Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com

Journal of Entomology and Zoology Studies

E-ISSN: 2320-7078
P-ISSN: 2349-6800
JEZS 2018; 6(6): 1051-1053

Received: 25-09-2018
Accepted: 26-10-2018

Kavitha K
PhD scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Singh M
PhD scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Mahendran K
Scientist, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Plabita G
MVSc, Scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Bhagirathi
MVSc Scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Jayaprakash SN
MVSc Scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Sumeer G
MVSc Scholar, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Gaurav KS
Scientist Centre for Animal Disease Research and Diagnosis, Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Pankaj KP
PhD scholar and MVSc. Scholar, Division of Medicine, Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Dixit SK
Scientist, Division of Medicine Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Correspondence
Dixit SK
Division of Medicine, Indian Veterinary Research Institute (IVRI), Izatnagar, Bareilly, Uttar Pradesh, India

Diagnosis of PPR by RT PCR and its therapeutic management in goat: A case report

Kavitha K, Singh M, Mahendran K, Plabita G, Bhagirathi, Jayaprakash SN, Sumeer G, Gaurav KS, Pankaj KP and Dixit SK

Abstract
A 5 month old goat was presented to Referral Veterinary Polyclinics and Teaching Veterinary Clinical Complex, Indian Veterinary Research Institute (IVRI), Izatnagar, with history of anorexia from 3 days, diarrhoea and oculo-nasal discharge. Clinical examination revealed pyrexia- 104.5□ F, salivation, congested mucous membrane, ulcerated lesions on oral cavity, dehydration and mucopurulent nasal discaharge. Confirmatory diagnosis was made by molecular technique RT-PCR. In this case study therapeutic management of PPR was done with appropriate antibiotic and supportive care.

Keywords: PPR, goat, RT- PCR, therapy

1. Introduction
Peste des Petits Ruminants (PPR) is an infectious, highly contagious viral disease affecting sheep, goats and wild ruminants with high mortality rate. The ailment is transboundary animal disease and is one of the top ten diseases of small ruminants [1]. The other regional vernacular names of the disease are "Kata'', "pseudo rinderpest", "syndrome of stomatitis pneumo enteritis" and "pneumo enteritis complex" [2]. The incubation period of the disease is 3-6 days. Clinically, the disease is characterized by fever, mucopurulent ocular and nasal discharges, necrotizing and erosive stomatitis, severe enteritis and pneumonia leading to death [3]. The disease is of heavy economic significance in small ruminant industry [4]. Infection of small ruminants with PPRV causes a devastating plague and as well as being endemic across the developing world. In present scenario, PPR is enzootic in India and outbreaks tend to occur frequently among small ruminants throughout the country, inflicting significant economic loss in terms of morbidity, mortality and loss of productivity due to trade [5]. Even though vaccination is available against PPR, it's not however received the coverage that it needs. However, supportive therapy in the form of rehydration through infusion of fluids, antibiotic therapy combined with anti-histaminic has been to a great extent fruitful in the control of the disease [6]. Virus can be detected through number of diagnostic techniques including competitive and sandwich ELISA, virus neutralization test, agar gel immunodiffusion test, haemagglutination test, RT-PCR, and LAMP Assay [7,8]. In this paper, attempt has been made to reveal insight into a portion of the clinical signs, diagnosis and effective therapeutic measures.

2. Materials and Methods
A case study: A 5-month old goat of non-descriptive breed was brought to the Referral Veterinary Polyclinic and Teaching Veterinary Clinical Complex, Indian Veterinary Research Institute (IVRI), Izatnagar India with the presenting complaint of being off-fed, depressed, diarrheoic, and oculo-nasal discharge. The animal was not immunized according to the information obtained from the owner. Clinical examination revealed pyrexia- 104.5□F, salivation, reluctance to move, matted eyes, congested mucous membrane, ulcerated lesions on oral cavity, droopy head, dehydration and mucopurulent nasal discaharge (Fig. 1 and 2). Heart rate and respiratory rate were within the normal range. Based on clinical signs the disease was tentatively diagnosed as PPR. The disease needs to be differentially diagnosed from foot and mouth and blue tongue diseases due to similarities in clinical signs. In the present case for confirmatory diagnosis the blood, faecal sample and oro-nasal swab, were sent to CADRAD unit of Indian Veterinary Research Institute, Izatnagar. The sample was subjected to RT-PCR for confirmatory diagnosis.

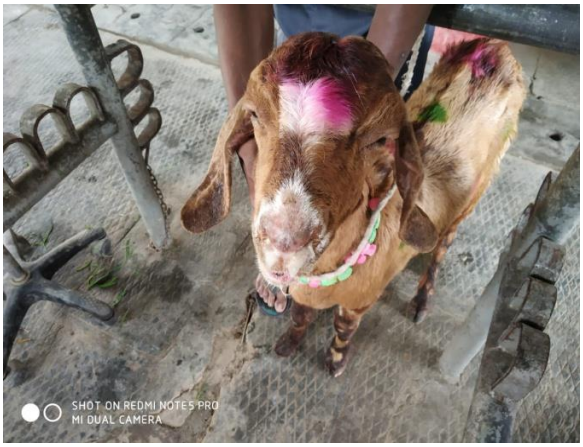

Fig 1: Animal showing mucopurulent nasal discharge

Fig 2: Erosive lesion in oral cavity

3. Results and Discussion

In the present study, RT-PCR technique used for the diagnosis of PPR virus based on amplification of part of N gene. Diagnosis on the basis of genomic detection can be done by RT-PCR, and LAMP Assay [9]. RT-PCR test can be used as routine diagnostic tool for PPR diagnosis, which has good correlation with virus isolation [10]. PCR in combination with nucleotide sequencing has made it method of choice for molecular characterization of viruses [11]. In the present study sample was positive for RT PCR for the size of 351 bp (Fig. 3). Haematological examination revealed, Haemoglobin-10 g/dl, TLC-15,000 /cmm, TEC-5.6 x 10^6/µl and PCV-45%. Blood sample and faecal sample were negative for haemoprotozoa and endoparasites respectively.

