

Short Communication

**OUTBREAK OF HEMORRHAGIC SEPTICEMIA IN
FREE RANGE BUFFALO AND CATTLE GRAZING AT
RIVERSIDE GRASSLAND IN MURSHIDABAD DISTRICT,
WEST BENGAL, INDIA**

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ABSTRACT: An outbreak of *Haemorrhagic Septicaemia* among free ranging buffaloes and cattle reared at the natural grassland at the embankment and surrounding area of Bhagirathi river in 3 blocks of Murshidabad district of West Bengal, India was diagnosed by clinical symptoms, postmortem examination, bacteriological study and biochemical tests. Among 154 affected animals (2.16% of total animals at risk) buffalo were 85.71% and cattle were 14.28%. A total of 52 affected animals (33.76%) died before starting treatment. Among the dead animals, 86.53% was buffalo and 13.46% was cattle. The ailing animals were successfully treated with antibiotic, analgesic and corticosteroid. The epidemic was finally controlled by vaccination, restriction of animal movement and proper disposal of carcasses.

Key words: *Haemorrhagic Septicemia*, Outbreak, Buffalo, Cattle,

Haemorrhagic Septicemia (HS) is an acute Pasteurellosis caused by particular serotypes of *Pasteurella multocida* and manifested by an acute and highly fatal septicemia principally in cattle and water buffaloes; the latter are thought to be more susceptible. Outbreaks have also been reported in small ruminants (sheep & goat) and pig (Gajendragad *et al.* 2012) and also reported in bison, camels, elephants, horses, donkeys and yak (Buxton and Fraser 1977).

HS is a major disease of cattle and water buffalo is Asia, Africa and some countries of South Europe and Middle East. Although it may be seen at any time of year, the worst epidemic occurs during the rainy season. It is most

common in the river villages and deltas of South-East Asia among buffaloes used in rice cultivation (Khan *et al.* 2006). HS is widespread disease in India, occurs more frequently in poor husbandry conditions. In the present case, animals were reared under an extensive, free range system. Such conditions are an ideal environment for spread of HS (Gajendragad *et al.* 2012). The objective of the study was to diagnose the disease as well as to control the epidemic.

There was a report of outbreak in the month of June and July, 2013 among the buffaloes and cattle in 3 blocks, namely Suti-I, Raghunathganj-II and Lalgola of Murshidabad

district, West Bengal, India. The animals were reared at free range in the river bed of the Bhagirathi. The details of the outbreak report is given in Table 1.

Primarily, the clinical and gross pathological findings were recorded. Postmortem examination of 7 carcass (buffalo 5 and cattle 2) were done and the samples from heart blood, tissues from heart, liver and lungs were collected. Blood slides were prepared from heart blood and inflammatory exudates.

The slides were stained by Gram's stain and seen under microscope. Culture was made from heart blood in blood agar media and cultural characters of the organism were studied. Culture was also made in nutrient broth media and different biochemical tests like Indole and H₂S production, Nitrate reduction, Urease production, Gelatin liquification, Reaction with Glucose, Sucrose, Galactose, Fructose and Mannitol were performed. All the tests were done at Bacteriological Laboratory, IAH & VB, Kolkata, West Bengal, India as per the methods followed by Buxton and Fraser (1977).

Among 154 affected animals (2.16% of total animals at risk), buffalo were 132 (85.71%) and cattle 22 (14.28%). Among the affected animals, 52 animals (33.76%) died. Among the dead animals, 45 were buffalo (86.53%) and 07 were cattle (13.46%).

The affected animals showed the symptoms of pyrexia (Temp. 105-106°F), sudden drop of milk yield, abdominal pain, severe diarrhoea and dysentery, rapid respiration and cyanotic mucus membrane before death. Some animals showed edema in head, neck and brisket region and respiratory distress and death within 2-4 days. The symptoms corroborate with the findings of Buxton and Fraser (1977). Most of the animals of 3 blocks were having grazing

practice in a common *char* area of the river bank of Bhagirathi.

Post Mortem Findings : Multiple haemorrhages on serous membranes and blood stained exudates in organs of thorax and abdomen were found. Intestinal contents were blood stained and mesenteric lymph nodes were found enlarged and haemorrhagic. Edema was observed in subcutaneous tissue and also in thorax, tongue and neck. Exudate was found in pleural cavity and pericardial sac. Enlargement of bronchial and medio-sternal lymph nodes was found with marble appearance of lungs due to thickening of septa. These observations corroborate with the findings of Buxton and Fraser (1977).

Cultural character: The organism grows aerobically with low Oxygen at 37°C. In blood agar media profuse growth occurs without any haemolysis (Fig.1).

Morphology: The organism was Gram negative, short ovoid rods with a tendency to bipolar staining by Leishman stain. Fig.2 showing Pasteurella organisms stained by Gram staining method.

Biochemical Tests : The organism showed the following biochemical characteristics:-

- (a) Produce indole and H₂S.
- (b) Reduces nitrates.
- (c) No growth in Mc.Conkey agar.
- (d) No haemolysis in blood agar.
- (e) No urease production.
- (f) No motility at 22°C.
- (g) No liquefaction of gelatin.
- (h) Production of acid without gas in glucose, sucrose, galactose, fructose and mannitol.

Diagnosis: Based on history, clinical symptoms, morphology, cultural and biochemical characters of the organism and post

Table 1. Details of the HS outbreak in Murshidabad district, West Bengal, India.

	No. of animals affected	No. of death	No of animals recovered	Popusation risk	No. of vaccinated
Block					
Suti-I	72	31	41	1900	1850
Raghunath Gang-II	78	19	59	3700	3650
Lalgola	04	02	02	1520	1470
Total	154	52	102	7120	6970
Animal Species					
Buffalo	132	45	87	2100	2070
Cattle	22	07	15	5020	4900
Total	154	52	102	7120	6970

mortem findings, the organism was identified as *Pasteurella multocida* and the outbreak was declared as Haemorrhagic Septecemia.

