

Bluetongue
Sore Muzzle,
Pseudo Foot-and-Mouth Disease,
Muzzle Disease

The Organism

Bluetongue Virus

- Family Reoviridae
 - Genus *Orbivirus*
- 24 serotypes worldwide
 - 6 serotypes isolated in the U.S.
- Non-contagious
- Insect-borne viral disease
- Ruminants: Primary host is sheep
- Others infected: Cattle, goats, deer

Epidemiology

Morbidity/Mortality:

- Sheep
 - Severity of disease varies
 - Breed
 - Strain of virus
 - Environmental stress
 - Morbidity
 - As high as 100%
 - Mortality
 - Usually 0 to 30%
- Cattle, goats
 - Morbidity: up to 5%
 - Death is rare
- Deer, antelope
 - Severe infection
 - Morbidity Up to 100%
 - Mortality 80 to 90%

Transmission

- Biting midges
 - Genus *Culicoides*
- Ticks, sheep keds
- In utero
- Mechanical
- Venereal

Clinical Signs:

- **Sheep**
 - Incubation period: 5 to 10 days
 - Most asymptomatic
 - Oral erosions and ulcerations
 - Tongue
 - Swollen, protruding
 - Cyanotic= “blue-tongue”
 - Reproductive failure
 - Coronitis
 - Inflammation of coronary band
 - Lameness
 - Painful hooves
- **Cattle and goats**
 - Usually subclinical
 - Erosions, crusts around nose and teats
 - Coronitis
 - Reproductive failure
- **Antelope and deer**
 - Hemorrhage, death

Post Mortem Lesions

- Sheep
 - Face and ears edematous
 - crusty exudate on nostrils
 - Coronary bands hyperemic
 - Internal hemorrhaging
 - Hydranencephaly, cerebellar dysplasia
- Cattle
 - Skin: edematous, ulcerated, dry, thick folds
 - Mouth: vesicles, ulcers, necrosis

Differential Diagnosis

- | | |
|-------------------------------------|-------------------------------------|
| 1-Foot-and-mouth disease | 8- Parainfluenza |
| 2-Vesicular stomatitis | 9-Sheep pox |
| 3-Peste de petits ruminants | 10-Foot rot |
| 4-Malignant catarrhal fever | 11-Actinobacillosis |
| 5-Bovine virus diarrhea | 12- <i>Oestrus ovis</i> infestation |
| 6-Contagious pustular dermatitis | 13-Plant photosensitization |
| 7-Infectious bovine rhinotracheitis | |

Diagnosis

- Clinical signs
- History
 - Insect activity
 - Wasting or foot rot
- Laboratory
 - Virus isolation
 - ELISA, IFA, VN
 - PCR
 - Serology, complement fixation
 - Examination of proteins

Treatment

- No specific treatment
- Supportive therapy
 - Protection from the elements
 - Fluids and electrolytes
 - Antibiotics
- Control of vectors by insecticide
 - Reduce transmission
 - Protect susceptible animals

Disinfection

- Cleaning the premises
- Insect control
 - Organophosphates

Vaccination

- Available
 - Serotype specific
- Adverse effects
 - Fetal malformations
 - Recombination
 - New strains of virus