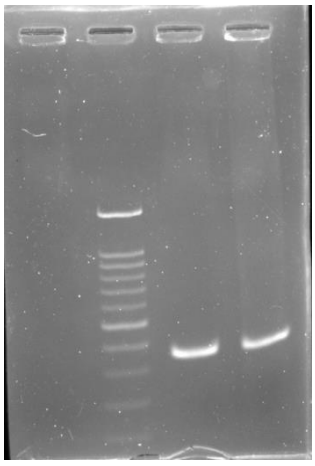

Fig 3: PCR amplification of N gene of PPRV

Treatment: Animal was treated with metronidazole@20mg/kg body weight I/V once daily to surmount the protozoal load in the intestine and alleviate signs of diarrhoea in conjunction with a antibiotic (ceftriaxone and sulbactum @ 6 mg/Kg body weight) was given I/V for a period of 5 days to overcome respiratory infection and minimize the secondary bacterial infection. Similar studies have shown that cephalosporin antibiotics are effective in the treatment of PPR infection [12]. Other supportive therapy includes pheneramine maleate (1ml), meloxicam (@ 0.5 mg/kg body weight intramuscularly and adequate rehydration was also done with normal saline and ringer lactate. The owner was suggested to keep the animals at a dry place with regular washing of the mouth with KMnO4 and boroglycerine. Similar treatment for PPR has been also reported in other case studies [13, 14]. Animal recovered completely within five days of therapy.

4. Conclusion

In this study, tentative diagnosis of PPR was done by history and clinical sign. However RT PCR technique was used for confirmatory diagnosis which has good correlation with PPR virus isolation in specimens from affected animals. There is no established treatment protocol for PPR, as the disease is caused by a virus but it can be treated using antibiotics and other supportive therapy.

5. Acknowledgements

Authors are highly thankful to the Director, Indian Veterinary Research Institute, Bareilly (UP) for providing the necessary facilities required for conducting the present work.

6. Reference

1. Zahur A, Ullah H, Irshad A, Latif RW, Riasat M, Jahangir M, *et al*. Epidemiological Analysis of Peste des Petits Ruminants (PPR) Outbreaks in Pakistan. Journal of Biosciences and Medicines. 2014; 2:18-26.
2. Parida S, Muniraju M, Mahapatra M, Muthuchelvan D, Buczkowski H, Banyard AC. Peste des petits ruminants. Veterinary Microbiology 2015; 181:90-106.
3. Diallo A. Control of PPR and poverty alleviation, Journal of Veterinary Medicine. 2006; 53:11-13.
4. Perry BD, Randolph TF, McDermott JJ, Sones KR, Thornton PK. Investing in Animal Health Research to Alleviate Poverty. ILRI (International Livestock Research Institute), Nairobi, Kenya, 2002.
5. Chauhan HC, Lambade PS, Sen A, Dadawala AI, Ranaware PB, Chandel B, *et al*. The use of pathological and histopathological techniques in the diagnosis of peste des petits ruminants in India. Veterinaria Italiana. 2011; 47(1):41-47.
6. Chakrabarty A. General preventive veterinary medicine. 3rd edition, Kalyani publishers, New Delhi, 2003; 71-75.
7. Balamurugan V, Hemadri D, Gajendragad MR, Singh RK, Rahman H. Diagnosis and control of peste des petits ruminants: A comprehensive review. Virus Disease. 2014; 25:39-56.
8. Singh RP, Saravanan P, Sreenivasa BP, Singh RK, Bandyopadhyay SK. Prevalence and distribution of peste des petitis ruminants virus infection in small ruminants in India. Revue scientifique et technique (International Office of Epizootics). 2004; 23:807-819.
9. Munir M. Peste des Petitis Rumnants virus, Mononegaviruses of Veterinary importance. Pathobiology and Molecular Diagnosis. 2013; 1:65-98.

10. Brindha K. Comparison of virus isolation and polymerase chain reaction for diagnosis of peste des petits ruminants. Acta Virol. 2001; 45(3):169-172.
11. Mughees AA, Ali H, Qaiser T, Arva S, Warda Q. Peste Des Petitis Ruminants: An Overview And A Case Report From Pakistan. Matrix Science Medica. 2017; 1(2):20-22.
12. Kumar P, Roy RK, Kumar M, Kumari RR, Kumar A. PPR control in Goat: A guide for animal health service providers. Vethelpline.co.in.2015.
13. Baruti M, Barthakur A, Bhuyan M, Gohain O, Phukan K. Management and treatment of PPR Outbreak in Goat: A Case Report. International Journal of Current Microbiology and Applied Sciences. 2018; 7(2):2182-2184.
14. Narayanan R, Gopu P, Baegan S, Bharathidasan. Clinical Management in an outbreak of Peste Des Petits Ruminants in Barbari Goats. Veterinary World. 2008; 3:81-82.