Treatment and Control : The affected animals were treated with (1) Inj. Intacef Tazo (3375mg for buffalo and 2250 mg for cattle) I/M daily for 5 days ,(2) Inj. Zobid M (15-20ml) I/M daily for 5 days and (3) Inj. Prednisolone (5-10 ml) I/M daily for 5 days. Many animals (buffalo 87 nos. and cattle 15 nos.) responded to treatment which were in early stage of the disease. This finding have similarity with the findings of Kumar *et al.* (2011). Total 2070 nos. of buffalo and 4900 nos. of cattle were vaccinated by HS vaccine (manufactured by IAH & VB, Kolkata) @ 5 ml S/C at brisket region. The control measures include proper vaccination, disposal of carcass by deep burial with lime powder, restriction of movement of the animals, segregation of the infected animals,

cleaning and disinfection of the contaminated premises by burning and application of disinfectants.

Haemorrhagic Septicemia (HS) is one of the most important diseases of bovines in South Asian and Middle Eastern country. In India mortality wise HS was replaced first and morbidity wise second as compared to four other epizootic diseases namely FMD, RP, Anthrax and BQ (Dutta *et al.* 1990). Many states in India were marked as high risk zones. Gajendragad *et al.* (2012) reported eleven outbreak of HS in West Bengal. The morbidity and mortality rate were 1.18% and 0.54% respectively. About 26 outbreaks have been recorded in Punjab state from 1989 to 1990 (Saini *et al.* 1991).

Outbreak of HS was recorded in Sri Lanka (De Alwis and Vipulasiri 1980), Zimbabwe (Lane *et al.* 1992), South Asia, the Middle East

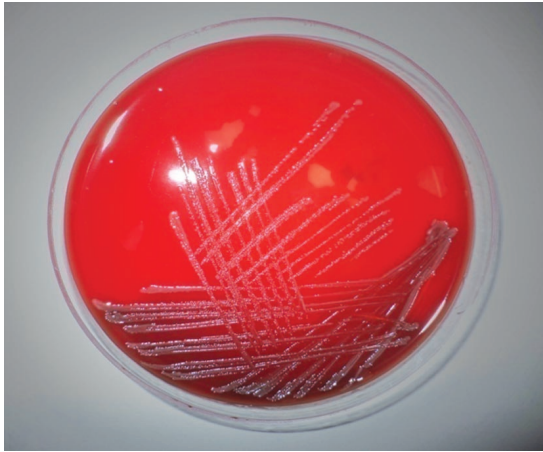


Fig.1: Showing Cultural Character of *Pasteurella multocida* in blood agar.

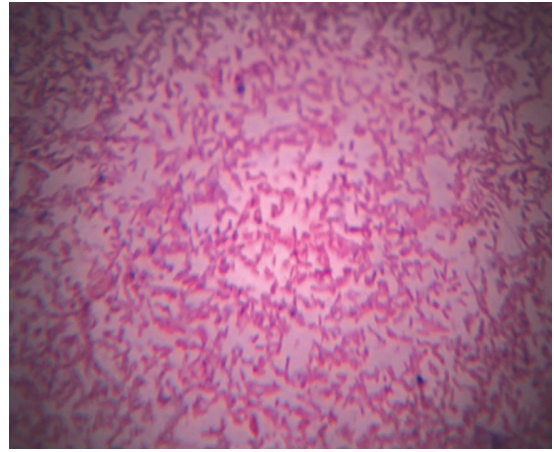


Fig. 2: Microscopically showing *Pasteurella multocida* (100X).

and Africa (FAO 1989), Aurangabad, Bihar, India (Kumar *et al.* 2011). The morbidity rate reported was 6.4 % and mortality rate 6.28 % (Dutta *et al.* 1990). A wide range of mortality rate (5 to 90%) was reported in different outbreaks and seasons in India, Nepal and the Philippines (FAO 1991). Most of the outbreaks have been managed by medical treatment and resulted in poor survival rate. Higher mortality in buffaloes (45.2%) as compared to cattle (15.8%) in Sri Lanka due to HS as reported by De-Alwes and DeAlwes (1981). Occurrence of the disease was higher in buffaloes when compared to cattle (Khan *et al.* 2006), which corroborate with the findings of present study.

HS has emerged as a disease of great economic importance in India, where cattle and buffaloes are abundant and vital for draught power and milk production. True recovery from clinical disease occurs only if the animals are treated in the very early stages, which are often impossible under field conditions. Surveillance for HS in the Indian subcontinent is very important for understanding by the disease

pattern and for providing better control measures for the disease and in turn reduce losses to livestock owners (Gajendragad *et al.* 2012).

HS occur most commonly in the month of June- September (rainy season). The organism (*Pasteurella multocida*) does not survive outside the animal to any significant degree so as to be a source of infection. Moist condition prolong its survival outside the animal making an outbreak more likely. Thus the disease tends to spread more during the wet season (Gajendragad *et al.* 2012). These findings also corroborate with the findings of present study.

HS generally occur in herds of animals belonging to different owners roam together in common grass lands, drink in common village tanks and are often even padlocked together at night, such animals are often less well managed, with lower vaccination coverage, than the more intensively farmed animals (Gajendragad *et al.* 2012). In present study the animals affected were grazed in a common area of a river side land (Char) situated in between 3 blocks and

this findings are similar with the previous one. HS is endemically occur in cattle and buffaloes in region under investigation and has incurred severe economic loss to poor live stock farmers of the area.

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