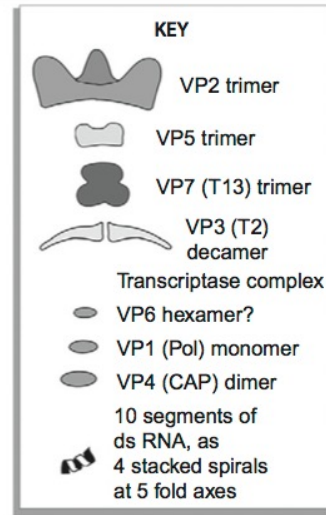
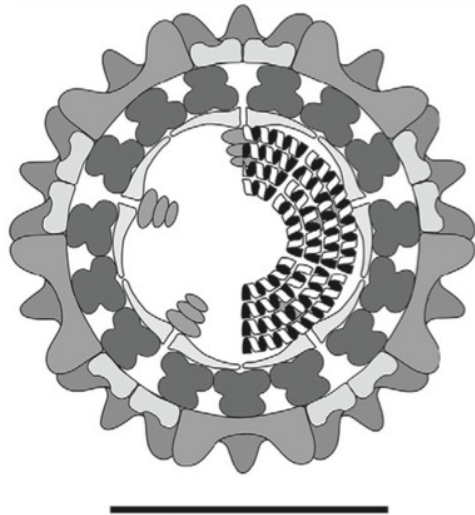




# African Horse Sickness (AHS) Pestis Equorum

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# Etiology



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Reoviridae, Orbivirus

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RNA, segmented

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Non-enveloped

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9 serotypes

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serotypes 6 and 9 are cross-protective, others are not.



Equids including horses, donkeys, mules and zebras are the primary hosts for AHSV; however, this virus is also known to affect dogs.



Among equids, the most serious infections occur in horses and mules.

Zebras, which are often asymptomatic, are thought to be the natural reservoir hosts in most regions of Africa.



# Transmission

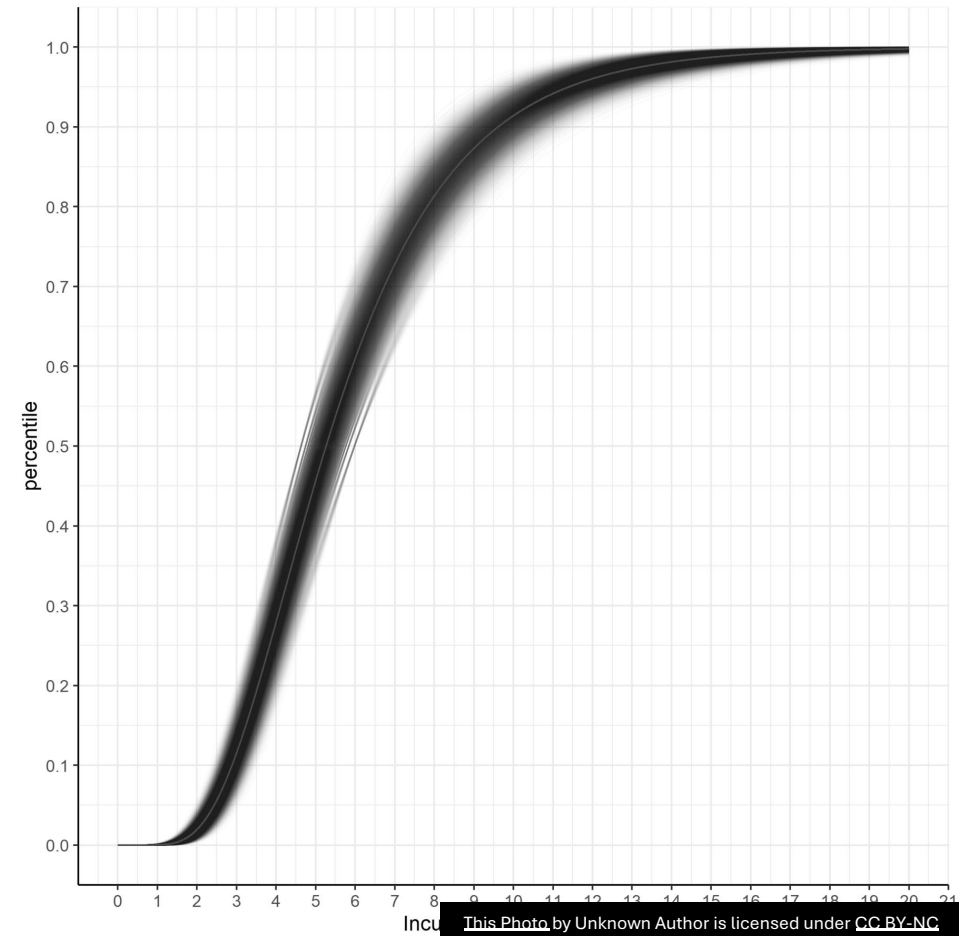
AHSV is transmitted by the species of Culicoides.

