

A Report on
Clinical Management of Bovine Ephemeral Fever cases at Islampur
Upazila in Jamalpur District



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Session: 2016 – 2017

A report submitted for the partial fulfillment of the requirements for the degree
Doctor of Veterinary Medicine (DVM)

Faculty of Veterinary Medicine
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November 2022

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November 2022

Table of contents

Contents	Page No.
Table of contents.....	i
List of tables.....	ii
List of abbreviations.....	iii
Abstract.....	iv
Chapter 1: Introduction	1
Chapter 2: Case presentation, Diagnosis and Treatment.....	2-6
Chapter 3: Discussion	7
Chapter 4: Conclusion.....	8
References.....	9-10
Acknowledgement.....	11
Biography.....	12

List of Tables

Page No.

Table 1: The symptoms, treatment and post treatment response of the bovine ephemeral fever.....8

List of Figures

Page No.

Figure 1: Shifting lameness in cattle2

Figure 2: Dull and Depressed Cattle.....2

List of Abbreviations

Abbreviation and symbol	Elaboration
CVASU	Chattogram Veterinary and Animal Sciences
DLS	Department of Livestock Service
Dr	Doctor
DVM	Doctor of veterinary Medicine
Etc.	Et cetera
et al.	et alia (and others)
GDP	Gross Domestic Product
Govt.	Government
SAQTVH	Shahidul Alam Qudery teaching Veterinary
SSC	Secondary School Certificate
ULO	Upazila Livestock Officer
USD	The United States Doller
UVH	Upazila_Veterinary_Hospital
VS	Veterinary Surgeon

Clinical Management of Bovine Ephemeral Fever cases at Islampur Upazila in Jamalpur District

Abstract

Bovine ephemeral fever (BEF) virus is an arthropod-borne rhabdovirus, is to blame for the disease, which is seasonal and affects a large part of Africa, the Middle East, Asia, and Australia. Even though fatality rates are normally low, infection frequency and morbidity rates during outbreaks are frequently quite high, which has major economic repercussions due to decreased milk output, worse cow condition at sale, and reduced traction power during harvest. During internship period at Upazila veterinary hospital Islampur Jamalpur 13 bovine ephemeral case had been handled. These cases were come to the Upazila veterinary hospital with the history of anorexia, high fever, shifting lameness and other symptoms were salivation from mouth, continuous secretion from nose and eyes, dullness, depression, dehydration and loss of appetite. Based on history and clinical examinations, these were diagnosed to be as cases of bovine ephemeral fever. They were treated with long acting Oxytetracycline 20mg/Kg body weight intramuscularly. For inflammation and fever NSAID ketoprofen is administrated 3.3 mg/kg body weight SID intramuscularly. Meloxicam were given 0.5mg/kg body weight as an antipyretic agent two times a day for younger cattle. As a supportive treatment, these cattle were given 0.9% NaCl solution intravenously for subsequent three days and proper rest. After careful treatment and proper management, these cattle were recovered successfully.

Key Word: Bovine ephemeral fever, shifting lameness, fever, nasal secretion

CHAPTER 1

INTRODUCTION

Bovine ephemeral fever is an important viral disease of cattle and buffalos of Bangladesh. It is also known as three-day sickness. Though the mortality rate is less than other viral disease but due to its bad impact on production it considered one of the dangerous among all viral disease. Its impact includes loss in production-decrease milk yield, loss of condition, abortion, temporary infertility in bulls and prolong recovery in some animals. Bovine ephemeral fever can have significant negative economic effects, including the immobilization of cattle used for draught purposes, loss of condition in beef animals, and termination of lactation in dairy cattle (Aziz-Baron O et al., 2014). The mortality rate is low less than 2% and the morbidity rate is 30-40% but in favorable condition it may reach up to 100%. Although the mortality rate is less in cattle but those cattle which have good body conditions score suffer severely. And the mortality rate is also comparatively high in healthy cattle.

Bovine ephemeral fever outbreaks happen when there is an increase in the vector population, most often mosquitoes, which leads to high rates of viral transmission to vulnerable cattle. A vector-host system is used to sustain the BEF virus's life cycle (Murray, 1997). According to Venter et al. (2003), several types of midges and mosquitoes as well as host mobility can transmit the viral agent (Murray, 1997). A major vector includes mosquitoes (*Anopheles* and *Culex*) and sandflies (*Ceratopogonidae* family). The illness strikes during the warm, muggy months, and the number of insects that act as its vectors greatly influences its spread. Only cattle, out of all domestic animals, are known to be naturally impacted, although antibodies have also been discovered in African ruminant fauna. Cattle of all ages have been proven to be vulnerable. After experimental cow infection, there is lasting protection for up to two years against similar strains.

