, so culling of equine species obligatory. In case of death due to glanders, carcass should not be opened; it must be buried or incinerated 7. Manure, bedding and feed residue should be buried or burnt with carely follow biosafety measures for handlers.

Conclusion

Glanders is a highly infectious and often fatal zoonotic disease. That's why control of glanders and farcy need strict implementation of ongoing policy comprising education by training of trainees, awareness of owners and stakeholders (Veterinarian, Livestock Extension Officers, Paravets, Pashumatry, Young youth, Equine Owners, Fair organizers etc) and continuous veterinary education programs as well as using social media, facebook, twitter, whatsapp base for skill development or through collaboration with common national programme like "Swachhta Mission" with regular sincerely monitoring of sero surveillance of equine species

Acknowledgement

I am thankful to Dr. P. S. Niranjan Government Veterinary Officer , who support me and provide me information which help me to write this article for the field vetenarians/ teachers and veterinary field students as wel as to the medical officer to know how disease is transmitted to animal to human being.

Key messages: Glanders and Farcy are a zoonotic disease, which is transmitted to human being and highly fetal disease in equines.

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