

Clinical Epidemiological Investigation of Moldy Grain and Fodder Poisoning in Goat in Kathmandu Valley

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Abstract: An outbreak of a syndrome of unknown etiology associated with the feeding of moldy maize grain and green fodder to goat in a herd of male 3853 goats for sale for the Dashahara festival during the month of October 2010 in Kathmandu valley. In a period of 10 days 500 goats suddenly became ill with symptoms of anorexia, apathy, diarrhea and ruminal stasis. On clinical examination these goats were provisionally diagnosed with sudden illness and moldy corn/fodder poisoning was suspected. They were treated with biolive, tetrachlor, polyte, C-lyte, stress care and antidegnala liquor but 250 goats died. Necrosis of the fore stomach mucosa was the most characteristic gross pathological change. Clinical pathological findings included mild focal erosions to severe, diffuse, coagulative necrosis of the mucosa in the rumen, reticulum, omasum, congestion and hemorrhages in the abomasum. Liver with shrunken appearance and pale to yellowish discoloration with bile filled distended bladder, pin point hemorrhage in kidney, intestine with excessive mucus. On mycological and microbiological examination of tissue samples from post-mortem of dead goat on respective medium revealed the growth of fungal pathogens like *Penicillium* sp. with Staphylococcus. These results provide circumstantial evidence that feeding on moldy maize grain and green fodder leaves infested with *Penicillium* may cause outbreaks of systemic mycosis in goats.

Key words: Moldy maize, green fodder, *Penicillium* sp., fungus, male goat, Kathmandu valley, Dashahara

INTRODUCTION

During the Dashahara festival of the year 2010 about 3853 male goats intended to be supplied by Nepal Food Corporation to the customers in Kathmandu valley were being purchased from Eastern region, Central region, mid-Western region of Nepal.

In lairage these goats were being fed occasionally with whole maize grains and exclusively green fodder leaves. On clinical examination based on history these goats were provisionally diagnosed with sudden illness suspected to be due to moldy corn/fodder poisoning. They were treated with toxalivom biolive, tetrachlor, polyte, C-lyte and stress care and antidegnala liquor (Zinc salt solution) in drinking water.

MATERIALS AND METHODS

Clinical examination of goats in lairage: From 2067-6-20 about 500 goats present in lairage for sale in Nepal Food Corporation's compound were clinically examined were for symptoms similar to those reported by White (2008), Schneider *et al.* (1985), Medd *et al.* (2003) and Whitlow and Hagler (2010) about poisoning from pathogens in grain and fodder.

Post-mortem examination of dead goats: Post-mortem examination of all the dead goats was done in the premises of the food corporation compound for pathological effects similar to those experimentally induced by Schneider *et al.* (1985) and reported by Dhama *et al.* (2007), Medd *et al.* (2003) and Hussein and Brasel (2001).

Microbial/mycobioal culture examination of post-mortem tissue samples: Mycological and microbiological examination was done on tissue samples from the dead goats cultures made on respective media for the growth of fungal pathogens like *Penicillium* sp. with Staphylococci similar to the findings of Karki and Manandhar (2008), Home *et al.* (2010), Roberts *et al.* (2005) and Sabreen and Zaky (2001). All nasal and rectal swabs from sick and dead animals were tested for PPR with Penside test.

Treatment and preventive measures applied: All the goats present in lairage were treated with toxalivom, biolive, tetrachlor, polyte, C-lyte, stress care and Antidegnala Liquor (Zinc salt solution) as described by Pinto *et al.* (2005) in Controlling Pithomycotoxicosis (Facial eczema) in ruminants in the Azores, Portugal in drinking water.

RESULTS 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 livestock and poultry exclusively on such grain seems to cause the detrimental effect in the health to these animals. In this investigation, there were 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. The liver had shrunken appearance and pale to yellowish discoloration with a bile-filled distended bladder, pin point hemorrhage in kidney and small intestine with excessive mucus.

On mycological and microbiological examination of tissue samples from post-mortem of dead goat on respective medium revealed the growth of fungal pathogens like *Aspergillus* and *Penicillium* sp. with *Staphylococcus* sp. All nasal and rectal swabs from sick and dead animals that were subjected to the PPR with penside test turned out to be negative.

CONCLUSION

These results provide circumstantial evidence that feeding of moldy maize grain and green fodder leaves infested by *Penicillium* and *Aspergillus* sp. may have caused this outbreak of a systemic mycosis in these goats and therefore there need for thorough investigation in field areas from where these goats were bought.

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