

Foot and Mouth Disease

- Aphthous fever
- Tiger Heart
- Highly contagious
- Some time fatal
- Viral disease of cloven-footed animals
- **cattle, buffalo, sheep and goats**



Occurrence

- Asia, Africa, Europe the Middle East and South America

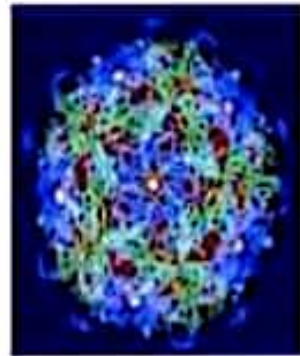
1. AETIOLOGY

causative agent

- Family Picornaviridae → genus Aphthovirus.

serotypes:

- A
- O
- C
- SAT₁
- SAT₂
- SAT₃
- Asia-1





Temperature:

- ❖ progressively inactivated by temperatures above 50°C

pH:

- ❖ Inactivated by pH <6.0 or >9.0

Disinfectants:

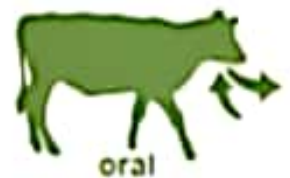
- ❖ Inactivated by sodium hydroxide (2%), sodium carbonate (4%), and citric acid (0.2%).

2. EPIDEMIOLOGY

- Hosts
 - Bovine
 - Sheep
 - Goat
 - Camel
 - Swine
-
- ❖ Low mortality rate → adult animals
 - ❖ Oftenly high mortality → young due to **myocarditis**

Transmission

- ✓ Animate vectors
- ✓ Inanimate vectors
- ✓ Clinically affected animals
- ✓ Inhalation



- People wearing contaminated clothes or footwear or using contaminated equipment
- Hay, feedstuffs, contaminated with the virus.
- Contaminated water



3. Clinical signs

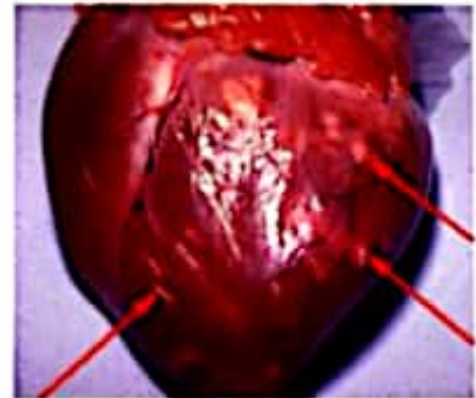
- Drooling of saliva → Sticky, foamy
- Anoraxia
- Shivering
- Pyrexia → Raised temperature. (104-106 F)
- Reduced milk yield
- Lameness with reluctance to move
- Sores and blisters on the **feet, in the mouth or on the tongue**
- In case of females → Sores and blisters on teat
- Oftenly high mortality → young due to **myocarditis**
- Low feed intake → painful tongue & mouth lesions





Postmortem findings :

- Necrosis of heart muscle (**tiger heart**), usually only in young acutely infected animals.
- Ulcerative lesions on tongue, palate, gums, pillars of the rumen and feet



4. Pathogenesis

- Infection through **inhalation**, the most efficient method of infection, virus can also gain entry to tissues through ingestion, insemination and inoculation, and through contact with abraded skin..
- **Primary viral replication**, after inhalation, takes place in the mucosal and lymphatic tissues of the **pharynx**.
- **Viraemia** follows primary multiplication with further viral replication in **lymph nodes, mammary glands** and other organs as well as the epithelial cells of the **mouth, muzzle, teats, interdigital skin** and **coronary band**.
- In these areas of **stratified squamous epithelium**, vesicle formation results from **swelling** and rupture of **keratinocytes** in the stratum spinosum

5. Diagnosis

- ❖ Clinical signs
- ❖ For Lab tests take 1g epithelium of lesions (ruptured or not)
 - ELISA
 - Complement fixation test
- ❖ Serological tests
 - ELISA
 - Virus neutralisation test

All submissions should accompany a history



6. Treatment

- Treatment usually not practiced, in some cases
 - Anti-pyretics
 - Anti-biotics
- It is recommended that at the face of an outbreak, isolation and slaughter of diseased animals should be done
- Animals at risk must be vaccinated and tested serologically in regular intervals of time.
- **Vaccination failure may occur due to**
 - Lack of the prevailing serotype,
 - Poor amount of immunogen in the vaccine

7. Vaccination

- Proper Vaccine Schedule at the Farm with good Quality Vaccine
- Vaccinate all the healthy animals with good quality vaccine including infected animals to minimize the shedding if FMD Virus.

FMD VRI vaccine: Aftovac pure

INACTIVATED VACCINE: Aftovax

- Vaccinate only healthy animals



8. Control

- **Disinfection**
 - Disinfect equipments and floor with house hold bleach (2 parts with 3 parts water mixed thoroughly)
 - Remove all organic matter
 - Manure, dirt, feed, etc.
- Vehicles, shoes, equipment
 - Arrange separate cover-alls for laborers for work place.
 - Improve vaccination procedure with cold chain



