



*PESTE DES PETIT
RUMINANT (PPR)*

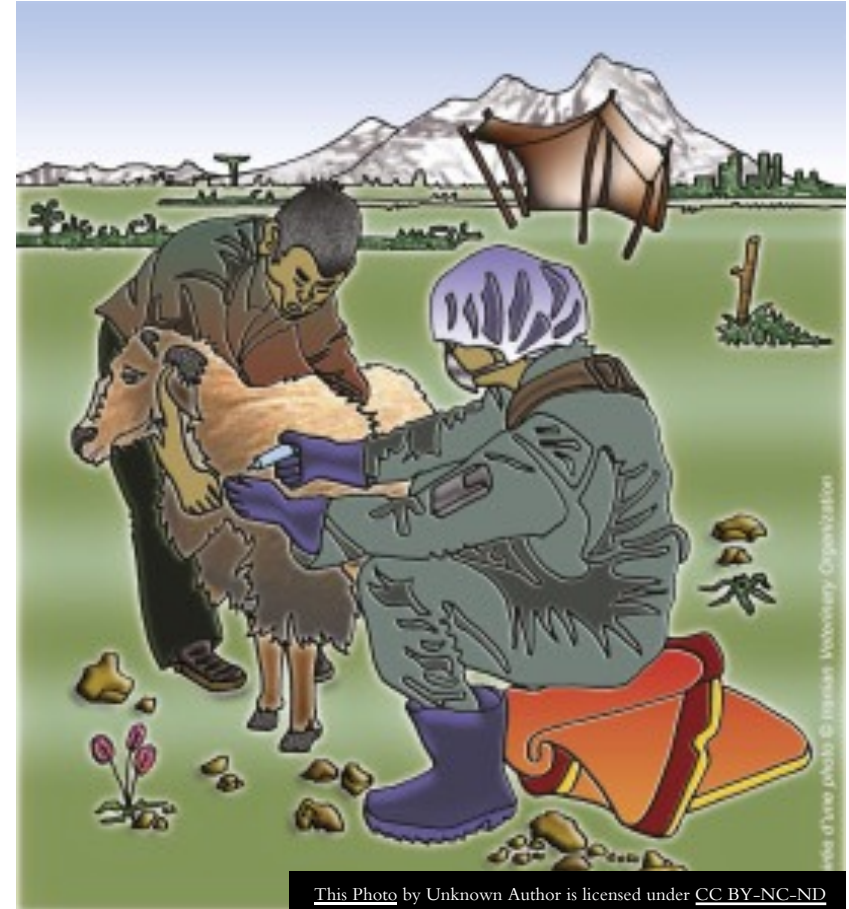
*OVINE RINDERPEST,
PSEUDORINDERPEST*

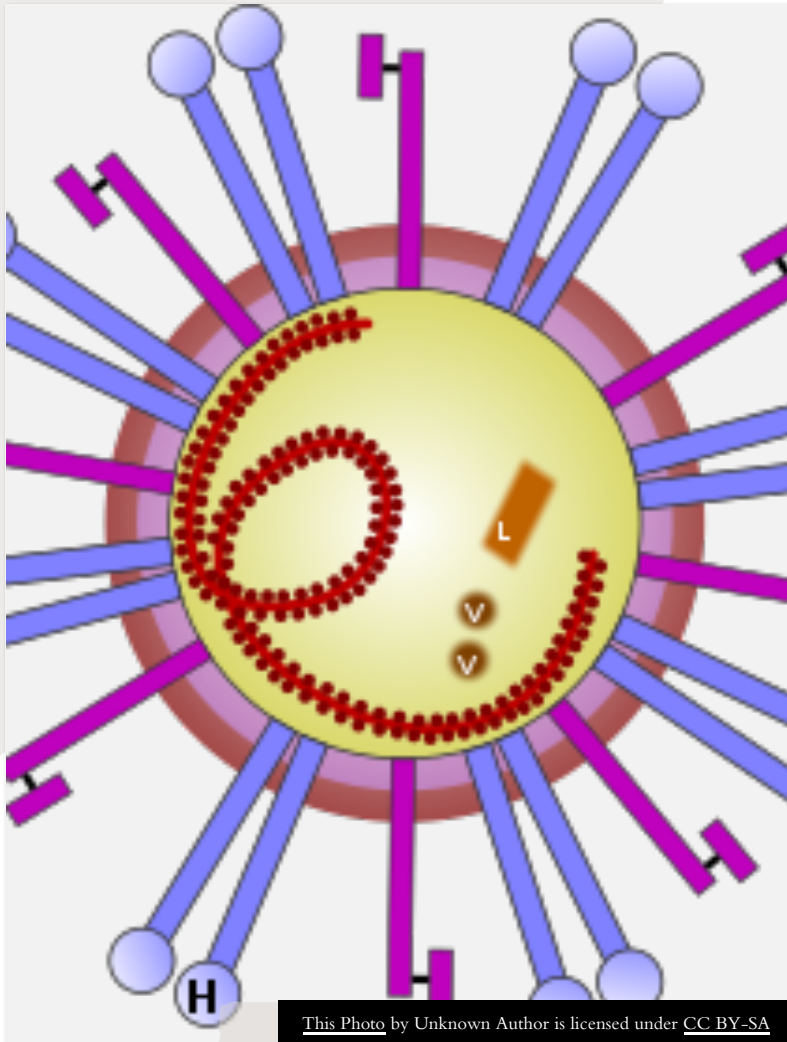
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PESTE DES PETIT RUMINANT (PPR)

- Peste des petits ruminants (PPR) is a highly contagious viral disease that mainly affects sheep and goats.
- Major losses can be seen, especially in goats, with morbidity and mortality rates sometimes approaching 80-100%.
- World Organization of Animal Health (OIE) and the Food and Agriculture Organisation (FAO) have set as a target the global eradication of PPR by **2030**.

