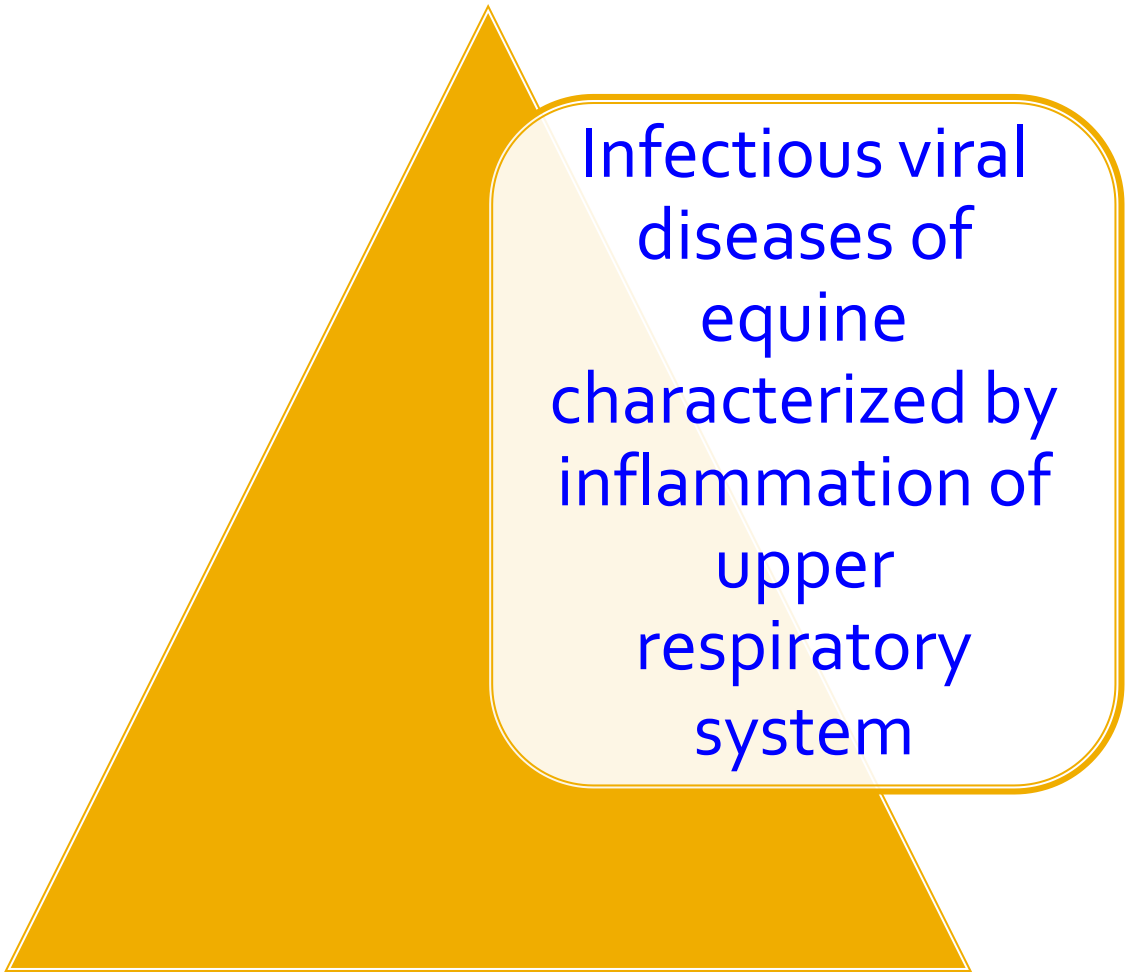
Infectious viral diseases of equine characterized by inflammation of upper respiratory system

EQUINE INFLUENZA
(Horse flu)

- Equine influenza (EI) is a highly contagious respiratory disease of equines.
- EI is caused by ;

Family: Orthomyxoviridae

Genus: Influenza virus.

Type :A influenza virus in

- caused by two main strains of viruses: equine-1 (H7N7) which is still circulating subclinically.

- and equine-2(H_3N_8) which is the most important cause of respiratory diseases in the horse,

Epidemiology

- EI; is endemic in horse species.
- Equine influenza occurs globally.
- Usually occur in outbreaks, causing clinical disease in nearly all horses (98%) in a susceptible population.

