

## PESTE DES PETITS RUMINANTS



This disease  
is known to  
occur in  
Afghanistan.



### 1. Definition

Peste des petits ruminants (PPR) is an acute or subacute viral disease of goats and sheep characterized by sudden onset of depression, fever, nasal and ocular secretions, foul-smelling diarrhea, and respiratory signs.

### 2. Etiology

PPR virus (PPRV) is a member of the Genus *Morbillivirus* in the family Paramyxoviridae. It is closely related to the rinderpest, measles, and canine distemper viruses. PPRV does not survive well in the environment.

### 3. Transmission

Secretions and excretions of sick animals are the sources of infection and transmission increases with close contact, particularly when affected animals cough and sneeze. Animal markets greatly increase the chance for infection. As in rinderpest in PPR it is generally accepted that there is no carrier state. Although cattle and camels are susceptible to infection, they usually do not exhibit clinical signs or transmit the disease.

### 4. Species affected

Sheep and goats are the main victims of PPR. Goats are more susceptible to the disease than sheep. Cattle and camels can be subclinically infected.

### **5. Clinical disease**

The incubation period is 4-5 days. Morbidity is high in susceptible herds and flocks and increasing with degree of contact. Younger animals are more severely affected. Animals are febrile and appear to be in discomfort. They have a dull coat, dry muzzle, congested mucous membranes and depressed appetite. Early there is a serous nasal discharge; later, it becomes mucopurulent, and may cause the nares to become crusted shut. The conjunctiva is frequently congested, and some affected animals develop a profuse necrotic conjunctivitis with matting of the eyelids.

Necrotic stomatitis affects the lower lip and gum and the gum line of the incisor teeth; in more severe cases, it may involve the dental pad, buccal mucosa and their papillae and the tongue. Diarrhea is fetid may be profuse and is accompanied by dehydration and emaciation, hypothermia and death follow, usually after a disease course of 5-10 days. Bronchopneumonia, characterized by coughing may develop at later stages of the disease. Pregnant animals may abort.

Mortality is high, and can approach 100%, especially when there are other complicating factors such as parasitic infestation, poor nutrition, lack of shelter, and adverse climatic conditions.

### **6. Pathologic findings**

PPRV has a particular affinity for lymphoid tissues and epithelial tissue of the gastrointestinal and respiratory tracts, where it produces characteristic lesions. Lymphoid tissue is collapsed, so the lymph nodes are small and the spleen is flaccid.

The virus replicates in epithelial cells and ruptures them, creating erosions and ulcerations, which then fill with exudates. These ulcerative and necrotizing lesions are seen at the nares, in the conjunctiva, and throughout the oral cavity. In the intestinal tract, there can be ulceration,

hemorrhage and necrosis in multiple areas, but especially over Peyer's patches, and is often most severe at the ileo-ceco-colic junction. Zebra striping in the large intestine is common. Esophagus and forestomachs are spared. The pneumonia can be anteroventral or diffuse, and consists of foci of consolidation centered around the terminal bronchioles.

### **7. Diagnosis**

The clinical signs and pathologic lesions of PPR are highly characteristic. Definitive diagnosis requires laboratory confirmation that can be detection of virus by ELISA, AGID, and PCR or observation of typical microscopic lesions by histopathology. Differential diagnoses include: coccidiosis, contagious ecthyma, pasteurella pneumonia, CCPP, FMD.

### **8. Treatment**

There is no specific therapy; however treatment for bacterial and parasitic complications decreases mortality in affected flocks and herds.

### **9. Prevention and control**

Prevention of introduction into a herd or flock can best be achieved by segregating new animals for a short period of time to ensure freedom from active disease. A particular risk is unsold animals returning from market, where they may have picked up the virus. An attenuated vaccine has been prepared in embryonic caprine kidney cell culture; it affords protection from natural disease for at least one year.

*(photos, next page)*



PPR - Typical oral and nasal lesions seen in the acute disease



PPR - Profuse diarrhea