NOTIFIABLE DISEASE





ETIOLOGY

- Paramyxoviridae, Morbillivirus
- Among domesticated animals, peste des petits ruminants is primarily a disease of goats and sheep. PPRV has also been implicated, either alone or with other pathogens, in a few outbreaks in camels and water buffalo.

TRANSMISSION

- Transmission of PPRV mainly occurs during close contact.
- Inhalation is thought to be an important route.
- This virus can be shed during the incubation period, and has been found in nasal and ocular secretions, saliva, urine and feces. It probably occurs in milk.
- PPRV is relatively fragile in the environment, and long-distance aerosol transmission is unlikely; in cool temperatures and in the dark, this virus has been shown to spread for approximately 10 meters.



CLINICAL SIGNS

- The incubation period can range from 2 to 10 days; in most cases, clinical signs appear in 3-6 days.
- The severity of the clinical signs can vary with the animal's species, breed and immunity to PPRV.
- Typical signs of infection include pyrexia, conjunctivitis, rhinotracheitis, ulcerative stomatitis, gastroenteritis and in severe cases pneumonia.





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Acute form

- **Sudden rise in body temperature** (40–41°C) with effects on the general condition: animals become depressed or restless, anorexic and a dry muzzle develops, and pyrexia may last for 3–5 days
- **Serous nasal discharge** becoming mucopurulent and resulting in a profuse catarrhal exudate which crusts over and occludes the nostrils; signs of respiratory distress in surviving animals, mucopurulent discharge may persist for up to 14 days
- Within 4 days of onset of fever, gums become hyperaemic, and **erosive lesions develop in the oral cavity with excessive salivation**, necrotic stomatitis with halitosis is common, erosions may resolve or coalesce
- Small areas of necrosis on the visible mucous membranes



Purulent eye & Nose discharge



Sores in mouth



Swollen & Eroded lips



Diarrhoea



Typical mucopurulent nasal discharge in peste des petits ruminants in a goat.



Congestion of conjunctiva, crusting on the medial canthus and sometimes profuse catarrhal conjunctivitis

Severe, watery, blood-stained diarrhoea is common in later stages

Bronchopneumonia evidenced by coughing is a common feature; abdominal breathing

Abortions may occur

Dehydration, emaciation, dyspnoea, hypothermia and death may occur within 5–10 days

Survivors undergo long convalescence

Peracute form

Frequent in goats; especially situations of immuno-naïve introductions into instances of circulating PPRV

High fever, depression and death

Higher mortality

Subacute form

Frequent in some areas because of local breed susceptibility; form commonly seen in experimentally infected animals

Usually 10–15 days development with inconsistent signs; on or about 6th day post-infection, fever and serous nasal discharge is observed

Fever falls with onset of diarrhea and, if this is severe, may result in dehydration and prostration

PATHOLOGY

The postmortem lesions are characterized by inflammatory and necrotic lesions in the oral cavity and throughout the gastrointestinal tract.

The respiratory tract is also affected in many cases.

The carcass is often emaciated and/or dehydrated, and there may be evidence of diarrhea, serous or mucopurulent oculonasal discharges, crusted scabs on the lips, and necrotic stomatitis.

Erosions in the mouth, and sometimes in the pharynx and upper esophagus.

Similar lesions may be detected on the vulva and vaginal mucous membranes of some animals.

Erosions are common in the abomasum, but the rumen, reticulum and omasum are not significantly involved

- The most severe lesions are seen in the large intestine, particularly around the ileocecal valve, at the cecocolic junction and in the rectum. “Zebra stripes” or “tiger stripes” of congestion, hemorrhage or darkened tissue are sometimes found in the posterior part of the colon on the mucosal folds



DIAGNOSIS

The disease may be suspected when there is sudden onset of fever, nasal discharges, diarrhea in sheep and goats, while cattle are uninvolved.

PPRV, its nucleic acids or antigens can be detected in

- whole blood,
- swabs of ocular and nasal discharges and/or
- swabs of buccal and rectal mucosa.

At present, PPRV is usually isolated in African green monkey kidney (Vero) cells, although other cell lines have also been employed.

Laboratory diagnosis



Serological diagnosis



Detection of antibodies

- Competitive ELISA
- Viral seroneutralisation

- Serological surveillance
- Monitoring the effectiveness of vaccination campaigns

Virological diagnosis



Detection of antigens proteins

- Sandwich ELISA
- Immunocapture ELISA



Detection of genomic RNA

- RT-PCR techniques



Virus isolation

- Cell cultures

- Confirmation of clinical PPR cases

DIFFERENTIAL
DIAGNOSIS

Bluetongue

Contagious ecthyma

Foot and mouth disease

Heartwater

Coccidiosis

Mineral poisoning

Contagious caprine pleuropneumonia

Pasteurellosis

Rinderpest

PREVENTION AND CONTROL



- In regions where peste des petits ruminants is not endemic, it can be eradicated with a combination of quarantines, movement controls, euthanasia of infected and exposed animals, and cleaning and disinfection of infected premises.
 - Vaccination of high-risk populations may also be helpful.

VACCINATION

In an outbreak, ring vaccination and/or vaccination of high-risk populations can be helpful

Endemic areas

- Used to control disease

Vaccine types

- Attenuated rinderpest vaccine, previously
- Homologous, attenuated PPR vaccine
- Recombinant vaccine (recombinant capripox-based PPR vaccine)

REFERENCES

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