



FOOT AND MOUTH DISEASE (FMD)

**By
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DEFINITION

- Foot-and-mouth disease (FMD) is a highly contagious viral infection primarily of **domestic animals** (cattle, pigs, sheep, goats, and buffalo) and **wild animals**.
- The disease is characterized by fever and vesicles with subsequent erosions in the mouth, nares, muzzle, feet, or teats.
- Susceptibility: cattle>pig>sheep>goat



ETIOLOGY

The FMD virus (FMDV) is a member of the genus *Aphthovirus* in the family *Picornaviridae*. There are seven serotypes of FMDV: A, O, C, Asia 1, and Southern African Territories (SAT) 1, 2 and 3 .



RESISTANT AND SENSITIVITY

- Sensitive

- Sunlight
- Temp >50 C
- pH changes (pH below 6.5 or above 11) .



TRANSMISSION

- 2 main routes of infection:
 - Aerosal
 - Ingestion
- Modes of Transmission:
 - Direct contact
 - Indirect contact.
 - Feeding contaminated garbage (meat, milk, blood, glands, bones, cheese, etc.)
 - Artificial insemination .



PATHOGENESIS

- Most animals acquire virus usually by inhalation
- FMD in people is very rare
- Humans and pigs are more susceptible to infection by oral route
- Sheep are highly susceptible to infection by the respiratory route



DIAGNOSIS

- The diagnosis of FMD is based on the clinical signs
- laboratory diagnosis, the clinical sample of choice is epithelial tissue taken from animals showing .
- Vesicular fluid
- From dead animals, collect samples of epithelial lesions, lymph nodes, thyroid, adrenal gland, kidney, and heart



CLINICAL SIGNS

1- Incubation period 2-14 days

2- Fever.

3- Anorexia

4- Depression

5- Development of vesicles on mouth and feet

Ruptured vesicles leading to salivation and lameness

6- Pregnant cows may abort , and young calves may die without developing any vesicle.



CLINICAL SIGNS

7- Vesicular lesions occurring on udder and teats.

8- Lameness.

9- Mortality is limited to young animals.

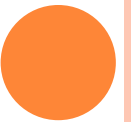
10- dullness.

