**Vesicular stomatitis**

**Synonyms:** sore mouth , pseudo foot and mouth disease .

**Definition**:-It is an infectious viral disease of cattle ,horse , pigs ,characterized by vesicular lesions containing serous fluids in the mouth , foot , interdigital space ,udder and teats .

**Etiology :**

1. It is a RNA virus belong to **rhabdovirdiae** virus group . there are three serotype **vesiculo** virus named as ***Indiana*** strain ***,new jersey*** strain ,and ***Eocal*** ( Trinidad ) strain
2. Temperature: Inactivated by 58°C for 30 minutes
3. pH: Stable between pH 4.0 and 10.0.
4. Chemicals/Disinfectants: Sensitive to formaldehyde, ether and other organic solvents; chlorine dioxide, formalin (1%), 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, 2% sodium carbonate, 4% sodium hydroxide, and 2% iodophore disinfectants, all effective disinfectants.
5. Survival: Inactivated by sunlight; survives for long periods at low temperatures.

**Susceptible hosts**:

* vesicular stomatitis is found in all breeds and sexes of cattle ,horse ,pigs and donkeys. Sheep is resistant. outbreak is most common in cattle than pigs . amongst cattle ,calf under one year of age is generally resistant than adult .

**Mode of transmission: -**

1. Mechanism of transmission of VSV is unclear.
2. Contamination by transcutaneous or transmucosal route .
3. Arthropod transmission: sand flies, mosquitoes (Aedes spp.)and black flies
4. Experimental transmission: of VS has been demonstrated to occur from black flies (Simulium vittatum) to domestic swine and cattle.

**Pathogenesis**

1. Pathogenesis is very much similar to foot and mouth disease .
2. The virus through abrasion in oral pedal or teat skin the stratum spinosum and then invade the epithelium cell and multiply rapidaly . as a result of multiplication many cell are injured and the virus particles are released .
3. The virus then attaches the cell of deeper layers. as a result of viral invasion there is intracellular edema which result in rupture of many intracellular bridges, spatial separation of cell and the formation of maculae. in about 30% of cattle, cell turn necrosed and confluence with adjacent intracellular spaces producing fluids spaces or vesicles which rupture discharging virus to the surface and heal.
4. The course is short and healing is rapid in uncomplicated cases. secondary bacterial invasion may produce deep ulcer and may retard the healing process. during the early stage, the virus may enter blood and produce viraemia which is followed by location of vesicular lesion in oral , pedal or teat skin . the vesicles are 2-3 cm in diameter.

**Clinical Signs:-**

* The incubation period for vesicular stomatitis is 2–8 days and is typically followed by a fever. By the time animals develop other signs and are examined, however, they are rarely febrile.
* **Ptyalism is often the first sign of disease.**Vesicles in the oral cavity are rarely seen in naturally occurring cases because of rupture soon after formation; therefore, ulcers are the most common lesion seen during initial examination.
* Ulcers and erosions of the oral mucosa, sloughing of the epithelium of the tongue, and lesions at the mucocutaneous junctions of the lips are commonly seen in both cattle and horses.
* Ulcers and erosions on the teats are not uncommon in cattle and may result in secondary cases of mastitis in dairy cows.
* Coronitis with erosions at the coronary band are seen in some cattle, horses, and pigs, with subsequent development of lameness.
* Crusting lesions of the muzzle, ventral abdomen, ears, sheath, and udder of horses are typical during outbreaks in the western USA.
* Loss of appetite due to oral lesions, and lameness due to foot lesions, are normally of short duration.
* The disease is generally self-limiting and resolves completely within 10–14 days. Virus-neutralizing antibodies to either serotype persist and have been documented in individual horses that had previous clinical disease for 10–12 years after an outbreak, but reinfection can occur after a second exposure.

**Differential diagnosis: -**

* **Oral lesions in cattle include** FMD, rinderpest, infectious bovine rhinopneumonitis (IBR), bovine virus diarrhea (BVD), malignant catarrhal fever (MCF), bluetongue and chemical or thermal burns.
* **In pigs, differentials include** FMD, swine vesicular disease, vesicular exanthema in swine, foot rot, chemical and thermal burns.
* **For sheep**, be suspicious of FMD, bluetongue, contagious ecthyma, lip and leg ulceration, foot rot, and chemical or thermal burns.

**Laboratory Diagnosis:-**

**1-Virus isolation**

**2-Viral antigen detection**

 1-Vesicular fluid or epithelium

 2-ELISA, complement fixation,

 3-virus neutralization

**3-Antibody tests**

 1-Paired serum samples

 2-ELISA, complement fixation,

 3-virus neutralization

**Treatment:**
1- Nonsteroidal anti-inflammatory.

2- Broad spectrum antibiotics

**Control:**1- Hygienic and quarantine precaution to contain the infection with in herd.
2- Formalin –killed, cell culture derived vaccine is on two injection are need.