**Peste des petits ruminants (PPR)**

**(Erosive stomatitis, goat catarrhal fever, goat plague, kata, pseudo-Rinderpest)**

**Etiology:**

* PPR is caused by *Morbillivirus*, Family *paramyxoviridae* closely related to the Rinderpest virus as well as the viruses of Canine distemper and measles.

**Epidemiology:**

* The disease occurs in goats and less often in sheep.
* Infection rates in enzootic area is generally high (above 50 %) and can be up to 90 % of the flock during outbreak.
* The percentage of sheep and goats with antibodies rises with age.
* The disease is more severe in goats than in sheep and is rapidly fatal in young animals.
* Case fatality rates are also much higher in goats (55 85 %) than in sheep (less than 10 %).
* There is no significant seasonal variation in the prevalence of the disease, but since maternal antibodies are lost at about 4 months of age, the number of susceptible animals is likely to increase 3 – 4 months after peak kidding and lambing season.
* Close contact with an infected animals or contaminated fomites required for the disease to spread. Large amount of virus is present in all body secretions especially in the feces.
* Infection mainly by inhalation, but could also occurs through the conjunctiva and oral mucosa.
* Kids over 4 months and under one year of age most susceptible to the disease.

**Pathogenesis:**

* PPR virus penetrates the retropharyngeal mucosa, set up a viremia and especially damages the alimentary, respiratory and lymphoid systems.
* Infected cells undergo necrosis and, in the respiratory system, also proliferation. Death may occurs from severe diarrhea and dehydration.

**Clinical findings:**

 The disease can be acute or subacute:

* T***he acute form*** is seen mainly in goats and is similar to Rinderpest in cattle except that severe respiratory distress is not an uncommon feature of PPR. The signs generally appear 3 – 6 days after being in contact with an infected animal. The signs include:
	1. High fever (above 40 C°) is accompanied dullness, sneezing and serous discharge from eyes and nostrils.
	2. A day or two later, discrete necrotic lesions develop in the mouth and extend over entire the oral mucosa, forming diphtheritic plaques.
	3. There is profound halitosis and the animal is unable to eat because of the sore mouth and swollen lips.
	4. Nasal and ocular discharges become mucopurulent and the exudates dries up, matting the eyelids and partially occluding the external nares.
	5. Diarrhea develop 3 – 4 days after the onset of fever. It is profuse and feces may be mucoid and blob tinged.
	6. Dyspnea and coughing occur later and the respiratory signs are aggravated when there is secondary bacterial pneumonia.
	7. Erosions have been described in the vulva and prepuce.
	8. Death usually occurs within one week of the onset of illness.
* ***Subacute form*** is more common in sheep but they also occur in goats. The signs and lesions are less marked and few animals may die within two weeks but most recover. Contagious ecthyma (Orf) may complicate the labial lesions or develop in survival animals.





**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.
* 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.

**Differential diagnosis:**

* All diseases that cause diarrhea in sheep and goats such as salmonellosis, colibacillosis, parasitic infestations.
* Heart water disease.
* Pneumonic pasturellosis.
* Contagious caprine pleuropneumonia.
* Coccidiosis.
* Contagious ecthyma.
* Nairobi sheep disease.

**Treatment:**

* The sick animals in the early stage of the disease should be isolated and given hyper immune serum.
* Supportive treatment include fluid therapy and antibiotics,
* Lesions around the eyes, nostrils and mouth should be cleaned and good nursing provided.

 **Control:**

* As in Rinderpest.
* kids and lambs should be vaccinated at 3 – 4 months of age.