

Viral Diseases of Bovine: Care & Management**Bhosale T. R. and Chavan M. K.**

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SUMMARY

The warm and humid climates are favorable for the spread of a wide range of illnesses. The unpredictable economic conditions of industrialized nations, which are largely found in this hemispheric region, have an even greater influence on animal and human wellbeing. The expenses of a wide range of chronic and subclinical illnesses that affect animals are difficult to estimate. Pathogens are to blame for almost a quarter of all manufacturing losses. Pathological conditions and diseases produced by agents other than bacteria and parasites, as well as illnesses for which the specific etiology is unknown and clinical characteristics of some viral infections, have been covered.

INTRODUCTION

The bovine coronavirus (BCV or BCoV) is a coronavirus belonging to Coronaviridae family and the Betacoronavirus 1 species. The infecting virus is a single-stranded RNA virus with an envelope that penetrates the host cell by attaching to the N-acetyl-9-O-acetylneuraminic acid receptor. Calf enteritis is caused by infection, which leads to the enzootic pneumonia complex in calves. Adult cattle might also get winter dysentery from it. It may infect both domestic and wild ruminants and is found all throughout the world. Horizontal transmission occurs by oro-fecal or respiratory pathways. It possesses an extra shorter spike-like surface protein termed hemagglutinin esterase, like other coronaviruses from the genus Betacoronavirus, subgenus Embecovirus (HE).

Virology

BCoV shares 95% of its DNA with human coronavirus OC43 and 93% of its DNA with swine hemagglutinating encephalomyelitis virus. According to a 2006 research, those three strains may have separated around the 19th century, with all circulating BCoV lineages sharing a common ancestor in the 1940s, and all earlier bovine lineages being extinct. The same scientists analysed BCoV and HCoV-OC43 in an earlier paper, and many approaches provided most likely divergence dates around 1890, prompting the authors to postulate that the former strain's introduction to the human population may have triggered the 1889–1890 flu pandemic.

Symptoms and Diagnosis

- Calves between the ages of one week and three months are most susceptible to infection. Prolonged diarrhoea, dehydration, anxiety, weight loss, and anorexia are all gastrointestinal symptoms. A viscous to purulent nasal discharge results from a respiratory illness in the calf. With secondary bacterial infection, clinical symptoms may worsen.
- Adult infection is usually asymptomatic in adults, with the exception of winter dysentery, which affects housed cattle throughout the winter months. In winter dysentery epidemics, clinical indications include copious diarrhoea and a considerable decline in milk supply.
- Based on the history and clinical indications, a provisional diagnosis can be determined. Electron microscopy or an enzyme-linked immunosorbent assay on a faecal or tissue sample is used to provide a definitive diagnosis of an enteric coronavirus infection. A direct fluorescent antibody test on nasal washes, which recognises the viral antigen, is used to confirm the diagnosis of respiratory illness.
- The coronavirus strain may be determined using the haemagglutination inhibition test.

Control Measures

Symptomatic treatment should be given to animals. The illness can be managed by immunising the dam when she is pregnant with a live vaccination (ATCvet code QI02), which delivers antibodies to the virus in the colostrum. Disease incidence is reduced by other management elements such as providing enough colostrum intake in newborn calves, utilising suitable cleanliness measures, and ventilation of housing.

Rinderpest

Family: Paramyxoviridae

(Cattle plague; Bovine typhus)

Introduction: Filterable Virus causes a highly infectious and febrile illness in cattle and buffaloes that is characterised by a quick onset, high fever, inflammation of the gastro-intestinal tract, and shooting diarrhoea.

Causes & Transmission:

- It is caused by viruses, which come in a variety of types. During the febrile phase, the virus is present in the blood and tissues at the highest quantity.
- Close contact, ingestion, and inhalation are all modes of transmission from infected to uninfected animals. Saliva that has been polluted.
- Through the ingestion of contaminated urine and faeces. By way of a poisoned pasture
- The incubation period is between 2 and 9 days.

Symptoms**The Initial Stage:**

- Temperature rises from 105 to 107 °F.
- Animals tremble due to high temperature, weakness, dullness, drooping head and ears, arched back etc. Animals with a dry muzzle, grinding teeth, and suffering.

The second stage:

- Reddened patches with pinhead vesicles form on the mucous membrane of the lip, gums, and tongue.
- Increase the flow of saliva from the mouth, as well as the odour of foetid faeces.
- The eyelids swell, the conjunctiva becomes congested, and there is lacrimation from the eye. Nasal discharge with a foul odour.