The virus replicates in the horse and salivary glands of the midge *Culicoides imicola*.

At first, the virus was found only in Africa. Since 1987 it has re-appeared in Spain and Portugal where the vector occurs.

# Incubation Period

The incubation period for African horse sickness in equids is: 3 days to 2 weeks, usually less than 9 days.



# Pathogenesis and Pathology

Pantropic (**affecting various tissues without showing special affinity for one of them**), fatal disease. Predominantly infects endothelial cells and myocardium.

Once the virus enters the blood, it multiplies in the lymph node.

After the virus replicates in the lymph vessels, it creates edema in the head, under neck, throat and chest. Then virus settle in the lungs, where it causes edema and Hydrotoraks.

Two liters of fluid in the pericardium (gelatinous, fibrinous), petechial hemorrhage and hyperemia can be observed.

# Pathology

**Culicoides** → **Local Lymph Node.** → **I. VIREMIA** → **Hematopoietic  
Organs**

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**Endothelial cells of large and small vessels** ← **II. VIREMIA**

**Edema in the lung and subcutis, interstitial hemorrhage, pleural effusion,  
hydrothorax, myocardial hemorrhage, infarctus**

# Pathology



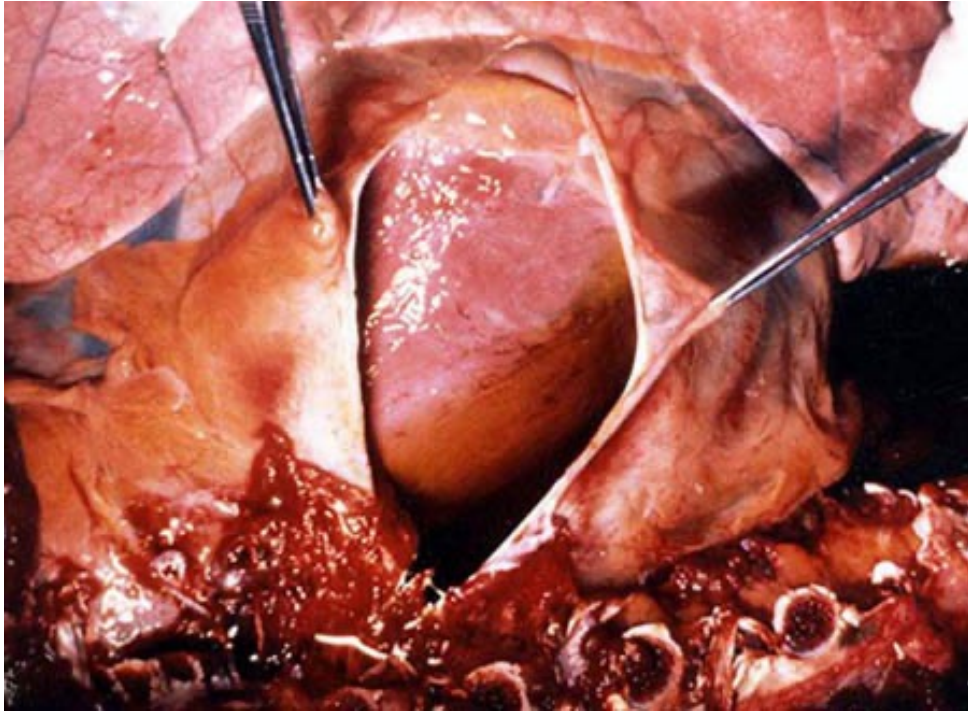
**Pulmonary cross-section, edema**



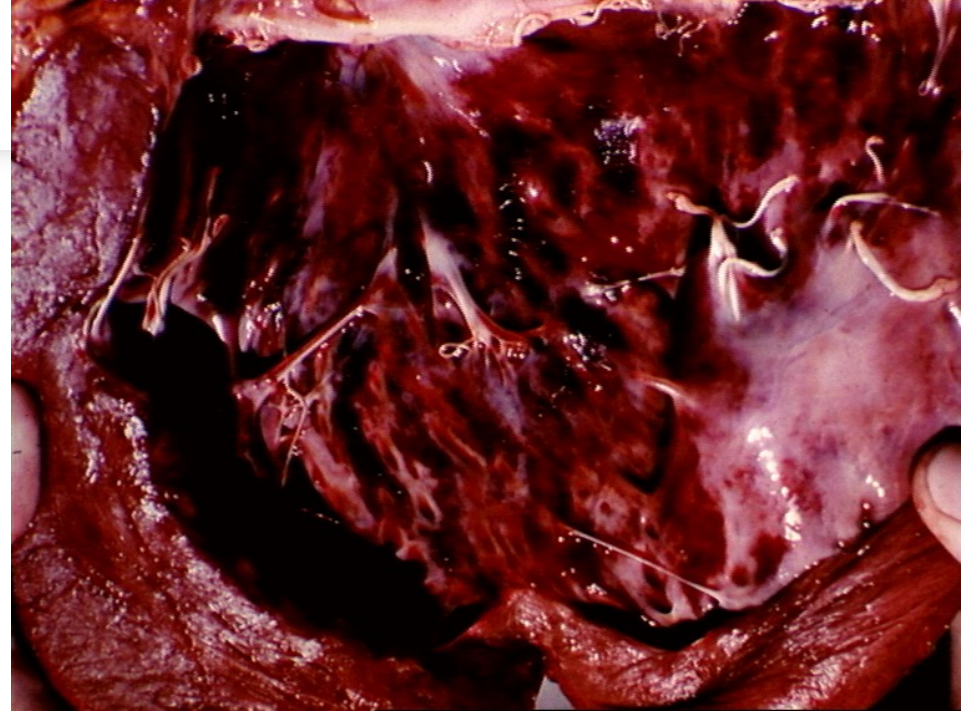
**Pleural effusion and pulmonary edema**



