

# Foot and mouth disease

**Etiology :** disease caused by aphthovirus

Family :Picorna viridae, occurs as seven major serotypes A,O,C,southern African Territories ( SAT1) ,(SAT2) ,(SAT3) and asia 1.

## **Epidemiology:**

1-FMD disease affects all cloven-footed domestic animals ,and wild life and enzootic in African,Asia

2-mortality rate in outbreak of FMD in **susceptible animals** ,can rapidly approach 100% .2% in adult and 20%in young stock case fatality 50% in adult cattle .

3-transmission : direct contact and indirect contact ( inanimate object ,uncooked unprocessed meat ,milk) .

**4- transmission :by inhalation and by ingestion**

5- spread from pig to cattle and from cattle to cattle by air-borne means and inhalation.

6- the speed and direction of the wind are important factors in determining the rate of air-borne spread.

7-the v.appear in the milk,saliva for up to24hr. before appearance of vesicles in the mouth ,

8- urin ,feces and semen infective before the animal is clinically ill and for a short period after signs have disappeared.

9- V. live in mammary gland for 3-7 weeks.

10-human may also be a vehicle for transmission of FMD.,and slightly susceptible to infection with the V.and vesicles may develop in mouth and hands .

11-the V. resistant to external influences including disinfectants, sunlight destroys the V.

### **Pathogenesis:**

Once infection gains access to the blood stream ,the V. is widely disseminated to many epidermal sites probably in mononuclear cell ,characteristic lesion develop at mouth ,feet and teats after incubation period of 1-21 days (usually 3-8 days ) .

Clinical finding :

1- In typical field case in cattle ,there is an incubation period of 1-6 days

2-fall in milk production ,high fever ,anorexia .

3- acute painful stomatitis ,salivation ,the saliva hanging in long ropy string ,smacking of the lips ,chew carefully .

4-vesicles and bullae (1-2 cm in diameter) appear on the buccal mucosa and on the dental pad and tongue ,contain a thin straw-colored fluid ,vesicles rupture within 24 hr. leaving raw painful surface which heal in about a week.

5-vesicles appear on the feet in the clefts and on the coronet.

6- rupture of the vesicles cause acute discomfort and recumbent with a marked painful swelling of the coronet ..

7- vesicles may occur on the teats and teat orifice is involved ,severe mastitis ,abortion

And subsequent infertility are sequels .

8- young calves are more susceptible than adults and during an outbreak heavy mortality may occur in them as a result of severe myocardium damage.

9- malignant form of the disease in adult in which acute myocardial failure occur ,dyspnea, weak and irregular heart action and death.

10-Mild form of disease: occur when enzootic strain infected indigenous cattle in tropical and subtropical countries ,

Squel to FMD in cattle due to probably to endocrine damage ,is characterized syndrome of dyspnea,anemia,overgrowth of hair and heat intolerance described as s( Panting) ,diabetes mellitus observed in cattle .

### **IN Sheep , gait and pig :**

The disease mild and important because of the transmission of the disease to cattle

Clinical signs as in cattle with loss of hooves from bacterial complication and high mortality rate in lamb due to myocardial and skeletal muscle damage .

### **Clinical pathology :**

Fresh vesicular fluid and surrounding epithelial tissue should be collected for Lab. Test .

1-tissue culture

2-guinea –pig inoculation .

### **Necropsy finding :**

1- lesion of FMD consist of vesicles and erosion in the mouth and feet and udder ,erosion may become ulcer when secondary bacterial infection occur ,some cases vesicles extend to pharynx,esophagus,forestomach,intestines,trachi and bronchi .teat,and mammary gland swollen .

2- in malignant form of disease and neonatal animal epicardial hemorrhage in the heart.

3- Histological : the ventricular wall appear streaked with patches of yellow tissue interspersed with apparently normal myocardium ,giving the typical ( Tiger heart) appearance.

## **Differential diagnosis :**

- |                                  |                                      |   |
|----------------------------------|--------------------------------------|---|
| 1- vesicular exanthema ( swine). | 2- Vesicular stomatitis              | 2 |
| 3-blue tongue of sheep           | 4- Rinder pest.                      |   |
| 5- mucosal disease               | 6 - pox infection of mammary gland . |   |
| 7- foot rothe in sheep .         |                                      |   |

## **Treatment:**

**Mild** disinfectant and protective dressing to inflamed area to prevent secondary infection .

## **Control :**

### **1- Eradication**

### **2-Vaccination**

- 1- When disease occur as epizootic ,slaughter of all infected and in-contact animals and burned or buried .
- 2- Human cloth ,motor vehicles,farm machinery ,bedding ,feed animal product must be burned .
- 3- Killed trivalent containing O,A and C strain vaccine
- 4- Producing vaccine from locally isolated virus is become more common practice .
- 5- Calves from unvaccinated dams should be vaccinated twice the first 6and second 10 month of age .
- 6- Avoid importation of animal and animal product from infected countries .
- 7- Avoid or preventing entry of uncooked meat..