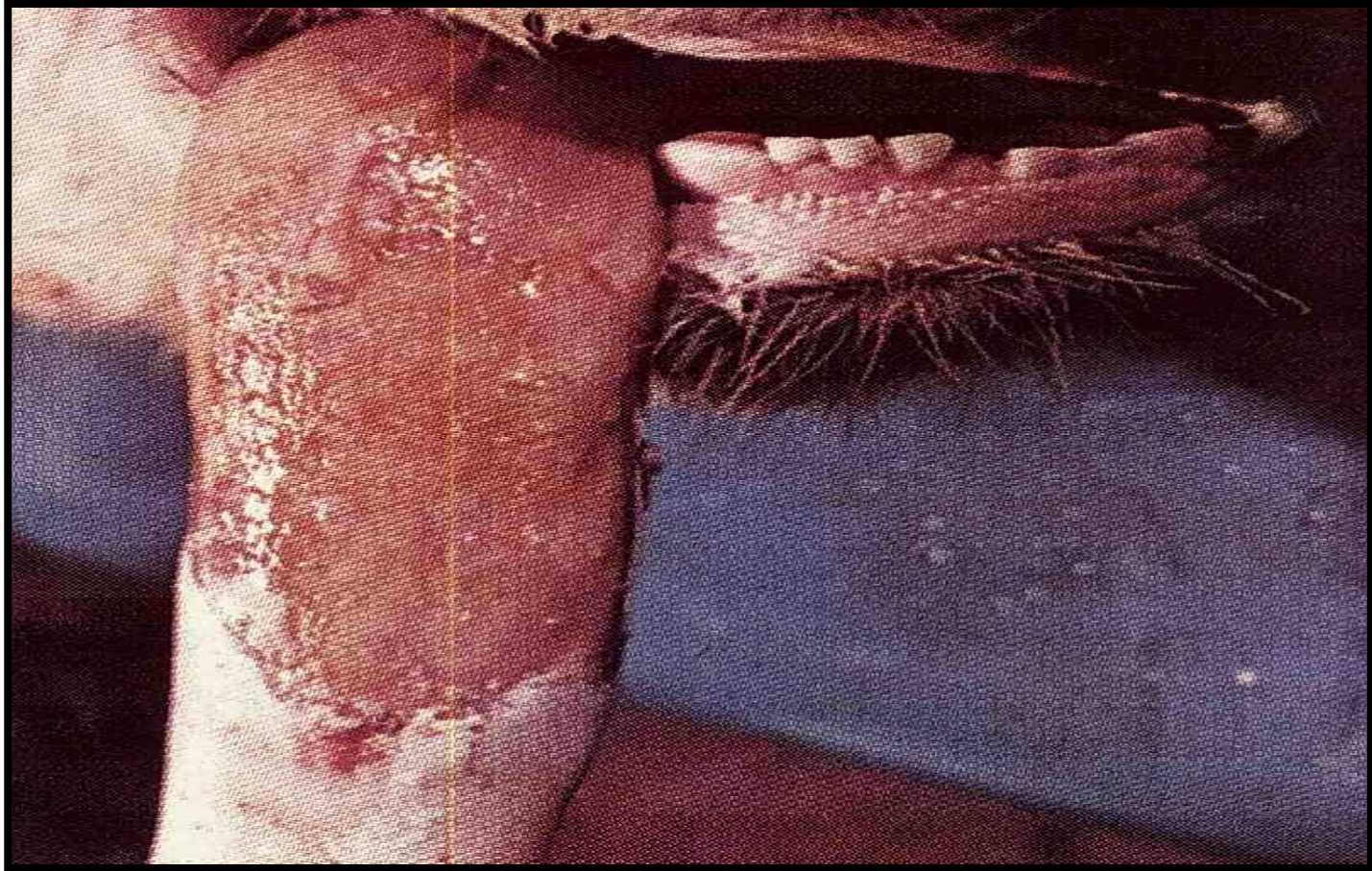
11- fall in milk production .

