PESTE DES PETITS RUMINANTS: AN OVERVIEW AND A CASE REPORT FROM PAKISTAN

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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 pneumoenteritis" and "pneumoenteritis complex" [2]. 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 and ranks among the top ten diseases affecting small ruminants [4]. Economic setbacks in terms of high morbidity, high mortality, dropped production, abortion and trade barrier makes PPR as a disease of global concerns [5].

The etiological agent is a negative sense single stranded enveloped RNA virus belonging to genus Morbillivirus of family Paramyxoviridae. Peste des Petits Ruminants virus (PPRV) is closely related to human measles virus, Rinderpestvirus, canine distemper virus and dolphin distemper virus [6]. There are three proteins associated with the host cell membrane –derived viral envelope viz. matrix protein, fusion protein andHN protein. The pathogen is sensitive to environmental changes and rapid inactivation occurs when exposed to unfavorable conditions outside the host, therefore, close contact is required for the virus to be transmitted from infected to susceptible animal [7].

Primary hosts of the virus are sheep, goats and wild ungulates irrespective of age and sex. However, the disease in cattle and buffalo with poor body condition and stress has also been reported with the signs resembling with that of rinderpest [8, 9, 10, 11, 12]. The disease mainly affects sheep and goats but it is more severe in goats where it causes heavy losses [13].

PPRV is shed in all of the body secretions and excretions travel a short distance through aerosol infecting the healthy animals. However, close contact with the infected animal is the most frequent a usual route of transmission. Contamination of feeding and water trough can also serve as additional sources of viral particle transmission.

The clinical signs in ruminants include pyrexia upto 41°C, anorexia, dry muzzle, serous ocular and nasal discharges which becomes progressively mucopurulent. Respiratory distress, necrosis and ulceration of buccal mucosa, dehydration and diarhoea due to gastroenteritis appear in advanced stages of the disease. Pregnant female animals may abort. The severity of clinical signs depends upon the age, breed, body condition and innate immunity of the host and virulence of the virus. Concurrent bacterial and parasitic infection can further aggravate the condition [14].

Diagnosis of the disease is generally based on clinical signs and symptoms.
3. PRESENT STATUS OF PPR IN PAKISTAN

The disease is endemic in Pakistan and several outbreaks have been reported across the country at varying times of each year. The combined estimates of mean cumulative morbidity and mortality for sheep and goats were estimated 65.37% and 26.51% respectively with a case fatality of 40.40%. The species specific mean cumulative morbidity, mortality and case fatality for goats were 68.80%, 29.45% and 42.73% respectively, while these estimates for sheep were 48.77%, 14.98% and of 26.16% respectively [22]. In Pakistan, PPR is often diagnosed by clinical signs and symptoms, postmortem examination and laboratory tests including serological and molecular techniques. In recent years various molecular techniques including conventional PCR, real-time PCR has been used for diagnosis of PPR [23, 24, 25, 26]. Mass scale vaccination strategies have been implemented in Pakistan to fight against the menace of PPR. In Pakistan PPR vaccination in sheep and goats is done in the months of May-June 1 ml through subcutaneous route to provide immunity for 3 years. Tissue culture based live freeze dried PPR Vaccine produced at the centre for Advanced studies in virology and biotechnology, University of Baluchistan, Quetta in 2007 has been used to immunize the animals against PPR infection [27]. Adjuvanted PPR vaccines are also used that induce better immune response in goats as compared to live vaccine. These adjuvanted vaccine provide immunity for a period of 1 year so booster dose after a year is recommended. Mortality in sheep and goats has reduced considerably due to adaption of vaccination program.

4. CONCLUSION

PPR leads to heavy economic setbacks to the farmers. With the aims and objectives to flourish small ruminant farming and maximizing profit, a few key points should be rigorously adopted. Of them, isolation of sick animals and constitution of supportive therapy plan, following the quarantine measures of the newly purchased animals before mixing with rest of the herd members and adopting routine vaccination protocols are highly warranted.

REFERENCES
