African Horse Sickness

African horse sickness (AHS) is an infectious but noncontagious, insect-borne viral disease affecting all species of equids associated with respiratory and circulatory impairment

Etiology:
African Horse Sickness is caused by an *Orbivirus* of the family Reoviridae
Nine different serotypes of the virus have been described

Epidemiology:
- AHS remains endemic in zebra populations across South Africa
- In 1959–1960 outbreaks which caused the death of over 300,000 equids occurred in the Middle East and South-West Asia (Cyprus, Turkey, Lebanon, Iran, **Iraq**, Syria, Jordan, Palestine, Pakistan and India)

Host Range: Horses, Mules, Donkeys and Zebras
- Approximately 70-95 % of all horses developing the disease will die
- The mortality percentage for mules is only about 50 % and for donkeys only 10 %.
- Dogs can also become infected by eating infected meat.
- Antibodies to AHS virus were detected in sheep, goats, camels, buffalo and dogs.
- There is no evidence that humans can be infected by field strains of the disease.

Incubation:
In experiments, African Horse Sickness usually has a 5 to 7 day incubation period.
In natural infections, the incubation period is from 7 to 14 days.

Transmission:
- AHSv is spread primarily by *Culicoides* (ex: biting flies and mosquitoes) by transfer of blood (biological vectors).
- African Horse Sickness is non-contagious, but the horse is an amplifier of AHS virus and source of virus for arthropods.
- Arthropods other than *Culicoides* may spread the virus as mechanical vectors

Clinical Signs:
First Sign is fever of 38.9°C - 41.1°C.
Most other common signs are:
- Congestion of the conjunctivae
- Severity of congestion is good indication of severity of infection
- Lower Eyelid Conjunctivitis

After initial signs, the disease can progress in one of four ways:

1. Peripheral (Cardiac)
2. Central (Pulmonary)
3. Mixed Form

Clinical Signs: Pulmonary

- Fever up to 40°C to 41.1°C
- Respiratory rate may reach 60-70 per minute
- Coughing and Sweating
- Horse may appear colicky (getting up and down, and rolling)
- As pulmonary distress increases:
  - Animal stands with forelegs apart, Head extended
  - Nostrils dilated
  - Once **foam** appears in nostrils, death follows rapidly
  - Animal may drink and eat, even in terminal stages

Clinical Signs: Cardiac

- Incubation is usually longer (7-14 days)
- Fever of 39- 41.1°F usually lasts 3-6 days
- At the end of the febrile period, marked swelling of the head and neck may occur
- Classic areas for swelling are: Supraorbital fossa, Conjunctiva, Lips, cheeks, tongue, Intermandibular space, Laryngeal area, Neck, brisket, ventral thorax
- No edema of the lower parts of the legs occurs
- Petechial hemorrhages on the ventral surface of the tongue and in conjunctiva may occur
- As edema progresses, there may be restlessness and signs of abdominal pain and pulmonary edema
  - Finally, animal becomes prostrate, and dies
  - Again, animal may eat and drink, even in terminal stages
  - If the disease is not fatal, the edema will subside over 3 to 8 days.

Clinical Signs: Mixed Form

- Mixture of pulmonary and cardiac forms
- Signs of one may be predominate
- The mixed form is more frequently seen at necropsy

Diagnosis:

- AHS is difficult to pinpoint in early febrile stages
- Suspect the disease during the season when there are insect vectors
- Suspect when horses develop the following:

1. Fever
2. Dyspnea
3. Edema of the supraorbital fossa
4. Subcutaneous edema of head/neck areas
5. Pulmonary edema
6. Death

Laboratory Diagnosis:

- Virus isolation – blood from live animal; spleen from dead animal
- Serology – CF test, ELISA

Differential Diagnosis:

1. Anthrax
2. Botulism
3. Equine infectious anemia
4. Equine viral arteritis
5. High doses of pyrrolizidine alkaloids
6. Trypanosomosis
7. Equine encephalosis
8. Piroplasmosis
9. Purpura haemorrhagica

Control:

- Movement restriction
- Vector control
- Test and slaughter
- Vaccination
  - MLV
  - Inactivated virus