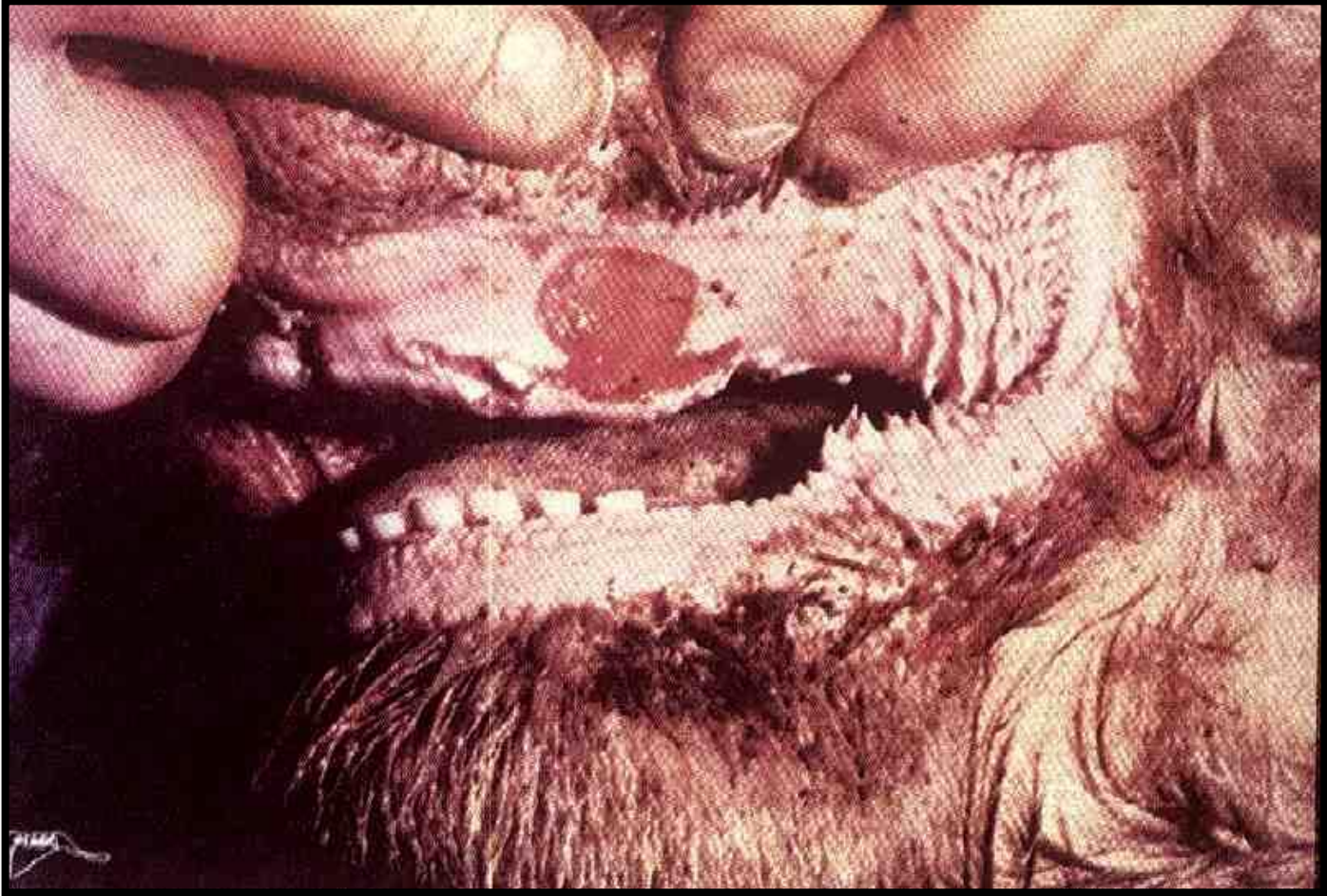
12- Blisters in the mouth , muzzle, and tongue.

13- Excessive Salivation















Двудневни изменения по устна лигавица при шап по говедата











CONTROL AND ERADICATION

The following are the essential features of a control and eradication program:

1. Stop movement of animals and animal products in the area affected.
2. Slaughter infected animals (and known contact animals).
3. Destroy carcasses.
4. Disinfect vehicles leaving the infected area.
5. Perform vaccination.



