Seroprevalence of Contagious Caprine Pleuropneumonia in goats in Nagpur district of Vidarbha region

Ingle, V.C., Sivakumar P., Kalorey, D.R., Pote, D.E., Dhamanna Patil,P.S.
Chavhan, S.K., Nagdive, A.A. and Hatkar,D.N.

Department of Microbiology,
Nagpur Veterinary College, Maharashtra Animal and Fishery Sciences University,
Seminary Hills, Nagpur - 440 006 (M.S.) India

Abstract

A total of 294 serum samples were collected from apparently healthy goats of different age and sex from 13 tehsils of Nagpur district. All the samples were screened for Contagious Caprine Pleuro Pneumonia antibodies by slide agglutination test using colored CCPP antigen. Out of 294 serum samples screened 99 were found to be positive indicating overall seroprevalence of 33.67 per cent. The higher prevalence was observed in Saoner tehsil (44.44%) followed by Bhivapur (41.46%), Kalmeshwar (40.00 %) and Kamptee (38.46%). The higher incidence in these tehsils could be attributed to the presence of endemic foci in this area. Slide agglutination test for CCPP detection using colored antigen was found to be quick, simple, low cost with ease of application in the field without the need of any specialized training and equipments.

Keywords: Seroprevalence, Contagious Caprine Pleuropneumonia, Goat, Vidarbha region.

Introduction

Goat is considered as poor man's cow as it is the means of livelihood for many marginal farmers and contribute to about 47.3 million rupees to national economy through various products and byproducts (Rekib and Vihan, 1997). Many infectious diseases including contagious caprine pleuropneumonia (CCPP) adversely affect the goat population throughout the world causing 100 per cent morbidity and an acute illness with mortality ranging between 60 to 100 per cent (Radostits, *et. al.*, 2000). Mycoplasma mycoides var capri is a normal inhabitant of respiratory tract in goats and stressful environment may result in the dissemination of infection.

CCPP, a disease of sheep and goats gained prominence due to its severe clinical manifestations in varied forms viz. polyarthritis, pneumonia, septiceaemia (Chaturvedi, *et. al.*, 1988).There are reports on occurrence of CCPP in many parts of our country (Singh, *et. al.*, 1999 and 2001; Barbudhe, *et. al.*, 2005; Jain, *et. al.*, 2006, and Mittal, *et. al.*, 2006).

Serological investigation is considered as faster means of assessing the prevalence of infections. Though the seroprevalence work has been undertaken in many states but not many attempts have been made so far to undertake the seroprevalence of CCPP in goats in Maharashtra state. Due to paucity of information on prevalence of CCPP in goats, the present investigation was undertaken to determine the magnitude of occurrence of CCPP in goats in Nagpur district of Vidarbha region.

Material and Methods

A total of 294 serum samples were collected from apparently healthy goats of different age and sex from 13 tehsils of Nagpur district. The serum samples were stored at - 200C till screened. All the samples were screened for CCPP antibodies by slide agglutination test using colored CCPP antigen.

CCPP colored antigen for the detection of CCPP antibodies was kindly provided by Dr. V. P. Singh, Incharge, Referral Centre for Mycoplasma, Division of Bacteriology and Mycology, IVRI, Izatnagar, Bareilly. Agglutination test was performed on glass slide and the reaction was read within one minute.

Results and Discussion

Seroprevalence of CCPP in apparently healthy goats of different tehsils of Nagpur district is presented in Table 1.

Table 1. Seroprevalence of CCPP in goats in Nagpur district of Vidarbha region

Sr. No.	Tehsil	No. of serum screened	samples positive	positivity (%)
1.	Bhivapur	41	17	41.46
2.	Hingna	01	00	0.00
3.	Kalmeshwar	10	04	40.00
4.	Kamptee	39	15	38.46
5.	Katol	11	04	36.36
6.	Kuhi	19	07	36.84
7.	Nagpur (R)	37	14	37.83
8.	Nagpur (U)	27	09	33.33
9.	Narkhed	28	08	28.57
10.	Parshivni	18	03	16.66
11.	Ramtek	02	00	0.00
12.	Saoner	27	12	44.44
13.	Umred	34	06	17.64
	Total	**294**	**99**	**33.67%**

Out of 294 serum samples screened 99 were found to be positive indicating overall seropre-valence of 33.67%. The present findings are in agreement with findings of *Barbuddhe, et. al.,* (2005), *Shaheen, et. al.,* (2001) and Pradhan (1997) who reported 26.43%, 31.37% and 27.00% prevalence of CCPP in goat respectively. *Ghosh et. al.,*(1989) also reported 9.09 to 63.64 per cent prevalence of CCPP in goats of Tripura state.

