

Malignant Catarrhal Fever

Malignant Catarrh, Malignant Head Catarrh, Gangrenous Coryza,
Catarrhal Fever, Snotsiekte

The Organism

- Herpesviridae
 - Genus *Rhadinovirus*
- Multiple serotypes
 - Species and geographically dependent
 - AHV-1 natural host: wildebeest in Africa
 - OHV-2 natural host: domestic sheep and goats worldwide
 - AHV-2 nonpathogenic
 - CpHV-2 natural host: domestic goats

Epidemiology

Morbidity/Mortality

- Carrier species asymptomatic
 - Wildebeest, hartebeest, topi, sheep, goats
- Low morbidity in other species
 - U.S. outbreaks 30 to 40%
 - < 1% in water buffalo, deer
- Case Fatality 100%
 - Domestic cattle

Transmission

- OHV-2
 - Respiratory (aerosol)
 - Transplacental rare
 - Contact with nasal secretions
 - Animal-to-animal rare
 - Dead end hosts

Species Affected

- Carrier species
 - Sheep, goats
- Susceptible species
 - Cattle, bison, reindeer, domestic pigs, antelope, several species of deer

Clinical Signs

- Incubation period 9 to 77 days experimentally
 - Unknown in natural infections
 - Subclinical infections develop under stress
- Initial clinical signs
 - Depression, diarrhea, dyspnea, high fever, inappetence
 - Sudden death
- Peracute form: sudden death
- Head and eye form
 - Majority of cattle cases
- Intestinal form
 - Initially like head and eye form, but death occurs from severe diarrhea
- Mild form
 - Inoculated animals; recovery expected

Head and Eye Form:

Early Stages

- Reddened eyelids
- Bilateral corneal opacity
- Crusty muzzle, nares
- Nasal discharge
- Salivation

Later Stages

- Erosions on the tongue
- Erosions on the buccal mucosa

Clinical Signs in Bovidae

- Joints, superficial lymph nodes swell
- Horn, hoof coverings slough
- Nervous signs
 - Incoordination, head pressing, nystagmus, hyperesthesia

Post Mortem Lesions

- Erosions on the tongue and soft and hard palate
- Necrotic areas in the omasal epithelium
- Multiple erosions of intestinal epithelium
- Greatly enlarged lymph node compared to normal
- Necrotic areas in the larynx
- Diphtheritic membrane often present
- Urinary bladder mucosa hyperemic and edematous
- Kidney often has raised white foci on the cortex

Differential Diagnosis

- BVD mucosal disease
- Bluetongue
- Rinderpest
- FMD
- Vesicular stomatitis
- Salmonellosis
- Pneumonia complex
- Oral exposure to caustic materials
- Mycotoxins
- Poisonous plants

Clinical Diagnosis

- Any susceptible animal with sudden death, fever, erosions of the mucosa, nasal/lacrimal discharge, or bilateral corneal opacity should be tested for MCF
 - Particularly with a history of exposure to sheep, goats, antelope

Laboratory Diagnosis

- Histopathology
- PCR
- Virus isolation (AHV-1)
- Serology
 - OHV-2 antibodies in sheep
 - Immunofluorescence

Sample Collection

- Blood in EDTA tube for virus isolation
- Fresh tissue collected and refrigerated immediately after death
 - Spleen, lung, lymph nodes, adrenal glands
- PCR on peripheral blood, fresh tissues

Treatment

- Survival is rare if clinically ill
- Case Fatality reaches 100%
- Supportive therapy, antibiotics for secondary bacterial infection
 - Recovered animals will remain virus carriers

Prevention and Control

- Separate infected and carrier animals from susceptible species
 - Carriers: sheep and goats
 - Keep cattle away, especially during parturition
- Zoological parks
 - Introduce seronegative animals only
- No vaccine available