# Pathology



**Hydropericardium**

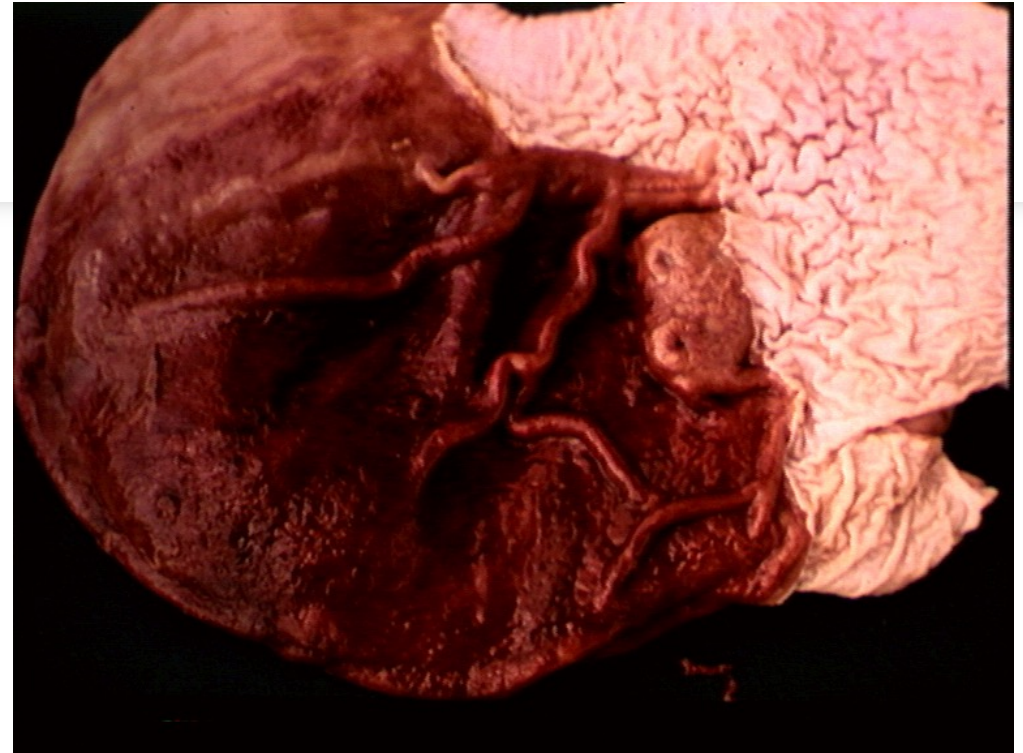


**Myocard, haemorrhagie**

# Pathology



**Intermuscular Edema, Gelatinous deposits**



**Glandular stomach bleeding**

# Clinical Signs

peracute (pulmonary) form,

the subacute edematous  
(cardiac) form,

the acute (mixed) form,

horsesickness fever.

# 1-Peracute and Pulmonary Form:



The incubation period is very short (3-5 days).



Fever 40-41 ° C



Increased respiratory rate.



Dispnea.



Animals n stand with forelegs spread, head extended, and nostrils fully dilated.



Edema in alveoli.



Death after a few hours from the initial clinical indication.

The incubation period is 7-14 days.

Edematous swellings appear in the supraorbital fossae and eyelids.

These swellings later spread to involve the face, tongue, intermandibular space, laryngeal region, and sometimes the neck, shoulders and chest.

-Hydroperikardium.

Myocardial infarction.

Death often occurs from cardiac failure.

If the animal recovers, the swellings gradually subside over a few days to a week.

## 2- Subacute edematous (cardiac) form



**Supraorbital edema**

# Supraorbital edema





**Conjunctival edema and hyperemia**



**Pulmonary foaming due to pulmonary edema**



### 3- The acute or mixed form

Clinical signs of both the pulmonary and cardiac forms are seen in the mixed form.

In most cases, the cardiac form is subclinical and is followed by severe respiratory distress.

Occasionally, mild respiratory signs may be followed by edema and death from cardiac failure.

Although the mixed form is common, it may not be recognized except at necropsy.

## 4- Subclinical form (Horse sickness fever)

Fever: 40–40.5°C



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graph TD; A[Fever: 40–40.5°C] --> B[Mild form; general malaise for 1–2 days]; B --> C[Very rarely results in death];
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Mild form; general malaise for 1–2 days

Very rarely results in death

# Diagnosis



Clinical diagnosis is possible.



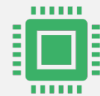
Complement fixation tests and haemagglutination inhibition tests.



Virus isolation



Antigen ELISA.



RT-PCR.

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protection against vectors;

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slaughter or immediate isolation of sick animals;

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vaccination of the entire equine population with the appropriate serotype;

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monitoring for the presence of the virus and the vector.

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Protection zones (where animals are vaccinated to contain the spread of the disease) and;

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Surveillance zones (no vaccination but animals monitored for disease) are set up around outbreaks.

# Prevention and Control