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PESTE DES PETITS RUMINANTS ANTIGEN IN MESENTERIC LYMPH NODES OF GOATS SLAUGHTERED AT D. I. KHAN

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ABSTRACT

Two hundred and fifty samples of mesenteric lymph nodes were collected from goats of Damani and Teddy breeds slaughtered at Dera Ismail Khan slaughter house. Each of these samples was triturated and vigorously shaken with sterilized normal saline and the suspension was centrifuged. The supernatant was subjected to counter immunoelectrophoresis with Peste des petits ruminants hyperimmune serum. Out of 250 samples, 47.34% samples of Damani and 43% of Teddy goats were positive for peste des petits ruminants. In both the breeds, 47.05% males and 42.50% females were positive. Agewise results showed that young animals gave higher positive percentages than old ones.

Key words: Peste des petits ruminants, lymph nodes, goats.

INTRODUCTION

Peste-des-petits ruminants (PPR) is an acute, contagious and fatal disease of sheep and goats, caused by Morbillivirus of Paramyxoviridae family. The disease resembles with rinderpest and is characterized by clinical signs and lesions of respiratory and alimentary systems. The disease has high morbidity and mortality rates and has a substantial economic impact in developing countries (Ismail *et al*., 1995).

In Pakistan, PPR is proving to be a disease which has increasing significant economic impact because of the possible implication to rinderpest control programme. The antigenic relationship between PPR and rinderpest virus (RPV) poses problem for their diagnosis (Lefvre and Diallo, 1990). The disease was first reported as rinderpest like disease in goats during 1991 (Pervez *et al*., 1993) and as PPR like disease during 1992 (Athar *et al*., 1995; Ayaz *et al*., 1997). The natural disease affects both sheep and goats but it is usually more severe in goats. The morbidity rate is 100% with 100% mortality in severe outbreaks. In milder outbreaks, the mortality rate may not exceed 50% (Hussain *et al*., 1998).

This paper reports the survey of PPR virus antigen in mesenteric lymph nodes of goats slaughtered at Dera Ismail Khan (D.I. Khan) slaughter house.

MATERIALS AND METHODS

A total of 250 lymph node samples were collected from goats (150 Damani and 100 Teddy) slaughtered at D. I. Khan slaughter house during April to August, 2003. The sex, age and breed of the animal were also recorded. Lymph nodes were triturated in normal saline and centrifuged, supernatant was stored at -20°C.

The antigen in the lymph nodes was detected with known PPR hyperimmune serum (Institue of Animal Health Pirbright, England) using modified counter immunoelectrophoresis (Tahir *et al*., 1998). For this purpose, 2 ml of 1% melted agarose in normal saline was dispensed in a U-shaped glass tube. Gel was allowed to solidify. A 10 microlitre of each test antigen and PPR antisera were dispensed in cathodal and anodal arms, respectively. The cathodal and anodal arms of U shaped glass tube were connected with aluminum wires. The aluminum wires were pierced into the gel about 0.5 cm in both arms of U shaped glass tubings. Other ends of aluminum wires were connected with two battery cells of 1.5 volts each. A constant current was passed for 15 minutes. A circular precipitation band formed was taken as positive result. The test conditions were standardized with positive and negative controls.

RESULTS

The results of counter immunoelectrophoresis for PPR antigen in goats of different breeds, sexes and ages are given in Table 1. Out of 150 lymph node samples from Damani goats 71 (47.34%) were positive for PPR antigen, while in Teddy breed out of 100 samples, 43% were positive. The percentages of positive samples in male and female animals of both breeds were 47.05 and 42.5, respectively. Agewise occurrence of PPR antigen showed that goats aged between 7 month and 1 year gave the highest percentage (46.67%) of PPR antigen, followed by goats above one year (45.45%) and goats below 7 months of age (44.76%).

Table 1: Occurrence of PPR antigen in lymph nodes of goats of different breeds, sexes and ages

	No. of animals examined	Percentage of positive samples
Breeds		
Damani	150	47.34 (n=71)
Teddy	100	43.00 (n=43)
Sex		
Male	170	47.05 (n=80)
Female	80	42.50 (n=34)
Age groups		
Below 7 months	105	44.76 (n=47)
7 months-1 year	90	46.67 (n=42)
Above one year	55	45.45 (n=25)

DISCUSSION

Previously, PPR has been reported in Pakistan on the basis of clinical signs by Pervez *et al*. (1993) and Athar *et al*. (1995). Ayaz *et al*. (1997) described the signs, epidemiology and treatment of a highly fatal form of pneumo-enteritis which affected goats of all ages and breeds in Dera Ghazi Khan district of Punjab. Tahir *et al*. (1998) diagnosed PPR in goats by using counter immunoelectrophoresis. Hussain *et al*. (1998) reported an outbreak of PPR in goats in Rawalpindi. Sick animals showed serous nasal discharge, fever up to 106°F, erosive lesions in mouth, diarrhea and pneumonia. Mortality and morbidity was 100% in severe cases, while in milder cases it was below 50%. Results of ELISA and immunocapture ELISA confirmed that the animals were suffering from PPR. Vaccination using tissue culture rinderpest virus was successful to curtail the infection in goats in that area.

In the present study, percentages of positive results in Damani and Teddy breeds were 47.34 and 43.00, respectively. These results show that both breeds are equally susceptible to PPR virus. These results are in agreement with Obi *et al*. (1983), Obi and Patrick (1984), Ayaz *et al*. (1997) and Tahir *et al*. (2000). Lymph node samples were divided into three age groups i.e. below 7 months, 7 months to 1 year and above 1 year. Goats positive to PPR were present in all three age groups. Percentage of positive results decreased with increase in age. It shows that PPR is more prevalent in young animals.

The results of the present study indicate that PPR is widely distributed among goats. But before starting use of vaccination for its control, more comprehensive studies regarding isolation of virus and vaccine protection trials should be carried out.

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