Generally, animals lose condition rapidly during the illness and regain their weight slowly (Walker et al., 2005). Complications are uncommon but can include temporary or permanent paralysis, as well as gait impairment, aspiration pneumonia, emphysema, mastitis and subcutaneous accumulation of air along the back (Theodoridis and Coetzer, 1979). Many of these complications may be the result of trauma or complications of recumbency. Temporary infertility (up to 6 months) can develop in bulls and abortions can occur in cows. Permanent infertility is rare (Burgess and Genoweth, 1975). In recovered animals, milk production is decreased by 10-15% for the rest of lactation, but usually returns to normal after subsequent pregnancies. Cows that become ill late in lactation may not return to production (Davis et al., 1984). Death is uncommon, but may occur during either febrile or convalescent stage. Deaths are usually the result of secondary complications such as pneumonia or trauma.

During my upazilla placement in Islampur, Jamalpur, I found sporadic cases of ephemeral fever. So the following cases were recorded to observe the field diagnosis and management of ephemeral fever.

CHAPTER 2

CASE PRESENTATION, DIAGNOSIS & TREATMENT

Total 13 bovine ephemeral fever case had been handled and follow up from 17 February 2022 to 20 April 2022. By observing the clinical sign and symptoms these cases had been diagnosed as bovine ephemeral fever. For diagnosis of the disease no lab test and instrument had been used.

For general line of treatment broad spectrum antibiotic had been used to check secondary bacterial infection. As fever is present NSAID (Ketoprofen, Meloxicam) was used as an antipyretic agent and anti-inflammatory agent. The cattle which had been suffering from dehydration are provided normal saline containing 0.9 % NaCl. The cattle whose weight were above 200 kg treated with ketoprofen and whose were below 200 kg were treated with meloxicam as NSAID.

For diagnosis no laboratory procedure or instrument had been used. For diagnosis, the clinical sign symptoms of the animal were considered. Also, the history of the current outbreak of bovine ephemeral fever in the surrounding area helps to diagnosed the disease. Among all the clinical signs the major clinical signs which were considered for diagnosis were anorexia, dull and depression high fever shifting lameness, dyspnea, tachycardia, nasal and lacrimal secretion etc.

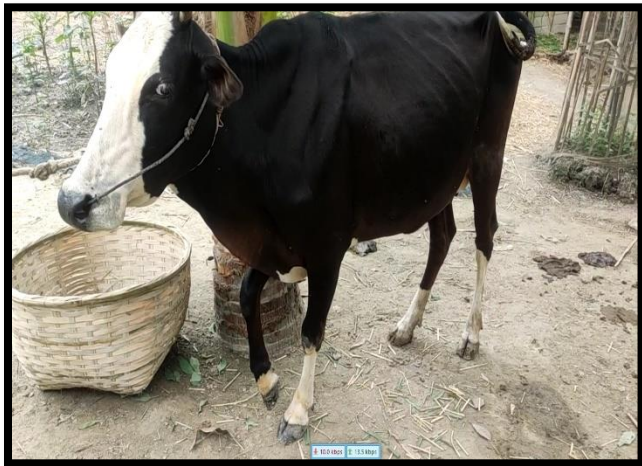


Fig: Shifting lameness in Cattle



Fig: Dull and depressed Cattle

Table .1 The symptoms, treatment and post treatment response of the bovine ephemeral fever are presented in the table below:

Case No	Breed, Weight	Sex	Clinical Signs	Treatment Provided	Recovery
1.	Holstein Friesian 200kg	Male	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait: Normal	Oxytetracycline 20mg/kg(20ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (8 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	Animal recovered well at 2 nd day of treatment.
2.	Holstein Friesian 200kg	Male	Tem:107 ⁰ F Nasal Secration Anorexia Tachycardia Dyspnea Gait:Normal	Oxytetracycline 20mg/kg(20ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (8 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	At 2 nd day of treatment Tem decrease to 105 ⁰ F.Dyspnea Tachycardia also gone
3.	Sahiwal 400kg	Female	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Milk Production decrease Gait:Lameness	Oxytetracycline 20mg/kg(35ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (16 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	2 nd day of treatment moderately improve at 3 rd day completely recover.Milk production come to normal after 3 days.
4.	Holstein Friesian 400kg	Male	Tem:107 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg(35ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (16 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution.	Complete recover in 2 nd day.