Transmission: Equine influenza is noteworthy because of its high rate of transmission among horses, and has a relatively short incubation time of 1-5 days

Transmitted by inhalation of aerosols of infected material by direct contact or indirect contamination of utensils, water, etc. with infected secretion.

-Virus origin is from an infected horse. It is relatively susceptible to environmental conditions.

- Short incubation period and long time of coughing and shedding of virus leads to explosive outbreak.

- Economic importance:

Influenza is not a serious disease in its self; but it causes inconvenience in race horses as it occurs in explosive outbreaks and they must break training.

Pathogenesis

- Virus inhaled → attached to respiratory epithelium (nasopharyngeal) → fuses with epi. cells →

Replicate inside cytoplasm → new virions are released from cell surface → infect other cells or expelled to the environment →

Infection leads to:* death of epi. Cells *inflammation * Oedema * Loss of protective mucociliary clearance.

Equine Influenza Symptoms:

* sudden onset
* fever,
*dry frequent cough, up to 3 wks.
*runny nose, Watery-nasal discharge.
•Weakness, stiffness.
•*and become depressed and reluctant to eat or drink for several days,
*but they usually recover in 2 to 3 weeks.

Complicated cases

Some horses, particularly those worked or stressed while sick or during recovery, may develop secondary bacterial infections such as pneumonia. This rarely results in death but the elderly, sick and very young are most at risk.

Respiratory tract epithelium takes ~21 days to regenerate; during this time, horses are susceptible to development of secondary bacterial complications such as pneumonia, pleuropneumonia, and chronic bronchitis. Complications are minimized by restricting exercise, controlling dust, providing superior ventilation, and practicing good stable hygiene.

INFLUENZA SYMPTOMS

While normally confined to equidae, equine H3N8 influenza has crossed the species barrier to dogs. ***Extensive infection of dogs has been reported in North America where it normally produces mild fever and coughing but can cause fatal pneumonia.***

Equine Influenza Treatment:

- Rest and supportive therapy for the fever and cough.
- Rest horses for at least one week for every day of coughing. So if a horse coughs for five days, it will need five weeks . Prevention is the key here with regular vaccinations

Disease control and eradication strategies for equine

1. All equines are quarantined for a minimum of 30 days after the last signs of the disease are seen on the property.

Quarantine is critical in preventing further spread of the disease.

2.vaccination

1. An intranasal modified live influenza vaccine, designed to induce mucosal (local) antibody protection, has demonstrated protection against natural challenge and can be used in foals as young as 6 mo. This vaccine is temperature sensitive and is not capable of replicating beyond the nasal passages

2. inactivated, adjuvanted vaccines recommended primarily for IM administration.

- Because the duration of protection provided by current vaccines is limited, booster injections should be administered every 6 mo in horses at risk of exposure.

ZOONOSIS

- Equine influenza poses no threat to people, however people can easily spread the virus between horses via contaminated skin, hair and clothing.

diagnosis

Serological tests

- paired sera; the first sample should be taken as soon as possible after the onset of clinical signs
- and the second approximately 2 weeks later. Antibody levels are determined by haemagglutination inhibition (HI)

diagnosis

- Isolation and identification of the agent: from nasopharyngeal swabs or nasal and tracheal washes.
- Infection may also be demonstrated by detection of viral nucleic acid or antigen in respiratory secretions using the reverse-transcription polymerase chain reaction (RT-PCR) or an antigen-capture enzyme-linked immunosorbent assay (ELISA).

Differential diagnosis:

*Strangles; detection of bacteria in highly inflamed and suppurated submaxillary lymph nodes.

*Equine viral arteritis (EVA); severe disease, anasarca, ventral oedema, prepuce, legs, scrotum,50% of pregnant mares abort, may be diarrhea and jaundice.

*Equine viral rhinopneumonitis (EHV-1, EHV-4).

EHV-1, mild respiratory disease in young horses, abortion in pregnant mares.

EHV-4, mild respiratory disease in young horses

*Equine rhinovirus, mild respiratory disease.

* Equine adenovirus, mild respiratory disease but in Arabian foals affected with combined immunodeficiency it causes fatal pneumonia.