VACCINATION

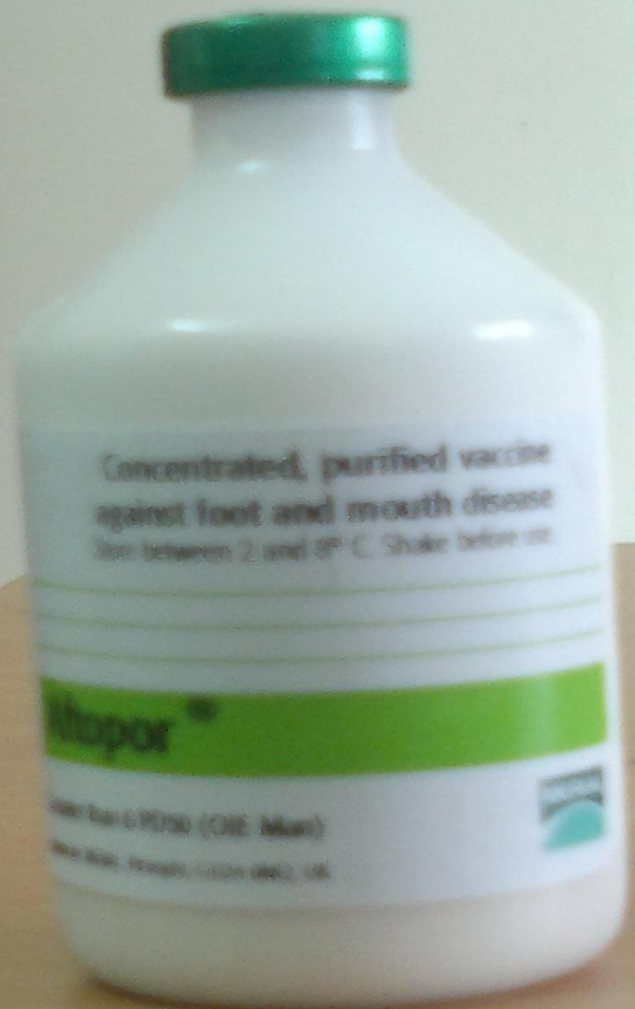
- FMDV, the virus was inactivated with formalin, and aluminum hydroxide was added as an adjuvant. This method is used today to produce FMD vaccine.
- When vaccinating animals, it is important that the vaccine contain the same subtype of virus as is in the area.



DOSE OF VACCINATION

- Giving two dose in each year .
- The vaccine consisting four type : **A-O-V-SIA 1**.
- Dose **1 cm** each head subcutaneous.
- First dose from vaccination when age 6 weeks if was mothers nonvaccinated while if was mothers vaccinated , the calves vaccination on the age 12 weeks and frequent after 6-4 months

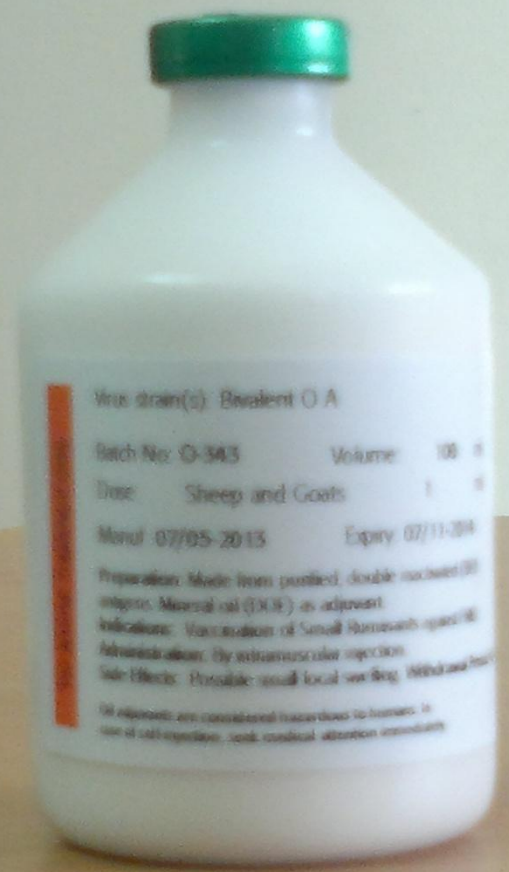




Concentrated, purified vaccine
against foot and mouth disease
Store between 2 and 8° C. Shake before use.

Vetopox

Batch No: G-1750 (OIE Man)
Vetopox, Bristol, GSK, UK



Virus strain(s): Bivalent O A
Batch No: G-343 Volume: 100 ml
Dose: Sheep and Goats 1 ml
Mfg: 07/05-2013 Expiry: 07/11-2014
Preparation: Made from purified, double inactivated (DI) virus. Mineral oil (MO) as adjuvant.
Indications: Vaccination of Small Ruminants against FMD.
Administration: By intramuscular injection.
Side Effects: Possible small local swelling. Mild and transient.
All ingredients are considered innocuous to humans. In case of any enquiries, seek medical attention immediately.