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Moldy Rice Straw Poisoning in Dairy Cattle in Kathmandu Valley Nepal

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ABSTRACT

An Unidentified disease characterized by hypersensitivity, incoordination, a peculiar stiff-legged gait of the hind legs, severe generalized tumors of the skeletal muscles, progressive paresis, paralysis and constipation and death was reported in a cattle herd of 82 in Kathmandu valley which was maintained in moldy rice straw feeding. The most notable gross pathological lesions in one bull and two cows which died were degenerative and necrotic changes in certain skeletal muscles, hemorrhages on the serosal surfaces, especially on the dorsal aspect of the rumen, and gastro-intestinal stasis. Samples of rice straw, feed and tissue samples of rumen,reticulum,liver revealed the growth of fungus species penicillum and when rest of animals in herds were treated with Anti Deg Nala liquor the general health of rest of animal still feeding the rice straw and same sources of feed improved and mortality checked.

Key words: Cattle, Moldy rice straw, incoordination, stiff-legged gait of the hind legs, tumors of the skeletal muscles, Penicillium, Anti degnala liquor, Cattle.

INTRODUCTION

An outbreak of disease affecting a herd of 83 dairy cattle which were fed moldy, rice straw is described. Out of the affected cattle 3 of which died. The clinical signs included muscular tremors, hypersensitivity, ataxia, anorexia and salivation and death.

MATERIAL AND METHODS

Clinical and post-mortem examination of Herds:

The clinical signs were characterized by flaccid paralysis and gait abnormalities. Clinical signs were more pronounced after exercise and included stiff and unsteady gait, knuckling at the fetlocks of the hind limbs, frequent falling, inability to raise, muscular tremors, especially of the head and the hindquarters, and drooling. Main necropsy findings included degenerative and necrotic changes of the larger medial muscle groups of the hindquarters. Necrosis of the fore stomach mucosa was the most characteristic gross pathological change. Focal erosions to severe, diffuse, coagulative necrosis of the mucosa in the rumen, reticulum and omasum and congestion and hemorrhages in the abomasums was similar to as reported by [1-7].

Laboratory examination of rice straw, feed sample, and post-mortem tissue samples and hematological examination of blood from affected herd pretreatment and post treatment.

Samples of rice straws of different lots, fodder, pasture grass, and feed and post-mortem tissue samples in mycobioal culture media revealed the growth of penicillum spp, which was similar to the findings [8-12]

Table: 1. Hematological findings of samples from clinical case pre-treatment:

Species of animal	RBC	WBC	PCV%	HB
OX	4*10 millionmmc	7.2*10 mm3	23	7.6
C.calf	4.6*10 millionmmc	8.2*10 mm3	28	9.3
C.calf	4*10 millionmmc	7.8*10 mm3	24	8
C.calf	4.5*10 millionmmc	8.2*10 mm3	27	9
Normal	5*10millionmmc	4-12*10mm3	28-42	8.5-13.5

Preventive treatment with Anti Degnala liquor

All cattles that were showing clinical symptoms were treated with Antidegnala liquor 5 ml s/c followed by 2 ml daily for next 10 days. Similarly rest of animals in herds was also provided with same drugs at

the dose rate of 2 ml orally for ten days. Those cattles received the treatment as earliest time recovered promptly the delayed treated cattle too recovered but took bit longer time the treatment response was similar to earlier findings of Karki *el al* [12].

Table: 2. Hematological findings of samples from clinical case post treatment:

Species of animal	RBC	WBC	PCV%	HB
Ox	7.2*10 millionmmc	4.6*10mm3	28	9.3
Ox	8.5*10 millionmmc	5*10mm3	30	10
Calf	9*10 millionmmc	5.5*10mm3	33	11
Calf	8.6*10 millionmmc	5*10mm3	30	10
Ox	7.9*10 millionmmc	4.8*10mm3	29	9.6
B.bull	9.5*10 millionmmc	6*10mm3	36	12
Normal	5*10millionmmc	4-12*10mm3	28-42	8.5-13.5

RESULT AND DISCUSSION

As during warm humid climate of tropics and subtropics favors growth of mold and fungus in feed grains and fodder especially after heavy monsoon rain feeding of exclusively such grain to livestock and poultry seems to cause the detrimental effect in the health these animals. As in this investigation clinical signs of anorexia, apathy, diarrhea and ruminal stasis and Clinical pathological findings included mild focal erosions to severe, diffuse, coagulative necrosis of the mucosa in the rumen, reticulum and omasum and congestion and hemorrhages in the abomasum. Liver with shrunken appearance pale to yellowish discoloration with bile filled distended bladder pin point hemorrhage in kidney, small intestine with excessive mucus. On mycological and microbiological examination of tissue samples from post-mortem of dead cattles and straw and feed samples on respective medium revealed the growth of fungal pathogens like *Penicillium spp* with *E.coli*. These results provide circumstantial evidence that feeding of moldy rice straw maize grain and green fodder leaves infected by Penicillium and Aspergillus spp and timely use of Antidegnala liquor has controlled the further mortality in sick cattles and when remaining animals in herd there was no further appearance of syndrome indicative of the above polyneuropathy syndrome was caused by a systemic Mycosis in these cattles. Same way in this observation it was observed the entire animal which was treated with injection of anti Degnala liquor recovered completely. Same way there was marked increase in total WBC count, and decrease in RBC count as well PCV and Hb during clinical phase of syndrome on treatment there was marked increase of both PCV and Hb and increase in RBC count and normal WBC count also support that this syndrome was attributed by infestation of fungus on rice straw which was fed to these animals need to be looked into.

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