

A CASE STUDY ABOUT LUMPY SKIN DISEASE OF A FOUR-MONTH-OLD CALF



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A CASE STUDY ABOUT LUMPY SKIN DISEASE OF A FOUR-MONTH-OLD CALF



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CONTENTS

Chapter No.	Name of the Chapter	Page No.
1.	Abstract	ii
2.	Introduction	1-2
3.	History and observation	3-4
4.	Diagnosis & Treatment	05
5.	Discussion	6-8
6.	Conclusion	9
7.	References	10
8.	Acknowledgments	11
9.	Biography	12

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Abstract

This study discusses the clinical management of lumpy skin disease (LSD) in a calf. A four-month-old calf with a body weight of approximately 60kg was presented to Jamalpur Upazila Veterinary Hospital on August 20, 2022. with a history of nodular growth on a different part of the body, reduced appetite, emaciation, nasal discharge, and lameness. Clinical examination revealed that there were high body temperatures (105°F), and the presence of various sizes of nodules all over the body, particularly at the neck region. Depending upon the history and clinical examination the case was diagnosed as a lumpy skin disease (LSD) and accordingly therapy was given. For medical intervention, amoxicillin (Moxacil-vet @ 1ml/10 kg B.W.) intramuscularly for five successive days, chlorpheniramine maleate @ 0.2 mg/kg B.W. (Renacin @ 1ml/10kg B.W.) intramuscularly for five consecutive days, ketoprofen @ 3.3 mg/kg B.W. (Keto-A vet @ 1ml/33kg B.W.) subcutaneously for three days and ivermectin @0.2 mg/kg B.W. (Vermic@ 1ml/30 kg B.W.) subcutaneously once were given. The body temperature dropped after 48 hours and sustained feed intake. Povidone-iodine 10% sol. (Povidone-iodine 10% w/v) to clean the skin lesions. Animal response to the treatment and complete recovery was reported within 21 days

Keywords: Lumpy skin disease, management, cure, treatment.

Chapter 1: Introduction

Lumpy skin disease (LSD) is an infectious, transboundary condition. A contagious, occasionally fatal disease of cattle and buffalo [1] brought on by the poxviridae family member Capripox virus [2]. The original strain is occasionally referred to as the Neethling virus [1,3]. The development of diverse-sized nodular skin lesions, together with fever, is the hallmark of LSD [2]. Arthropod vectors mechanically spread the disease [4]. The virus has no zoonotic potential and is highly host-specific. There is no preference based on gender or age [5]. LSD was first noted in Zambia in 1929 [2]. The disease has, however, recently spread from the Middle East to Western Asia, Southern Europe, and Southern Russia [5]. After the monsoon, India experiences extremely high humidity levels during periods of damp weather, which is strongly associated with the prevalence of vectors [4,6]. The morbidity of this disease varies widely depending on the epizootic location, ranging from 3 to 85%. In endemic locations, death ranges between 1-3%, and morbidity is around 10%, but in an outbreak situation, these numbers can increase up to 40% [2]. This economically significant disease of cattle and buffalo results in chronic debility in the affected animal, severe or permanent damage to hides due to skin nodules, severe malnourishment, a considerable drop in milk production, and in some cases, animal mortality [7]. Antibiotics are used as part of the LSD treatment to help prevent secondary bacterial infections [8] and to dress the lesions to keep flies away [5]. We believed that mosquitoes, flies, and ticks are the primary biting arthropods thought to transmit LSDV [3]. Crossbred young animals that are grazed communally and during the wet season, when arthropod vectors are plentiful, are when this disease is more prevalent [3]. New animals being introduced is a significant risk factor as well [5]. Although LSD has spread to many nations, it is still unclear whether strains or variants may provide the best candidates for vaccine development [7]. Some recent articles suggested that vaccination candidates could be used to prevent LSD [8]. Contrarily, during the illness outbreak in Russia, vaccination strains were also discovered, casting more doubt on the vaccine candidate and its efficiency [6]. The local veterinary services administration in Bangladesh reported an epidemic of an unidentified syndrome with nodular skin lesions in the commercial and backyard cattle populations in various areas of the Chattogram district in the middle of 2019 [8]. Later, reports of the same clinical onset pattern came from several regions of the nation [2].

The Department of Livestock Services (DLS), Bangladesh, initially confirmed the outbreak report based on clinical indicators and afterward utilized the reverse transcription polymerase chain reaction (RT-PCR) test, notifying the OIE of the disease as LSD in August 2019. (Anonymous, 2019). In the northern region of Bangladesh, in the Jamalpur district, cross-sectional surveillance research was conducted on cases with a clinical suspicion of LSD. The current investigation was to identify the likely risk factors for LSDV infection in this area and to validate the disease's existence based on clinical, genetic, and pathological identification.

Objective: The main purpose of my clinical case study is to know the real clinical history, clinical signs, treatment and management of lumpy skin disease affected calf. Besides this, to know the comparison other Lumpy skin disease affected cattle in different age and different sex, basis on the clinical history, clinical signs, treatment and management in the world.

Chapter 2: History and Observation

A four-month-old local breed calf with nodular development on various body parts and decreased feed intake was brought to Jamalpur Upazila Veterinary Hospital. The animal was found to be malnourished, depressed, and lethargic during the medical inspection. Additionally, a clinical examination revealed swollen lymph nodes, a high fever (105°C), and elevated heart and respiration rates. A closer look revealed that the body was covered in nodules of all sizes, notably around the neck (Figure 1). The nodules were fused to create larger nodules, and they are dispersed at random. Due to nodules on its hind limbs, the animal exhibits lameness.



Figure-1: First day: During physical examination

Chapter 3: Diagnosis & Treatment

Diagnoses are only made based on a patient's medical history, observations, clinical findings, and any nodular lesions that are found by skilled veterinarians (DLO) in endemic regions. A lumpy skin disease was identified in this case based on the history, observation, and clinical examination.