Case No	Breed, Weight	Sex	Clinical Signs	Treatment Provided	Recovery
5.	Holstein Friesian 200kg	Male	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait:Normal	Oxytetracycline 20mg/kg (20ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (8 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	Animal recovered well at 2 nd day of treatment
6.	Deshi 200kg	Male	Tem:107 ⁰ F Anorexia Nasal Secration Tachycardia Dyspnea Gait:Normal	Oxytetracycline 20mg/kg(20ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (8 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	2 nd day of treatment Tem decrease to 104 ⁰ F.Dyspnea Tachycardia also gone.Animal start eating
7.	Holstein Friesian 200kg	Female	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg (35ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (16 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd)	2 nd day of treatment moderately improve at 3 rd day completely recover
8.	Deshi 250kg	Male	Tem:107 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg (25ml Inj.Renamycin LA , Renata Pharmaceuticals Ltd Bangladesh) Ketoprofen 3.33 mg/kg (10 ml Inj.Kop vet, SQUARE Pharmaceutical's Ltd) 500ml of 0.9% NaCl solution (Inj. NS 500ml, OPSO Saline Ltd., Bangladesh)	Fever decrease at 105 ⁰ F in 2 nd days. Completely recover in 3 rd days.

Case No	Breed, Weight	Sex	Clinical Signs	Treatment Provided	Recovery
9.	Holstein Friesian 150kg	Male	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg (15ml Inj.Renamycin LA, Renata Pharmaceuticals Ltd) Meloxicam 0.5 mg/kg (15 ml Inj.Melvet ACME Pharmaceuticals Ltd) 500ml of 0.9% NaCl solution (Inj. NS 5000ml, OPSO Saline Ltd., Bangladesh)	Complete recovery at 2 nd days of treatment
10.	Holstein Friesian 150kg	Male	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg (15ml Inj.Renamycin LA, Renata Pharmaceuticals Ltd) Meloxicam 0.5 mg/kg (15 ml Inj.Melvet ACME Pharmaceuticals Ltd) 500ml of 0.9% NaCl solution (Inj. NS 5000ml, OPSO Saline Ltd., Bangladesh)	Recovery after 2 days. Other symptoms also disappear
11.	Deshi 150kg	Female	Tem:107 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg(15ml Inj.Renamycin LA, Renata Pharmaceuticals Ltd) Meloxicam 0.5 mg/kg (15 ml Inj.Melvet ACME Pharmaceuticals Ltd) 500ml of 0.9% NaCl solution (Inj. NS 5000ml, OPSO Saline Ltd., Bangladesh)	At 2 nd days of treatment tem was 105.5 ⁰ F. And the next day tem become normal.
12.	Deshi 120kg	Male	Tem:106 ⁰ F Anorexia Tachycardia Dyspnea Gait:Lameness	Oxytetracycline 20mg/kg(15ml Inj.Renamycin LA, Renata Pharmaceuticals Ltd) Meloxicam 0.5 mg/kg (6 ml Inj.Melvet ACME Pharmaceuticals Ltd)	The next day of treatment the temperature become normal and started to eat.

Case No	Breed, Weight	Sex	Clinical Signs	Treatment Provided	Recovery
13.	Holstein Friesian 150kg	Female	Tem:10 ⁰ F Anorexia Tachycardia Dyspnea Dehydration Gait:Lameness	Oxytetracycline 20mg/kg(15ml Inj.Renamycin LA, Renata Pharmaceuticals Ltd) Ketoprofen 3.33 mg/kg (6 ml Inj. Kop vet SQUIRE Pharmaceuticals Ltd) 500ml of 0.9% NaCl solution (Inj. NS OPSO Saline Ltd., Bangladesh)	Complete recovery at 2 nd days of treatment

CHAPTER 3

DISCUSSION

Based on the clinical signs, history and surrounding situation the current cases were diagnosed as bovine ephemeral fever which is in accordance with (Al-Salehi, 2014), which indicates clinical manifestations of bovine ephemeral fever infected animal have high fever (up to 107°F), shifting lameness increased nasal discharge, lacrimation from eye, general depression and anorexia. Differential diagnosis must be done with general fever and lameness. In general fever there are no sign of nasal discharge or shifting lameness and no sign of lacrimation from eye. And in case of lameness it can be easily identified as other relative sign are absent and the lameness is fixed in particular leg or region. In case of bovine ephemeral fever, there is presence of shifting lameness and other supporting signs are nasal and lacrimal secretion, rapid weight loss, rapid decrease in milk production.

Therefore, laboratory confirmation is required. Bovine ephemeral fever can be diagnosed in a laboratory setting utilizing serological, molecular, and viral isolation in cell culture methods supported by the report of Walker et al (1999) . A differential WBC count on blood smears can either support or refute a presumptive field diagnosis with the help of the report Uren et al (1993). Virus is best isolated by inoculation of mosquito (*Aedes albopictus*) cell cultures with defibrinated blood, followed by transfer to baby hamster kidney with the help of the report of Walker et al (1999). Suckling mice may also be used for primary isolation by intracerebral inoculation with the help of the report Oguzoglu et al (2015). PCR, sequencing, neutralization tests using certain BEFV antisera, and ELISA utilizing particular monoclonal antibodies are used to identify isolated viruses in accordance with Jibachha et al (2002).

