

A report on the current re-emergence of Foot and Mouth disease and proposed strategy for its control in Trivandrum District

L. Ravikumar

Introduction

Foot and Mouth Disease (FMD) of livestock is an endemic viral disease caused by Aphthovirus. In the last year, many outbreaks of FMD of cattle occurred in Kerala and caused devastating effects in the Animal Husbandry sector. The Department of Animal Husbandry of the Government of Kerala faced the situation by launching massive vaccination programmes. The disease outbreak during December 1998 in Trivandrum District and other parts of the state attracted a lot of interest among public and the press. Later, the incident came for discussion in the floor of the Kerala Legislative Assembly and the Minister for Animal Husbandry declared that the disease has been contained. The minister assured the house that the Government has taken steps to protect the interest of the farmers. However, it appears that the measures taken at that time was not adequate to eradicate or prevent the disease. Currently a disease clinically identified as FMD is emerging in Trivandrum District. The re-emergence of the disease is rather surprising and is reported to be spreading in alarming proportions in areas where extensive vaccination was conducted in January 1999.

The Indian Veterinary Association, the professional organisation of veterinarians in India has a moral responsibility to uphold professional ethics and to serve the public. A team of veterinarians sponsored by the Kerala Chapter of IVA visited Katinamkulam Grama Panchayat and Kazhakkottam Grama Panchayat on 14 April 1999 and made a preliminary investigation about the emerging disease. The team

Dr. N Madhavan Nair, Rtd. Joint Director

Dr. T V Anilkumar, MVSc, Ph.D. (London)

Dr. Nandakumar, MVSc (Pathology)

Dr. L. Ravikumar, General Secretary, IVA (Kerala Chapter)

Dr. D. Jayarus, Member, State Executive Committee, IVA

Dr. S S Manjunath, Secretary, IVA (Trivandrum Unit)

Dr. S Satheesh Kumar, Member, IVA

Dr. L. Ravikumar
General Secretary
IVA, Kerala

On behalf of the IVA, we present a preliminary report about the current out-break of FMD for favour of your kind attention and immediate action. We do not claim that this is a complete report of FMD, but we strongly feel that mobilisation of resources is urgently required to avoid a crisis in the economy of the animal husbandry farming sector in Kerala.

Observations: The team visited 30 household units of cattle and examined over 75 animals, collected data and held discussion with farmers. The disease was seen in cows (about 70%) heifers (about 20%) and calves (about 10%). The affected animals had profuse salivation, fever, anorexia, panting, lameness and reduction in milk yield. Shivering and arched back were common in affected animals. Profuse lacrimation (5 cases) and watery diarrhoea (2 cases) were occasionally seen. A case of abortion and a case of still birth were the only reported gynaecological complications. Clinical examination revealed pyrexia (very often reaching 108°F), lesions on mouth, udder teat and foot. Erosion of oral/lingual/nasal mucosa or ulceration was present in about 90% of animals examined. Many animals had profuse nasal discharge, mostly viscid and mucoid in nature, but clean watery or mucopurulent discharge was occasionally seen. Erosion or ulceration of epithelium over udder and teat was common and present in about 60% of animals. Lameness due to painful hoof was apparent. Although laminitis was detected in some cases, evulsion of hoof was not seen in any case. About 30% of the animals examined has swollen coronary bands but eruptions or maggot wounds were uncommon. The symptoms and clinical signs were suggestive of FMD.

Discussion with farmers and cattle owners revealed the endemic nature of the disease. The farmers are aware that this is a FMD outbreak and are very worried about the likely loss due to the disease. It may be noted that, over 90% of the animals in the area were vaccinated against FMD with Raksha vaccine (Indian Immunologicals) during January/February 1999. Many farmers expressed concerns over the efficacy of the vaccine. It

is important to note that there was no discrimination in the susceptibility of vaccinated and unvaccinated animals to the disease. It appears that a livestock fair, wherein imported goats were distributed to farmers, was conducted on 31 March 1999 and most farmers held the belief that the fair caused introduction and rapid dissemination of the disease in the present outbreak.

