

Original Research Article

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## A Report on Bluetongue Outbreak in Thoothukudi District of Tamilnadu, India

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### ABSTRACT

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During November 2015 mortality among sheep flocks were reported in arasankulam village of Kayathar block, Thoothukudi district. The infected flocks were investigated and samples were collected. The clinical sings, postmortem findings and laboratory diagnosis confirmed the disease as Bluetongue. Overall there was 5% morbidity and 0.5 % mortality was noticed in the sheep flock. The infected animals were separated and treated. Vaccination and vector control measures was carried out in the surrounding flocks to control the spread of the disease.

### Introduction

Bluetongue (BT) is one of the important acute infectious arthropod borne, viral diseases of sheep in south India (Sreenivasulu *et al.*, 1999). The disease is caused by RNA virus (BTV), which belongs to the genus Orbivirus and family Reoviridae. In India there is evidence of 24 antigenic strains, which infect all ruminant species especially small ruminant sheep (Maclachlan and Guthrie, 2010). It is transmitted by the *Culicoides spp.* (bitting midges). Blue tongue disease occurred during

heavy rainfall months makes amiable environment for the vector multiplication (Wilson Aruni *et al.*, 1999). Bluetongue is listed under the category of multiple species diseases by Office International des Epizooties (OIE, 2013). Bluetongue infection is more severe and confined to sheep (Darpel *et al.*, 2007). On an average 2%-30% mortality noticed in the infected animals. However the number may reach up to 100% in sheep (Ilango, 2006). It is the major cause for economic loss in sheep production. The present study deals with the Bluetongue

outbreak and vector control measures in Thoothukudi district of Tamilnadu.

### **Materials and Methods**

In Arasankulam village of Kayathar block of Thoothukudi district, Tamilnadu, the sheep flocks showed mortality during november 2015. A total of 18 sheep flocks (5200 Nos.) were investigated in the village. The clinical signs were noted and postmortem was conducted. For disease conformation, the following samples spleen, lymph node, lung, liver, heart, whole blood in EDTA, nasal swabs were sent to Vaccine Research Centre Viral Vaccines, Centre for Animal Health Studies, Madhavaram milk colony, TANUVAS, Chennai – 51, India.

### **Results and Discussion**

On investigation of infected flock, sheep showed the following clinical signs - high temperature ( $41.0^{\circ}\text{C} - 41.5^{\circ}\text{C}$ ), mucopurulent nasal discharge (Fig. 1), frothy salivation, rhinitis, edema of lips, gums, dental pad and tongue (Fig. 2), bleeding in the gums (Fig. 3), erosion in oral commissure (Fig. 4), wryneck (Fig. 6), necrotic ulcers on lateral side of tongue leads to difficulty in swallowing. Some affected sheep showed foot lesions such as coronitis, inter digital wound (Fig. 5) laminitis and dark red hemorrhagic band just above the coronet, which lead to knee-walking. The

clinical signs recorded during the investigation were in accordance with Hungerford (1990). The clinical form of the disease was only seen in sheep and in contact goat and cattle were not affected, which was concordance with the findings of Sreenivasulu and Subba Rao (1999). On postmortem examination edema, hemorrhages, swelling and erosions of surface epithelium and necrotic ulcerations of the mucous membranes of oral cavity, cyanosis of tongue were observed. Hyperemia seen in rumen, intestine and kidneys. Hemorrhage on the base of the pulmonary artery was noticed in the carcass which was the pathognomonic lesion of the disease (Fig. 7). The history, clinical signs and the postmortem examination recorded were suggestive of blue tongue disease. The collected samples were processed and confirmed as Bluetongue by RT-PCR.

The affected animals were isolated and treated with electrolyte fluids and antibiotics to control secondary bacterial infection. Oral lesions were cleaned with 1% potassium permanganate solution and boric powder in glycerin was applied (Yasoithai, 2013). For affected animals liquid feed like gruel of rice, bajra and sorghum were given and the animals were under surveillance for 2 weeks. The surrounding sheep flocks were vaccinated with inactivated pentavalent (BTV-1, 2, 10, 16 and 23) bluetongue vaccine (Reddy *et al.*, 2010).



**Fig.1** Mucopurulent nasal discharge



**Fig.2** Edema of lips



**Fig.3** Bleeding in gums



**Fig.4** Erosion in oral commissure



**Fig.5** Inter-digital wound



**Fig.6** Wry neck condition



**Fig.7** Hemorrhage at the base of pulmonary artery



**Fig.8** Vector control measure

Water stagnation and dung pits near the sheds were removed to control the vector. Fumigation of animal sheds and its surroundings (Fig-8) was carried out using permethrin and deltamethrin solution (Ilango, 2006) to control vector.

Based on the investigation, it was concluded that sheep flocks were infected with Bluetongue disease. Overall, there was 5% (260Nos.) morbidity and 0.5 % (24 Nos.) mortality was noticed during the outbreak. In

contact goat and cattle were not affected. The disease occurred during north-east monsoon season which favors the multiplication of vector. Yearly prophylactic vaccination and vector control were advised to prevent future outbreak.

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