

## PNEUMO-ENTERITIS SYNDROME AMONG GOATS IN DERA GHAZI KHAN

M. Mazhar Ayaz, G. Muhammad<sup>1</sup> and M. S. Rehman  
*Rehman Veterinary Laboratory and Clinic, Dera Ghazi Khan*  
<sup>1</sup>*Department of Clinical Medicine & Surgery,*  
*University of Agriculture, Faisalabad-38040, Pakistan*

## ABSTRACT

Clinico-epidemiological observations on an outbreak of a pneumo-enteritis syndrome among goats in Dera Ghazi Khan district, Punjab (Pakistan) were recorded. The condition exclusively affected the goats of all breeds. The salient clinical findings included desire to sit in the sun, pyrexia, nasal discharge, cough, loose greenish feces, bleating and abortion. Of the hundred (100) cases treated with norfloxacin and oral plus intravenous electrolytes and liver detoxifying agent, 75 per cent survived. Mortality among untreated goats approached almost 95 %. Gram negative rod shaped organism was isolated from the nasal discharge and faecal material of the affected animals. Haematological changes included an accelerated ESR and moderate leukopenia. Necropsy findings included enteritis with intestines containing greenish yellow fluid, distended gall bladder, enlarged heart and pneumonic changes in lungs.

## INTRODUCTION

Infectious diseases are significant impediments to the economical rearing of small ruminants in Pakistan (Ajmal *et al.*, 1988). Some recent reports (Athar *et al.*, 1995; Pervez *et al.*, 1993) have described the widespread occurrence of a highly fatal form of a stomatitis-pneumo enteritis syndrome among goats in Punjab. Although mystery still enshrouds the etiologic nature of this syndrome, its clinical signs and epidemiology mimic Peste des petits ruminants, also called a rinderpest-like disease. The syndrome seemed to have surfaced only recently and as yet it has not been included in the preventive health program recommended to the goat farmers by the relevant government agencies.

The present report describes 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 Pakistani Punjab. As far as could be ascertained, this was the first occurrence of this syndrome in this district which is one of the major goat raising areas in Punjab.

## MATERIALS AND METHODS

A highly fatal pneumo-enteritis syndrome was observed among goats by Veterinarians and para veterinary staff in different parts of Dera Ghazi Khan District in 1996. The outbreak started in mid April and continued till the end of June. The ambient temperature during the outbreak period ranged from 30 to 50°C.

Thousands of goat herds succumbed to the syndrome. One hundred goats of different ages, breeds and of either sex were selected randomly from the accessions to Rahman Veterinary Clinic and Laboratory, Dera Ghazi Khan. The following parameters were recorded:

- a. Physical examination
- b. Rectal temperature
- c. Haematological examination: Erythrocyte sedimentation rate (ESR) and Total leucocytic count (TLC) (Sastry, 1989)
- d. Microbiological examination of the materials collected aseptically from the nares and anus. The colonies were stained with Gram's stain. The antibiotic susceptibility of the isolates to the following antibiotics was tested: gentamicin, penicillin, ampicillin, amoxycillin, terramycin, streptomycin, chloramphenicol, sulphonamide and norfloxacin.
- e. Postmortem Examination.
- f. The therapeutic intervention adopted consisted of:
  - i. Saline dextrose 1-2 litres I.V
  - ii. Inj. Jetepar (Detoxifying agent) 2 ml/animal I.M.
  - iii. Inj. Bejectal-T (Vitamin B complex) 2 ml/animal I.M.
  - iv. Norfloxacin (10%) (Anflox, Anupco) @ 2.5 mg/kg B.Wt. I.M.
  - v. Oral. rehydration salt 1 packet daily P. O in water.
  - vi. Oxyclozanide (Zanil-ICI) 3.4 % W/V @ 3ml/Kg B. Wt P.O.

Treatment was undertaken for 3-5 days depending upon the severity of the condition.

## RESULTS

### Clinical Findings

The important signs in the affected goats were:

- a. a desire to sit in the sun,
- b. High rise of temperature (upto 107°F) accompanied by nasal discharge, coughing, loose feces, anorexia, depression,
- c. Diarrhea with greenish feces initially which later became greenish yellow,
- d. After 3-4 days, the temperature dropped to subnormal,
- e. bleating and abortion was observed in some animals.

About 95% of the untreated goats died within 3-4 days after the developing the signs.

### Haemtological Findings

An increase in ESR (2-3 mm/1 hr; normal values in goat: 0.5 mm/1st hr) and leukopenia (4000-5600/Cmm; normal leukocytic count in goats is about 12000/cmm.) were the haematological alterations noted in affected goats.

### Microbiological Findings

Gram negative bacteria (possibly *Pseudomonas* spp) were isolated from the materials collected from the nares and ani. The isolates were resistant to gentamicin, penicillin, terramycin, ampicillin, amoxycillin, streptomycin, chloramphenicol and sulphonamides but sensitive to norfloxacin.

