

Vesicular Stomatitis

Definition

Vesicular Stomatitis is a viral disease of horses, donkeys, mules, cattle, swine and New World camelids that occurs in the Western Hemisphere leading to vesicular lesions that rapidly progress to ulcerative stomatitis and other lesions such as coronitis and crusting dermatitis of the muzzle and nares.

Clinical Signs

The primary clinical disease sign of vesicular stomatitis virus (VSV) infection in horses is ulcerative stomatitis with the tongue being most severely affected area in the oral cavity. Although the disease starts with vesicle formation it rapidly progresses to the ulcerative phase. The most common observation by owners is that the horse has excessive salivation and difficulty prehending and masticating feed. Coronitis, ulceration of the mucocutaneous junction of the lips and crusting of the muzzle and nares are less frequent clinical signs. Some infected horses can develop lesions on the udder and prepuce.

Transmission

Vesicular stomatitis viruses are considered arboviruses because they use insect vectors as their primary means of transmission. Evidence of arthropod transmission of VSV is most compelling for sand flies and black flies. Other insect species may also be competent biologic and mechanical vectors of VSV. Propagation of VSV outbreaks may be enhanced by movement of infected horses and spread by direct contact between infected and uninfected mammalian hosts.

Diagnostic Sampling, Testing and Handling

Laboratory testing is required to confirm VSV infection. There is a requirement in most states for the veterinary practitioner to report a case of vesicular or ulcerative disease to the [state/provincial animal health official](#) or [federal animal health officials](#).

The Report of a potential foreign animal disease (more recently termed a transboundary disease) by the private practitioner will prompt a standardized investigation by the animal health officials. The Foreign Animal Disease Diagnostician (FADD) will collect the appropriate samples and submit them for testing. There is no charge to the owner or private veterinarian for the FAD investigative procedures. Samples are tested at laboratories specializing in testing for FAD's either the [National Veterinary Services Laboratory](#) in Ames, IA or the [Plum Island Animal Disease Center](#) in New York, NY. Diagnosis is made through serologic testing and/or virus identification from samples of lesions.

Post-mortem

If horses with VSV die or are euthanatized it would be due to secondary complications. Complications can result from the horse not drinking or eating due to painful oral lesions. Colic can occur due to ulceration in the esophagus and stomach. If nonsteroidal anti-inflammatory

drugs given to horses that are not drinking secondary renal failure can occur if hydration is not maintained by giving intravenous fluids.

Practitioners performing necropsies in the field are encouraged to contact a veterinary diagnostic laboratory to which they plan to submit samples for further testing such as histopathology and pathogen identification in order to be certain they collect the appropriate samples and handle the samples in a manner that will optimize making a definitive diagnosis. For some situations such as neurologic cases submission of the entire carcass to the diagnostic laboratory for post-mortem examination is recommended due to the time and labor required to perform a complete exam and collection of samples from the equine CNS.

Shedding Time of Organism Past Resolution of Clinical Signs

The release of official quarantine of confirmed VS cases is based on resolution of lesions as the risk for virus transmission is considered minimal after lesions have healed.

Environmental Persistence

Arboviruses generally use vertebrates as reservoirs for transmission by arthropods. Serologic evidence of exposure to VSV has been shown in many vertebrate species however the reservoir of VSV between outbreaks that occur periodically in the SW regions of the United States is unknown.

Specific Control and Treatment Measures

Biosecurity Guidelines

Implementation of biosecurity practices to limit the spread of VSV is indicated.

- Wearing of disposable examination gloves when working with affected horses followed by hand washing is indicated.
- Eye protection is indicated when examining affected horses. VSV can cause flu like symptoms and stomatitis in humans with exposure potential from saliva from affected horses.
- Restriction of movement of affected horses and herd mates is important in control of spread of the virus and mandatory quarantine will be placed on confirmed affected premises by state or federal animal health officials.

Vaccination

There is currently no licensed commercially available vaccine in the United States for control of VSV.

Protection from Insect Exposure

Protecting horses from insect exposure during outbreaks of VS may reduce the risk of clinical disease. Options for reducing insect exposure include:

- Housing horses indoors during the evening
- Regular application of insect repellants to the horse including the inner surface of the ears (location black flies may feed).

Requirements for New Arrivals to Facility or Event

During VS outbreaks, additional requirement for horses that have been in regions where disease has been recognized may reduce risk of introduction of VSV. These recommendations include:

- Certificate of veterinary inspection (CVI) with statement related to potential exposure to VSV
- Inspection of newly arriving horses including an oral examination to detect vesicles or ulcers. Wear disposable examination gloves and change between horses examined.

Treatment

There is no specific treatment for VS in horses. The disease is typically short lived and self-limiting. Provide softened feed while oral ulcers are present. Horses should be assessed for dehydration and if it occurs then intravenous fluids maybe needed to resolve the problem. Rinsing of oral lesions with a mild antiseptic solution may reduce the risk of secondary bacterial infection but increases the risk of exposure of care givers to VSV and is usually not necessary except in severe cases. If treatment of oral lesions is pursued the care giver should use barrier precautions including eye protection to reduce the risk of exposure to VSV.

Release of Animals from Isolation

Release of VS cases and their herd mates will be determined by state or federal animal health officials and is based on a specified number of days after resolution of lesions in those animals that had clinical signs.

Biosecurity Issues for Receiving Animals

Once horses are released from quarantine no additional precautions should be needed to reduce the risk these horses pose for spread of VSV.

Zoonotic Potential

There is evidence of human exposure to VSV resulting in illness through laboratory work and through working with affected animals. Based on findings from an outbreak of VS in Colorado a higher risk of seropositivity was observed in people who examined the oral cavity of infected animals and had open wounds on hands or arms and who examined horses rather than cattle. VS in humans is an acute, self-limiting infection with signs similar to influenza infection. Vesicular lesions have been documented to occur but rarely in humans exposed to VSV.