Complete rest is the most effective treatment for bovine ephemeral fever which is accordance with (Abu-Elzein 2006) and recovering animals should not be stressed or worked because relapse is likely. Anti-inflammatory drugs given early and in repeated doses for 2–3 days are effective in accordance with Murray et al (2013). Oral dosing should be avoided unless the swallowing reflex is functional with the help of the report St George et al (1986). Signs of hypocalcemia are treated as for milk fever. Antibiotic treatment to control secondary infection and rehydration with isotonic fluids may be warranted with the help of the report Aziz Baron et al (2014).

In this instance, long acting Oxytetracycline was given to prevent a secondary bacterial infection which is supported by the report of Tamilinban et, al. (2021), and Ketoprofen was given to treat inflammation and for pain reduction which is in accordance with Peter et, al. (2015). For control the fever paracetamol is given (Peter et al, 2015) and as it causes dehydration normal saline is provided for rehydration. As the disease is recovered after three days suggestion for vitamin and mineral was given for regain body weight which is accordance with Maiti et al (2013)

CHAPTER 4

CONCLUSION

In Bangladesh bovine ephemeral fever is sporadic. Most of the cases show similar sign like shifting lameness, high fever, ocular and nasal discharge. In case of lactating animal milk production decrease significantly. The observed animals recovered remarkably after combined use of antibiotic and anti-inflammatory drug. From this observation it can be said that NSAID work well as anti-inflammatory and antipyretic agent. A broad-spectrum antibiotic is also effective to check secondary bacterial infection. Besides proper rest is the main treatment for bovine ephemeral fever. These treatment procedures are recommended for clinical management of bovine ephemeral fever.

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ACKNOWLEDGEMENT

I consider it my utmost obligation to express my gratitude to the **Almighty**, the omnipresent, kind and merciful who gave me the health, thoughts and the opportunity to complete this task.

Then I would like to express my deepest appreciation to all those who provided me the possibility to complete this report. It would not have been possible without the kind support and help of many.

I was fortunate in having the generous advice and encouragement from my supervisor, **Professor Dr. MD.Mizanur Rahman**, Professor of Department of Medicine and Surgery, Faculty of Veterinary Medicine, Chattogram Veterinary and Animal Sciences University in every step right from research design to final manuscript writing.

I would like to express my deep sense of gratitude and thanks to Professor **Dr. Gautam Buddha Das**, honorable vice chancellor, Professor **Dr. A.K.M Saifuddin**, director, external affairs and Professor **Dr. Mohammad Alamgir Hassain**, Dean, Faculty of Veterinary Medicine, CVASU for arranging this type of research work as a compulsory part of this internship program.

I am thankful to and fortune enough to get constant encouragement, support and guidance from **Dr. Jahirul Islam**, ULO, Islampur and **Dr. Abdul Alim**, VS, Islampur Upazilla which helped me completing my report successfully. I would also like to extend my sincere esteems to all staffs of UVH of Islampur Upazilla, who helped me to collect necessary data required for completion of my report.

Many people, especially my classmates and seniors have made valuable comment suggestions on my report which gave me an inspiration to improve the quality of the report.

Finally, I am grateful to all the farm owners, well-wishers, friends and family members for their endless sympathies, kind co-operation, sacrifices and prayers.

Md Monjurul Haque

Author, Novembr 2022.

BIOGRAPHY

Md Monjurul Haque, son of Md Wares Ali and Monika Pervin, was born on 10th September, 1999. He passed her Secondary School Certificate Examination from BN School & College, Chattogram in 2014 (GPA 5.00). Then he passed his Higher Secondary School certificate examination from BN College, Chattogram in 2016 (GPA 5.00). Now he is completing his one-year long internship program for fulfilling the requirement of Doctor of Veterinary Medicine (DVM) degree in Chattogram Veterinary and Animal Sciences University, Chattogram, Bangladesh. During his internship period he received his clinical training on Veterinary Medicine from UVH Islampur, SAQTVH, CVASU, Teaching & training Pet Hospital and research Center (TTPHRC), CVASU, CVH, FV & FC, Dhaka, Chattogram and Dhaka Zoo and manage mental training from Chattogram based farm and Chattogram based Pharmacy etc.

His primary research interest is in domestic animal parasites specially parasites of cattle. But he feels much interest to work on coccidiosis of different animals. He also feels immense interest to explore new techniques to contribute in development of veterinary field in Bangladesh.