At least 22 cows were reported to have been died of the disease in the last three days. As a consequence of the disease the milk yield of cows reduced considerably. A local milk collector said that his daily collection of milk had reduced from 250 litres to 150 litres. However, individual farmers reported that the affected animals did not produce much milk. Very often, the production dipped to an alarming level of 1-5 litres every day from 15-20 litres. Some farmers even had the experience of complete absence of any milk yield in their cows.

Treatment: Practising veterinarians strongly recommend a treatment with Lugol's Iodine for reducing mortality and for avoiding complications. The therapy is believed to control viremia and progression of the disease. Formation of vesicles and erosion of the mucosa were minimum in treated animals. The treatment involves a single intravenous administration of 10 ml of Lugol's Iodine (5% solution, freshly prepared), diluted with 20 ml of distilled water (to-make-up the volume to 30 ml). 15 ml of the above preparation is adequate for calves. A combined treatment procedure with Lugol's Iodine and the following classes of medicines were highly effective in treating sick animals: Artizone-S, 1½ ml (i.m.) against pyrexia; Streptopenicillin (i.m.) or Amoxicilline/Cloxacillin combination (i.m.); medicated dressing, antiseptic ointments, medicated foot-bath (alkaline); Supportive therapy: Vitamins.

The following treatment was treatment was also effective. A sediment-less mixture of carbolic acid (2 ml) and Lugol's Iodine (3 ml) in distilled water (5 ml) when administered i.m. (cows, 20-25 ml; calves, 5-10 ml) has also been found useful in treating FMD. Dr. P.O. George (ref. Some Tips on

Clinical Practice, IVA 1992) recommended this treatment procedure and many veterinarians have found the preparation very useful in treating FMD.

The IVA feels that the above procedure requires scientific validation. Research is required to establish the efficacy of the 'Lugol's Iodine therapy' for universal adaptation for treatment of FMD or any other systemic viral diseases.

Proposed strategy for controlling FMD in Trivandrum

1. Creation of a FMD-cell: Create a FMD-cell in the Department of Animal Husbandry by relocating officers with immediate effect. Probably, officers of the 'Livestock Disease Control Programme' could act as a nucleus for the formation of the FMD-cell. It may be recalled that the 'Livestock Disease Control Programme' is the nodal agency originally created for FMD eradication in the state. The FMD-cell may co-ordinate various activities related to the present FMD outbreak.

- a. Investigate, with immediate effect, the nature of spread of the disease in Trivandrum.
- b. Determine the quantum of veterinary assistance required for vaccination/treatment.
- c. Initiate vaccination/treatment camps immediately (within 24 hours)
- d. Estimate the financial requirement and suggest sources of funding for the programme.

2. Vaccination: Conduct vaccination camp in disease free areas of the District, but do not undertake vaccination in affected areas.

Ensure that arrangements for maintaining cold-chain shall be enforced while storing and shipment of vaccines.

Samples of vaccines from each batch shall be shelved soon after receipt for scientific analysis, if at all doubts about the potency and safety arises in the future.

3. Veterinary care to sick animals: Intensify treatment procedures and palliative measures for sick animals. A standard

treatment procedure may be codified for universal use. The IVA suggests the validation and implementation of the treatment procedures which uses Lugol's Iodine and carbolic acid.

4. Finance: The Government of Kerala may realise that a crisis is ensuing and hence mobilisation of resources to face the situation is highly essential. On a practical point of view, the treatment cost may be shared between respective Local Government and the Department of Animal Husbandry. The Government of Kerala may give discretionary power to respective local Grama Panchayats

in endemic areas to mobilise funds and resources. The Government may consider the situation as a natural calamity and extend assistance to affected farmers accordingly.

5. Expert advise: The Government may seek advice from experts for tackling recurrence of the disease. Invite a team of specialists/experts from one of the following agencies to investigate the nature of the present disease:

a. College of Veterinary and Animal Sciences, Mannuthy

b. Indian Veterinary Research Institute,

Foot and Mouth Disease (FMD) variant strain

(Courtesy : EMPRESS Transboundary Animal Disease Bulletin)

