

Malignant catarrhal fever MCF (BMC, Malignant head catarrh)

Its viral disease caused by two different infectious agent

a-Alcelaphine herpesvirus-1 (AHV-1)

b-Ovine herpesvirus-2 (OvHV-2)

Epidemiology..

1-the disease is sporadic and present as a single or small number of cases over a short period.

2-the disease can transmitted by direct contact with infected animals ,moreover the disease can transmitted from sheep to cattle with out affecting sheep

3-incidence is high in winter, spring and summer.

4-all ages of cattle are susceptible ,and the disease can affected deer.

5-high morbidity and mortality rate

Pathogenesis

the pathogenesis of this disease is the result of direct virus-cell interactions which manifested by

1- MCF is a fatal, multisystemic disease characterized by lymphoid proliferation and infiltration, and widespread vascular epithelial and mesothelial lesions which are associated with lymphoid cells,(T- lymphocytes are the predominant cells associated with the vascular lesions)

2- Involvement of the vascular adventitia responsible for the development of gross lesions, including the epithelial erosions and keratoconjunctivitis .

3-The lymph node enlargement is due to atypical proliferation of sinusoidal cells

4- the cerebromeningeal changes, usually reflected encephalitis which it's a form or vasculitis

5--There is a synovitis, especially involving tibiotarsal joints and this also is associated with a lymphoid vasculitis.

Clinical findings ...

The incubation period in varies from 3-8 weeks, and there are different forms of the disease

Peracute form...which manifested by

short course of 1-3 d, and There is a high fever, dyspnea and an acute gastroenteritis.

Common head and eye formwhich manifested by

1-There is a sudden onset of the following symptoms:

Anorexia, Agalactia,High fever (41-41C) Rapid pulse rate (100-120), Profuse mucopurulent nasal discharge,Severe dyspnea with stertor due to obstruction of the nasal cavities with exudates, Ocular discharge with variable degrees of edema of the eyelids, Blepharospasm ,Congestion of scleral vessels.

2-Superficial necrosis is evident in the anterior nasal mucosa and on the buccal mucosa, Discrete local areas of necrosis appear on the hard palate, gums and gingivae, The mouth is painful and the animal moves its jaws carefully, salivation with ropy and bubbly saliva hanging from the lips

3-The skin of the muzzle is extensively involved, with discrete patches of necrosis at the nostrils which soon coalesce causing the entire muzzle to be covered by tenacious scabs.

4-Similar lesions may occur at the skin-horn junction of the feet, especially at the back of the pastern.

- 5-The skin of the teats, vulva and scrotum may slough.
- 6-Nervous signs, such as weakness in one leg, incoordination, muscle tremor, nystagmus, head-pushing, paralysis and convulsions may occur in the final stages.
- 7-palpable enlargement of LN.(lymphadenopathy).
- 8-dysentery and In some cases there is hematuria.
- 9-Opacity of the cornea appearing as a narrow, gray ring at the corneoscleral junction.
- 10-skin changes, including local papule formation with clumping of the hair into tufts. In addition, eczematous weeping may result in crust formation, particularly on the perineum, around the prepuce, in the axillae and inside the thighs.

alimentary tract forms...

The alimentary tract form resembles the 'head and eye' form, except that there is marked diarrhea and only minor eye changes with conjunctivitis, This form of the disease has been encountered in outbreak in cattle.

Mild form...

The mild form occurs most commonly in experimental animals but is observed in natural outbreaks. There is a transient fever and mild erosions appear on the oral and nasal mucosa.

Clinical pathology...

- 1- leukopenia
- 2-PCR,Elisa.and viral isolation

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- 1- Lesions in the mouth, nasal cavities and pharynx vary from minor degrees of hemorrhage and erythema, to discrete ulcers. These lesions may be shallow and or deeper and covered by cheesy diphtheritic deposits.
- 2- Erosion of the tips of the cheek papillae, especially at the commissures, is common
- 3- The mucosa of the fore stomachs may exhibit erythema, or hemorrhages or erosions. Similar but more extensive lesions occur in the abomasum. Catarrhal enteritis of moderate degree and swelling and , ulceration of the Peyer's patches are present . The feces are blood stained.
- 4- The liver is swollen and severe hemorrhage may be visible in the urinary bladder:
- 5- All lymph nodes are swollen, edematous and hemorrhagic.
- 6- Petechial hemorrhages and congestion may be visible in brain and meninges.

Control....

- 1-isolation of infected animals and separation of cattle and sheep
- 2-inactivated and killed vaccine(MCV virus vaccine) were used for protection of animals

Bovine virus diarrhea (Mucosal disease).BVD 1259

It is a viral disease caused by RNA bovine virus diarrhea virus of the genus pesti virus family Flaviviridae. there are two biotypes of the virus Non cytopathic (NCP) and cytopathic (CP) depending on their effect on tissue culture cells.

The noncytopathic biotype is the most common and most important. It cross the placenta, invades the fetus and cause persistent infection in the fetus, It is the cause of a wide range of congenital, enteric and reproductive diseases.

The cytopathic biotype of the virus is usually associated with only mucosal disease and it may found infected with the non-cytopathic biotype.

Epidemiology...