Third stage:

- Shooting diarrhoea. faeces are black in colour and have a foetid odour. Blood, mucus, and denuded epithelium are commonly found in faeces. The urine is black, albuminous, and scanty.
- The diarrhoea ends, the temperature drops below normal, and the animals die in the last stage. If it does not die quickly, it will succumb to emaciation and debility later.

Post mortem examination:

- Mucus has built up around the eyes, nose, and lips.
- Necrotic erosion that isn't regular The lips, gums, tongue, and throat are visible at this angle.
- Haemorrhage can occur anywhere in the gastrointestinal system.
- The colon has zebra-like stripe patterns. The brain and lungs are both clogged.

Treatment and management:

- The corpses of all impacted and in touch animals are buried six feet deep in quicklime or incinerated.
- Disinfecting the premises, materials, and anything else that could have come into touch
- The animals who were harmed were put to death. Strict traffic control over a large region.

Preventative medicine:

- Vaccine against the goat tissue virus.
- Virus vaccine that is currently available.
- Antiseptic for the intestines.

Rabies

Family: Rhabdoviridae
(Hydrophobia)

Introduction: Rabies is a highly lethal viral disease that is extremely important as a zoonosis. All mammals are vulnerable, although it is mostly a disease that affects carnivores, and the primary threat to humans is the bite of a rabid dog. It is a nervous system disorder characterised by motor irritation and clinical indications of mania and paralysis.

Causes: Is a virus that can be filtered. Disinfectants have the potential to kill it. There are a number of different strains to choose from. "Street virus" and "fixed virus" are the two most common. Which is the virus adopted in the laboratory for vaccine production.

Transmission:

Bite transmission is the most common type of transmission. The virus may be transferred by inhalation, and new research has suggested that it may also be spread by eating. Although it is a neurotropic virus, it can concentrate in the salivary gland, from whence it can be spread by bites. Thus, the illness is seldom passed from man to herbivores, but it is easily passed from carnivore to carnivore and from carnivores to other animals including man. The virus has grown in bats without penetrating neural tissue, allowing bats to be symptomless carriers.

Incubation Period:

In the majority of cases, death occurs between 15 to 40 days after incubation. The incubation period might be many months lengthy in some cases. It is between 5 and 6 weeks in dogs. Though there have been tales of a duration of more than a year. 4 to 8 weeks in horses and cats Sheep and piglets are 5 to 6 weeks old. It takes 14 to 90 days for humans.

Diagnosis:

The following is a list of possible diagnoses. Two clinical types of the illness are generally reported in dogs, and these are the Furious and Dumb forms.

Furious forms:

Stage of Melancholy: Prodromal stage: The dog appears uneasy, moves around the yard or rooms, suddenly stops, gets alert, and barks and bites in the air for no apparent cause, the so-called fly catching. Anyone who tries to handle the dog is bitten. The dog may or may not answer its master's call. It has a worried look and is commonly seen in dark corners or under the table. There is lacrimation and the conjunctiva is congested. It's possible that the temperature is normal.

Stage of excitement: This is the classic case of crazy dog syndrome. The pupils have dilated to the point of becoming dilated. The dog got ecstatic. The dog gets ferocious and attacks any moving objects, including imagined ones. On its path, it attacks animals, dogs, men, and other creatures, biting one victim before moving on to locate other ones, although it seldom fights. Salivation is prevalent, though it isn't always present. The appetite is severely diminished, and typical symptoms include chewing and swallowing straw, twigs, and stones, and etc. The animals are showing signs of sexual arousal. The intense biting period lasts barely a day or two in most cases. The animals enter a state of paralysis.

The dog is dull and shows no signs of agitation in the paralytic stage. The jaw is paralysed initially, followed by the remainder of the body. There is a lot of salivation going on. The dogs stumble as they go and eventually collapse on the floor, unable to move. After the paralysis, the animal goes into a coma and eventually dies.

The Dumb form:

The paralytic form: The dog becomes peaceful and silent, and the body is paralysed. The lower jaw is lowered, the mouth is partly open, and saliva is dripping down. The illness progresses quickly, and death usually occurs within three days.

In Ruminants:

Dumb form: Within two days following the beginning of identifiable signs, the animal succumbs to paralysis and dies.

Furious form: Irritability, anxiety, a proclivity to attack moving things, alertness, pupil dilation, ear erect and following sound, pawing the teeth, bellowing regularly, frequent micturition, and cows in heat. Animals regularly fall on the ground and then leap to their feet. In a day or two, you'll get paralysed and die. When clinical symptoms are not obvious, diagnosis may usually be determined from the clinical symptoms; nevertheless, laboratory investigation is required to confirm the diagnosis. Negri bodies are seen in the hippocampus major of the brain, and inoculation is also used to diagnose the condition. History of rabid animal bites.

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