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Popular Article

Peste des Petits Ruminants: Goat Plague

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Peste des petits ruminants (PPR) is an acute or subacute viral disease of goats and sheep characterized by fever, necrotic stomatitis, gastroenteritis, pneumonia, and sometimes death. It was reported first in Côte d'Ivoire (the Ivory Coast) in 1942, and subsequently in other parts of West Africa. In India, the disease was first reported in 1987 in a small sheep flock in the village of Arasur in Tamil Nadu state, Goats and sheep appear to be equally susceptible to the virus; however, goats exhibit more severe clinical signs. The virus also affects several wild small ruminant species. Cattle, buffalo, and pigs are only subclinically infected. Humans are not at risk.

Etiology

Peste des petits ruminants caused by morbillivirus (ssRNA) in the family of Paramyxoviridae.

Transmission

- Mainly by aerosols or direct contact between animals living in close quarters
- Fomites may be means of spreading infection; bedding, feed, pasture and water troughs
- Seasonal variations: more frequent outbreaks during the rainy season or the dry cold season Probably associated with seasonal periods of increased local movement/trade in goats

Sources of virus

- Tears, nasal discharge, coughed secretions, and all secretions and excretions of incubating and sick animals
- It probably occurs in milk

Clinical sign-

- The acute form of PPR is accompanied by a sudden rise in body temperature to 40°C–41.3°C (104°F–106°F). The incubation period is usually 4–5 days. Morbidity and mortality are variable but can be as high as 80%–100% in some outbreaks.
- Affected animals appear ill and restless and have a dull coat, dry muzzle, congested mucous membranes, and depressed appetite.
- Early, the nasal discharge is serous; later, it becomes mucopurulent and gives a putrid odor to the breath. Small areas of necrosis may be observed on the mucous membrane on the floor of the nasal cavity.
- The conjunctivae are frequently congested, and the medial canthus may show a small amount of crusting. Some affected animals develop a profuse catarrhal conjunctivitis with matting of the eyelids.
- Necrotic stomatitis affects the lower lip and gum, as well as the gumline of the incisor teeth. In more severe cases, necrotic stomatitis may involve the dental pad, palate, cheeks and their papillae, and tongue.
- Diarrhea may be profuse and accompanied by dehydration and emaciation; hypothermia and death follow, usually after 5–10 days.
- Bronchopneumonia, characterized by coughing, may develop at late stages of the disease. Pregnant animals may abort.

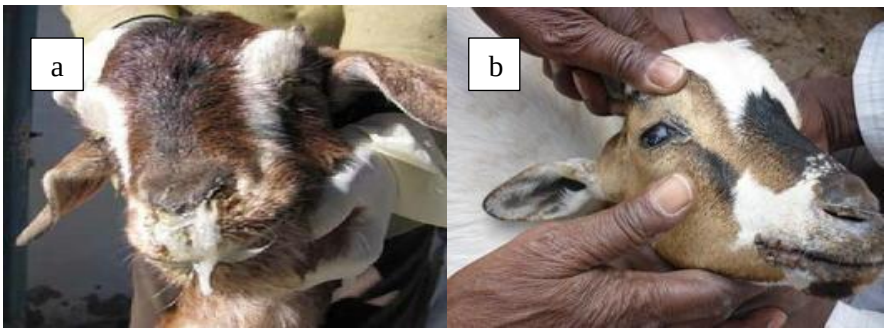

Fig-1 PPR virus infected animals showing nasal discharge (a), congestion of conjunctiva (b).

Lesions

- Emaciation, conjunctivitis, and stomatitis are common clinical signs of PPR, necrotic lesions are observed inside the lower lip and on the adjacent gum, on the cheeks near the commissures, and on the ventral surface of the tongue.

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- In severe cases, the lesions may extend to the hard palate and pharynx. The erosions are shallow, with a red, raw base and later become pinkish white, they are bounded by healthy epithelium that provides a sharply demarcated margin.
- The rumen, reticulum, and omasum are rarely involved. The abomasum exhibits regularly outlined erosions that have red, raw floors and ooze blood.
- Severe PPR lesions are less common in the small intestines than in the mouth, abomasum, or large intestines. Streaks of hemorrhages, and less frequently erosions, may be present in the first portion of the duodenum and terminal ileum. Peyer's patches are severely affected; entire patches of lymphoid tissue may be sloughed.
- The large intestine is usually more severely affected, with lesions developing around the ileocecal valve and at the cecocolic junction and rectum. The latter exhibits streaks of congestion along the folds of the mucosa, resulting in the characteristic zebra-striped appearance.
- Petechiae may appear in the turbinates, larynx, and trachea. Patches of bronchopneumonia may be present.