1-it's a wide spread disease affected animals cattle in all ages

2-morbidity rate is 40% and mortality is 20%

3-methods of transmission

a- The major source of infection is the PI(persistent infection) viremic animal. PI females can remain clinically normal for several years, and PI bulls may also introduce the virus into artificial breeding units

b- The virus is transmitted by direct contact between animals, and by transplacental transmission to the fetus.

c- Indirect airborne transmission of the virus can occur

d- The virus has been experimentally transmitted by flies

e- The virus can be transmitted from a PI animal to susceptible heifers which were examined per rectum using the same glove.

4-The pathogenic effect may depends on multiple interactive factors such as

1-Age of the animal

2- Transplacental infection and age of the fetus

3- Immune status (passively derived or actively derived immunity from previous infection or vaccination.

4- Presence of stressors

Clinical findings ...

Peracute form...

1-all ages of cattle are affected including calves, yearlings and adults. Mortality was highest in the young-age groups.

2-Severe depression, respiratory distress, anorexia, profuse watery diarrhea, dysentery, conjunctivitis, fever up to 42.0°C, and agalactia in adult lactating dairy cows were common.

3-Oral erosions were inconsistent. متناقض

4-death occur within a few days after the onset of illness,

Benign bovine virus diarrhea(subclinical form)...

It characterized by a mild fever, leukopenia, inappetence and mild diarrhea followed by rapid recovery in a few days and the production of virus neutralizing antibodies with high morbidity and low case fatality

Acute mucosal disease...it characterized by

1- sudden onset of clinical disease in animals from 6-24 months of age which were infected during early fetal life

2- The morbidity is low and the case-fatality rate is high (over 90%) .

3- Affected animals are depressed, anorexic and drool saliva, wetting hair around the mouth. Fever 40-41 C, tachycardia and polypnea are common. Ruminant contractions are usually absent and a profuse and watery diarrhea occurs 2-4 d after the onset of clinical illness

4- The feces have bad smelling and may contain mucus and blood, small pieces of fibrous intestinal casts are present.

5- Lesions of the oral mucosa consist of discrete, shallow erosions which become confluent **مندمج**, resulting in large areas of necrotic epithelium becoming separated from the mucosa. These erosions occur in Inside the lips ,on the gums and dental pad , on the posterior part of the hard palate , at the commissures of the mouth and on the tongue.

6- The entire oral cavity may have a 'cooked' appearance with the grayish colored necrotic epithelium covering the deep-pink, raw base. Similar lesions occur on the muzzle and may become confluent and covered with scabs and debris.

7- Although the oral lesions are significant in the identification of the disease, they may be absent or difficult to see in up to 20% of the affected animals

8- There is mucopurulent nasal discharge associated with some minor erosions on the external nares and similar lesions in the pharynx, Lacrimation and corneal edema are sometimes observed.

9- Lameness occurs in some animals and appears to be due to laminitis, coronitis and erosive lesions of the skin of the interdigital cleft, which commonly affect all four feet.

10- Dehydration and weakness are progressive and death occurs 5-7 d after the onset of signs.

Chronic mucosal disease...

Some acute cases of mucosal disease do not die within the expected time of several days and become chronically ill. and characterized by ,

1- Diarrhea, Inappetence ,Progressive emaciation , Rough dry hair coat , chronic bloat , hoof deformities ,chronic erosions in the oral cavity and on the skin.

2- Shallow erosive lesions covered with scabs can be found on the perineum, around the scrotum, preputial orifice and vulva, between the legs and at the skin horn junction around the claws, in the interdigital cleft and at the heels.

3- The failure of these skin lesions to heal is an important clinical finding suggesting chronic mucosal disease.

Unthrifty PI calves...

1- Calves which are born PI may be smaller in body size and may fail to grow normally.

2- They may survive and appear unthrifty for several months or more until they develop fatal mucosal disease or some other infectious disease such as pneumonia.

Thrombocytopenia and hemorrhagic form...

It is characterized by

1- Bloody diarrhea, Petechial and ecchymotic hemorrhages of the visible 'mucosa, hyphema, epistaxis and prolonged bleeding from injection sites or insect bites have been observed.

2- Cattle have platelet counts of less than 25 000 and clinically there is bloody diarrhea. Fever, , rumen stasis and dehydration .

Reproductive failure and neonatal disease...

It characterized by ..

1-conception failure, increased embryonic mortality, fetal mummification, abortion, premature and , stillbirths, congenital defects, the birth of stunted معوق weak calves, and the birth of PI calves which subsequently may develop mucosal disease .

2- A number of congenital defects in calves are present including microencephalopathy,hydrocephalus, ,porencephaly, cerebellar hypoplasia, and hypomyelination.

Clinical pathology...

1-severe leukopenia

2-isolation of the virus

3-Elisa

4- Herd Chek BVDV Antigen Serum Test Kit (IDEXX).

5-PCR

6- serum neutralization test

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1- Characteristic shallow erosions with very little inflammation around them and with a raw, red base are present on the muzzle,in the mouth, pharynx, larynx and posterior nares and In the esophagus these erosions are linear in shape and lie in the direction of the folds of the esophageal mucosa.

2- Erosive lesions may also present in the fore stomach,

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The disease must differentiated from

RP,FMD,Mucosal D, salmonellosis, Johne's disease.

Control...

It done by

1- Biosecurity is the action taken to prevent the introduction and transmission of a disease agent into a herd or region.

2- Identification and elimination of PI animals from the herd(clearance of infection)

3- Vaccines... Both modified live-virus (MLV)' and inactivated-virus vaccines are available