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Popular Article

Blue Tongue in Small Ruminants: An Overview

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Abstract

Blue tongue is now considered as important arthropod borne viral disease affecting multiple species, though sheep is acutely infected with high mortality. India is endemic to Blue tongue with nearly 15 serotypes already identified in India, so considered as an important emerging disease. Routine serosurvelliance as well as awareness among all stake holders related to animal husbandry sector is the need of the hour to investigate circulating strains in different parts of country, which will be helpful in designing effective vaccine as well as limiting the spread of this disease.

Introduction

Small ruminants play a key role in livelihood sustenance and nutritional security. In addition to their considerable contribution to the production of meat, milk, and wool as well as their capacity for rapid reproduction and growth, these small ruminants are valuable resources to be considered as a potential entrepreneurial activity among the rural youth. Many productions limiting viral diseases like PPR, Blue tongue and Pox cause a considerable setback to the small ruminant industry, with persistence in the susceptible population in spite of mass vaccination due to the influence of genetic mutations (Mishra *et al.*, 2020). Blue tongue (BT) is an arthropod borne viral disease occurring around the globe while majority of the states in India are endemic to this (Rupner *et al.*, 2020). Awareness about the disease aetiology, transmission and pathology is utmost important among the rural people to limit the spread as well as in curtailing unnecessary veterinary expenses. This literature will refresh the knowledge of field veterinarians and para veterinarians about the recent updates of the disease which will be helpful in disease diagnosis and treatment.

Blue tongue is an infectious viral non-contagious disease predominantly affecting sheep. It occasionally affects cattle, goats, and wild animals. There are several names for blue tongue

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disease such as: Catarrhal fever, Sore muzzle, Pseudo foot and mouth disease and Stiff lamb disease.

Aetiology and transmission

Blue tongue virus is an RNA virus belonging to the arthropod-borne Orbivirus of Reoviridae family. It has been determined that there are 26 antigenic strains of the virus, which vary in pathogenicity. The insect vector i.e. Culicoides mosquitoes, ticks like Argus, is the key to the transmission of virus between animals. After ingesting blood from infected animals, vectors become infected. Transmission can also occur through semen observed in the case of bulls. The virus is resistant against antiseptic and disinfectants and can persist in blood and meat for a long period of time. It can be destroyed by use of 3% sodium hydroxide solution. It is basically a disease of sheep but the severity of the infection varies in different age groups. Suckling lambs are resistant. Sheep around the age of one year are highly susceptible (Joardar, 2022). Epidemiological risk factors like age, sex, breeds, housing conditions, body weight of concerned animals as well as seasonal influence on vector population plays important role in disease outbreak in field conditions (Rath *et al*., 2020; Rao *et al*., 2016).

Clinical signs

The morbidity is around 50% whereas the mortality ranges from 10-90%. The incubation period can vary from 1-10 days. The disease has been occurring in several forms as described below -

Acute form, the most common form in field is characterized by

- High fever, Nasal discharge, Lacrimation, drooling of saliva, Ulceration of dental pad, gums, and lips, Burnt and dry appearance of the muzzle, Cyanotic/Bluish coloration of the tongue, Lameness due to inflammation in the hoof coronets, Arched back posture/ Torticollis and Death

(b) Subacute form: Observed in cattle, often goes unnoticed

(c) Abortive form: Abortion in pregnant ewes, Deformities such as congenital muscle stiffness, absence of mandible, and protrusion of lower mandible.

Characteristic post-mortem lesions

- Necropsy lesions are characterized by petechial, ecchymosis, or haemorrhages at the base of the pulmonary artery and focal necrosis of the papillary muscle of the left ventricle
- Congestion of lungs
- Swelling of pharyngeal, cervical, and thoracic lymph nodes
- Hyperaemia, petechiation, and ulceration of the mucosa of the stomach.
- Exanthematous eruptions on the non-hairy areas of skin.
- Nostrils occluded due to encrusted nasal discharge.

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- Oedema, petechial haemorrhage in pharynx and trachea.
- Enlarged spleen
- Lymphadenitis

Prevention and control

- Surveillance and monitoring in the endemic areas to check the presence of the virus
- Active surveillance in the endemic areas to check the vector population
- Vaccination
- Quarantine of the sick animals
- Restriction of movement during increased activity of vectors especially late summers and early autumn
- Use of insecticide sprays to curb the vector population
- Import of animals from the disease-prevalent areas should be strictly avoided.
- Educating the farmers

Conclusion

Active surveillance and seromonitoring needs to be done along with regular vaccination for curbing the menace of the blue tongue disease. Regular outbreak investigation with due emphasis given to identify the circulating viral isolates in different regions of country, which will be helpful in formulating the vaccine strategy and suitable vaccine strain for controlling the disease.

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