A variant strain of FMD virus serotype A has spread in Asia and is a threat to other parts of Asia and Europe. In the December 1997 issue of The EMPRES Bulletin the FAO/OIE World Reference Laboratory (WRL) for Foot-and-Mouth Disease (FMD) reported that isolates of FMD virus, serotype A, received from Iran during 1996-97, were genetically and antigenically distinct from any other type A isolates in the WRL database. In March of this year the WRL identified a series of type A strains among samples from suspected cases of FMD in Turkey during 1997 and 1998. When a comparison was made between five Turkey A isolates from 1997-98 and five isolates of the type A/Iran variant from 1996-98 both sets of viruses were found to be almost identical in the ID (VPI) gene coding region (nucleotides 475-639). Furthermore, the Turkey type A isolates, like the type A/Iran variant, were found to be genetically different by almost 20% from any other type A isolates in the WRL database. The Turkey type A isolates were collected from the provinces of Malatya in Eastern Anatolia and Kutayha in Western Anatolia indicating that the strain is widely distributed in that country. Antigenic analyses have shown that the type A isolates from Iran and Turkey are distinct from all of the FMD virus strains,

which are commonly included in FMD vaccines. This indicates that current vaccines are not likely to protect against challenge by the variant.

This conclusion is supported by observations in Turkey where disease has been seen in animals vaccinated with bivalent O/A vaccine in which the A component was strain A22 Mahmatli. It can be concluded that the type A variant, first identified in Iran, has extended its geographical distribution into Asiatic Turkey and is now a threat to other countries in Asia and to Europe, especially those countries which are linked to Iran and Turkey by trade in livestock. In this regard small ruminants pose a particularly high risk since FMD in them is often clinically mild or even inapparent.

There is an urgent need for the development of vaccines incorporating antigenically suitable strains to control disease in countries where the type A variant is present and to prevent further spread. In this context the vaccine strains used in the FMD Buffer Zone in European Turkey should be reassessed and the strains stored in vaccine banks should be reviewed in the light of the emerging disease situation.

Bangalore, Izatnagar

c. Tamil Nadu Veterinary and Animal Sciences University, Chennai

The terms of reference of the investigation may include, laboratory confirmation, determination of the strain of virus including sub-groups, vaccination failures (if any) in the area etc. They may also provide advice to veterinary officers on treatment and control of the current disease problem.

6. Master-plan for FMD eradication:

Make a master-plan for eradication of FMD in the State, as suggested below.

a. Form a core-group of scientists/experts to study FMD. Dr. M. Krishnan Nair, former Dean, College of Veterinary and Animal Sciences and who is currently acting as an advisor to the Government of Nepal on Veterinary Services may be nominated as the head of the core-group. The core-group may contain representatives from the Indian Veterinary Association, Department of Animal Husbandry, Kerala Agricultural University and

national organisations.

b. Strengthen the R&D facility for research in animal diseases in Kerala.

c. Establish a full-fledged laboratory with state of art techniques for diagnosis of FMD

d. Commission a containment laboratory for handling FMD virus with a view to identify the specific strain(s) sub-strains(s) of the virus prevalent in Kerala.

e. Develop vaccines against the above sub-strain of viruses present in Kerala

f. Encourage molecular-level analysis of diseases and develop FMD diagnostic kits

g. Start a FMD-vaccine production unit in the state

h. Ensure strict quarantine for animals which are imported into the state.

The IVA pledges all possible help to the Government of Kerala in controlling FMD in Trivandrum and other parts of the state.

□

NOTE TO AUTHORS

Articles for publication in JIVA should be typewritten, double spaced on one side of the paper or as digital files on floppy disks in plain text format. Manuscripts sent for publication will not be returned. Articles are considered for publication on condition that these are contributed solely to JIVA. The Editor shall have the right to edit, condense, alter, rearrange or rewrite approved articles, before publication without reference to authors concerned. Adequate care may be taken while sending photographs, artwork and films.

Editor, JIVA, Prayar, P.O., 690547, Kerala
E-mail: balachandran@vsnl.com

ID CARDS

Vets working in the Department of Animal Husbandry, may rush their stamp size photograph (Colour / Black & White) to the District Secretaries of Kerala Veterinary Surgeons' Service Association to receive laminated ID cards issued by the Government of Kerala.

REQUEST TO IVA MEMBERS

Please renew your subscription to IVA. Also inform your District Secretary on the changes of your Telephone numbers if any. No more delay, please.