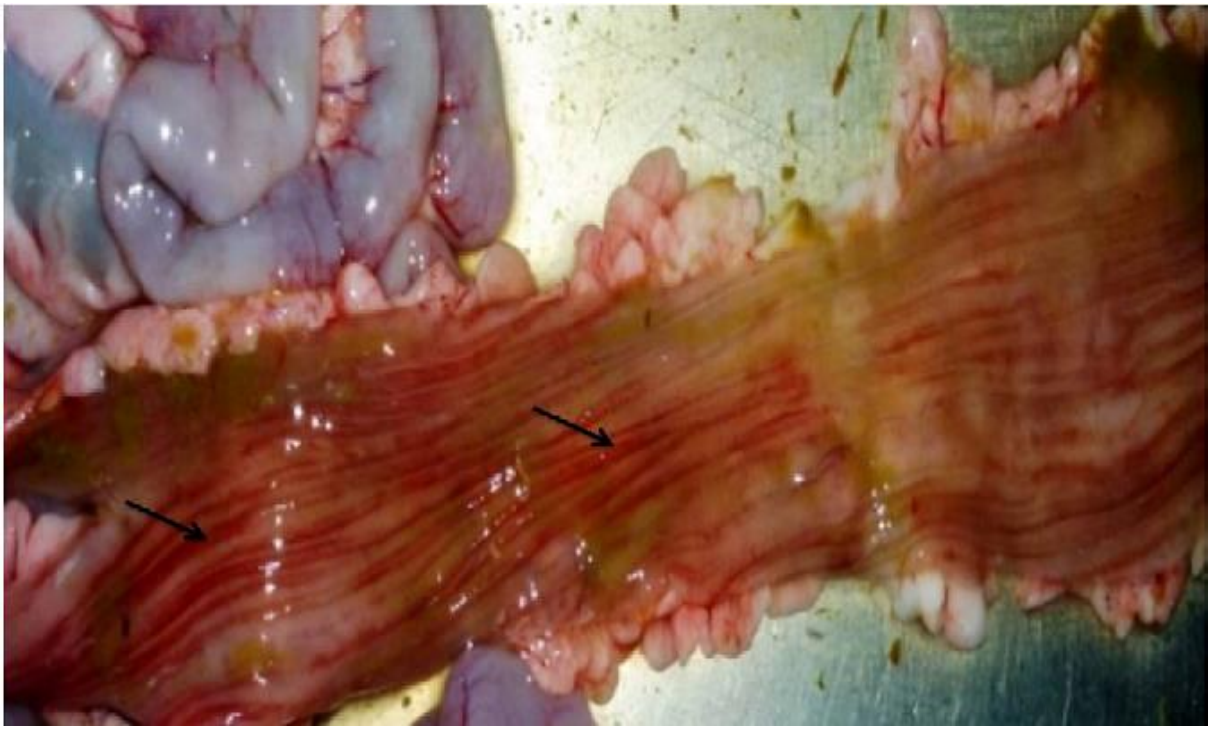

Fig 2. Colon showing discontinuous streaks of congestion and haemorrhages (zebra markings) on the mucosal fold.

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Fig 3. Bran-like deposits-discrete tiny necrotic ulcerative foci in the mucous membrane with ulcerative stomatitis.

Diagnosis

- Through clinical signs
- Laboratory tests- immunocapture ELISA(ICE) counter

  Immunoelectrophoresis (CIEP) or agar gel

  Immunodiffusion (AGID)
- CEIP and ICE can distinguish PPRV from Rinderpest virus but the AGID test cannot differentiate these two viruses.
- Viral nucleic acids can be detected with RT-PCR or with other from of PCR- multiplex RT-PCR and a RT-PCR-ELISA serological tests as virus neutralization and competitive ELISA assays can distinguish PPR from Rinderpest complement fixation test has also been used.

Differential Diagnosis

Pneumonic pasteurellosis

Rinderpest

CCPP in goats

Coccidiosis

Contagious Ecthyma

Helminthosis

Heart water

Treatment- Early stages of disease – hyper immune serum

Supportive therapy – fluid therapy

Antibiotics to prevent secondary infection

Lesions around eyes, nostrils and mouth should be cleaned

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