Seroprevalence of 15.53% in goats has also been reported from Maharashtra by Kalorey and Ingle (NATP Project Report, 2004). *Srivastava and Singh* (2000) reported 4.97 per cent seroprevalence by slide agglutination test for CCPP antibodies.

The higher prevalence was observed in Saoner tehsil (44.44%) followed by Bhivapur (41.46%), Kalmeshwar (40.00%) and Kamptee (38.46%). The higher incidence in these tehsils could be attributed to the presence of endemic foci in this area.

Slide agglutination test for CCPP detection using colored antigen was found to be quick, simple, low cost with ease of application in the field without the need of any specialized training and equipments.

The occurrence of CCPP in antibodies in goats is of significance. Environmental stress, particularly hot and humid climate favours precipitation of this disease (*Wous*,1995). Further, serological data need to be obtained on large number samples to assess the economical importance of the disease and evolve control strategies against the disease.

Acknowledgement

The authors are thankful to Dr.V.P. Singh, Incharge, Referral Centre for Mycoplasma, Division of Bacteriology and Mycology, IVRI, Izatnagar, Bareilly for providing CCPP colored antigen for the detection of CCPP antibodies.

References

1. *Barbuddhe, S.B.,et.al.* (2005): Indian J. Comp. Microbiol. Immunol. Infect. Dis., 26 (1) : 42-43.
2. Chaturvedi, V.K., Pathak, R.C., Singh, P.P. and Pal, B.C. (1988): Compendium, 8th International Congress of IOM held at Istanbal, Turkey, pp. 135.
3. Ghosh, S.S., et.al.(1989): Indian Vet. J., 66 : 577-579.
4. Jain, Vikrant., Parihar, G.S., Upadhyay, A.K. and Mahesh Kumar (2006): Indian Vet. J., 83 : 343-344.
5. Kalorey, D.R. and Ingle, V.C. (2004): Annual Report NATP (MM), Project on Animal Health Information System through Disease Monitoring and Surveillance.pp.24
6. Mittal, Vaishali., Mahesh Kumar and Singh, V.P. (2006): Indian Vet. J., 83 : 29-30
7. Pradhan, R.K. (1997): Sheep and goat disease problem in humid region. III National Seminar on Small Ruminant Diseases (2-3rd Dec., 1997), CIRG, Makhdoom, Arah Mathura (U.P.), pp. 29-34.
8. Radostatis, D.M., Blood, D.C. and Gay, C.C. (2001): Veterinary Medicine : A textbook of the Disease of Cattle, Sheep, Pigs, Goats and Horses, 10th Edn., Bailliere Tindall, Great Britain.
9. Rekib, A. and Vihan, V.S. (1997): Economic losses in goat production diseases. Proceedings of III National Seminar on Small Ruminant Diseases. CIRG, Mukhdoom, Mathura.
10. Shaheen, M., Haque, S. and Thakur, D.K. (2001): Indian J. Anim. Sci., 71 : 136-137.
11. Singh, R.K., Srivastava, N.C., Singh, V.P. and Singh, U.P. (1999). Indian J. Anim. Sci., 69 : 999-1001.
12. Singh,V.P., Srivastava,N.C., Singh,V.P. and Jai Sunder (2001): Indian J. Vet. Res.,10; 51-52
13. Srivastava, N.C. and Singh, V.P. (2000): Annual Report, Division of Bacteriology and Mycology, IVRI, Izatnagar, India.
14. Wous, L.O. (1995): Mysore J. Agri. Sci., 29 : 158-160.

* * * *