### Postmortem Findings

- a. Intestines full of loose watery feces which were greenish yellow in colour,
- b. Enteritis,
- c. Gall bladder distended with bile,
- d. Nares full of mucoid discharge,
- e. Pneumonic changes in lungs, and
- f. Cardiac enlargement.

### Treatment Response

Survival rate among the treated goats was 75 per cent.

## DISCUSSION

Clinical and epidemiological features of the caprine syndrome observed in the present study mimic closely with those of peste des petits ruminants (PPR), also known as rinderpest-like disease. (Losos 1986; Blaha 1989; Sewell and Brocklesby, 1990; Radostits *et al.*, 1994).

This syndrome among goats occurred as an epidemic for the first time in 1996 in Dera Ghazi Khan since no previous report of its occurrence in this part of Punjab in available Pervez *et al.* (1993) and Athar *et al.* (1995) have reported the epidemic occurrence of a similarly disruptive syndrome among goats respectively from Lahore and Faisalabad districts of Punjab province. Neither the present study nor those of Pervez *et al.* (1993) and Athar *et al.* (1995) attempted to determine the nature of the etiologic agent, although on clinical and epidemiological grounds a strong case may be made for the implication of the virus of PPR. The syndrome, however, needs to be differentiated from such differentials as pasteurellosis, salmonellosis, enterotoxemia, caprine pleuropneumonia, and FMD.

In diseases associated with diarrhoea, an imbalance in electrolytes, body fluids and acid base metabolism is the most important factor contributing to the death of the affected animal.

Accelerated ESR values observed in the present study as also by Athar *et al.* (1995) were a reflection of fluid and electrolytes deficit (dehydration). As such the major thrust of treatment instituted in the present study was to rehydrate the animals by intravenous and oral fluids containing electrolytes. Norfloxacin was administered to control the Gram negative bacterium which probably was secondary pathogen. Jetepar was administered as a liver protectant and detoxifying agent. This line of treatment affected a clinical cure in 75 % of the cases treated. Athar *et al.* (1995) have reported a cure rate of 49% with the use of antibiotics, antipyretics, intravenous fluid and antidiarrheals. The higher cure rate in the present study than reported by these workers may be attributed to use of a antibiotic specifically effective against Gram-negative bacteria (i.e Norfloxacin), vitamin B complex and liver protecting agent (Jetepar).

The repeated rebounds of the stomatitis-pneumo-enteritis syndrome over the past several years warrant a detail investigation of its etiologic agent(s). Athar *et al.* (1995) ventured to implicate the Peste des Petits ruminants virus in the 1991-92 outbreak. Compatible signs and arrest of the propagative spread of the disease with the use of tissue culture rinderpest vaccine (TCRV) formed the basis of their contention in the absence of any etiologic diagnosis.

PPR has not yet been included in the official preventive immunization program recommended to goat farmers in Pakistan, although Vaccination of goats with TCRV (tissue culture rinderpest vaccine) in the month of November/December has been proposed tentatively to control stomatitis-pneumo enteritis syndrome among goats (Athar *et al.*, 1996).

**REFERENCES**

- Ajmal, M., M. Arshad and M. D. Ahmad, 1988. Major livestock diseases in Pakistan-an over View. In: Livestock Diseases in SAARC countries. Proc. Mtg. of Counterpart Scientists on Livestock under SAARC May 22-25, 1988. National Agri. Res. Centre, Islamabad.
- Athar, M., G. Muhammad, F. Azim, A. Shakoor, A. Maqbool and N. I. Chaudhry, 1995. An out break of Peste des Petits Ruminants like disease among goats in Punjab (Pakistan). Pakistan. Vet. J., 15 (3): 140-143.
- Athar, M., G. Muhammad and M. T. Ahmad, 1996. Anatomy of a preventive medicine programme for small ruminants. Farming News, 2 (3): 49-62.
- Blaha, T., 1989. Plague of small ruminants (PPR). Applied Vet. Epidemiology. Elsevier Co. Amsterdam., pp: 36-38.
- Losos G. J., 1986. Peste des Petits Ruminants. In: Infectious Tropical Diseases of Domestic Animals. Longman Publishers, England, pp: 549-558.
- Pervez, K., M. Ashraf, M. S. Khan, M. A. Khan, M. M. Hussain and F. Azim, 1993. A rinder pest like disease in goats in Punjab (Pakistan). Pakistan J. Livestock Res., 1: 1-4.
- Radostits, O.M., D.C. Blood and C.C. Gay, 1994. Veterinary Medicine 8th ed. Bailliere Tindall London.
- Sastry, G. A., 1989. Veterinary Clinical Pathology. CBS Pub. & Co. Dehli-India.
- Sewell, M. M. H, and D. W. Brocklesby 1990. Handbook on Animal Diseases in the Tropics. 4th ed. Bailliere Tindall, London, pp: 312-315.