The calf was treated with supportive therapy to prevent secondary bacterial infections with antibiotics and dressing of the lesions. For medical intervention, Amoxicillin (Moxacil-vet @ 1ml/10 kg B.W.) intramuscularly for five successive days, chlorpheniramine maleate @ 0.2 mg/kg B.W.(Renacin @ 1ml/10kg B.W.) intramuscularly for five consecutive days, ketoprofen @ 3.3 mg/kg B.W. (Keto-A vet @ 1ml/33kg B.W.) subcutaneously for three days and ivermectin @0.2 mg/kg B.W,(Vermic@ 1ml/30 kg B.W.) subcutaneously once were given. The body temperature dropped after 48 hours and sustained feed intake. Povisep10% sol. (povidone-iodine 10% w/v) to clean the skin lesions. Within three weeks of the treatment, the nodules were almost disappeared with the scars on the skin and reported that the calf was fully recovered.

Chapter 4: Discussion

The main LSD symptoms include little too big nodular growths on various body parts, including the head, neck, limbs, and genitalia. There are noticeable, swollen lymph nodes in the area. The affected animals may exhibit anorexia, sadness, lameness, and a rapid rise in body temperature. The mortality rate for LSD is low (1-3%), but there are greater economic losses as a result of decreased feed intake, which results in chronic debility, decreased milk production, sterility, and damage to the quality of the hide from nodular eruptions all over the body.[Figure-1]. Therefore, antimicrobial and antihistaminic drugs are given to combat skin infections and respiratory tract infections. In the present case, the antibiotic (amoxicillin) and antihistaminic (chlorpheniramine maleate) was given to prevent secondary bacterial infection and respiratory infection respectively. Non-steroidal anti-inflammatory drug (ketoprofen) was given to reduce the body temperature. As the animal was skin lesions thus ivermectin was also given to cure the skin lesions of the animal. Antiseptic (povidone-iodine) and fly-repellent cream were given to improve the skin lesion. After receiving the aforementioned therapies, the calf entirely recovered from its initial condition in 21 days.[Figure-2].

According to risk factor assessments, crossbred cattle were more vulnerable to LSD than native cattle, which was in line with the results of other investigations. Crossbred cattle may be more susceptible to disease since they are less able to withstand it than native breeds [10]. Furthermore, the variation in the results may be explained by the higher percentage of crossbred animals (96.50%) sampled compared to native cattle (4%). LSD had a greater impact on heifers than on bulls, calves, or cows [13]. In earlier investigations, younger cattle (2 years) in Saudi Arabia and calves (0.5–1 year) in Ethiopia had greater morbidity rates[9]. The management of the farms where the heifer was kept in subpar hygienic conditions in comparison to other animals may be to blame for this (calf, cow, or bull) [11]. The higher prevalence of LSD in female cattle may be brought on by their exposure to a variety of stressful situations, such as pregnancy, parturition, and occasionally receiving less feed than what is required of them [9]. Although we were unable to pinpoint the potential causes, we noticed an inverse association between the incidence of LSD in cattle and lactation number [12].

There has never been an LSD outbreak in Bangladesh in any of the susceptible species, including cattle. There may have been several causes contributing to the present outbreak and its nationwide spread [11]. Every year, cattle are traded legally and illegally between India and Myanmar and other nearby nations [10]. The movement of cattle throughout the nation is also relatively high throughout the year, reaching a peak around Eid-ul-Adha, a Muslim holy day when hundreds of temporary wet markets are set up to accommodate the demand [9]. It should be noted that this outbreak was first identified only one month after the festival [9]. It is conceivable that the clinical outbreak of LSD was started by the uncontrolled and illegal import of live animals without a pre-import health check or quarantine measures [11]. Unrestricted in-country movements of livestock even after the first reporting might have significantly aggravated the viral transmission. However, an outbreak of this disease occurred in China and Odisha of India in August 2019, and this could be an unexplored link to this outbreak as cattle movements were speculated as a risk factor [12]. Within the farm, LSDV transmission is further related to biosecurity measures and other management practices. We discovered a strong connection between the shared water supply and the brick floor that other people had noticed [13]. Ectoparasites, which according to earlier studies may be involved in the transmission of this virus, have been found in practically every farm [10]. To get over this study's limitations, future research should focus on identifying the precise vectors [10]. However, despite being carefully planned, the current study may have some intrinsic limitations of a cross-sectional study [13]. Because the time sequences between exposure and outcome cannot be assessed, this study design may result in selection bias, recollection bias, and other biases [13]. To avoid recollection bias and ensure that many characteristics, such as sex, breed, animal type, and others, were not influenced by the temporal sequence, we documented the majority of the clinical data through visual observation [10].

The current study evaluated the LSDV infection outbreak in Bangladeshi commercial farms, revealing the disease's general clinical prevalence and risk variables [12]. The information produced by this study will be useful to Bangladeshi field veterinarians and decision-makers in the field of animal health, and it will also help them in taking the necessary precautions to stop future outbreaks or relapses of this disease [13]



Figure -2: After 21 day: Picture after proper treatment.

Chapter 5: Conclusion

The economically significant viral disease (LSD) in cattle and buffalo is characterized by nodular skin lesions on various body areas. The impact of this disease's consequences on the hide business is significant since it lowers the quality of the hide. The cattle industry was also severely impacted since milk production significantly fell. Since LSD is a viral illness, there is no specific treatment available. However, supportive care with antibiotics, antihistaminics, anti-inflammatory drugs, and multivitamins can be given to prevent future complications and save the patient's life.

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Chapter 7: Acknowledgment

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Chapter 8: Biography

I am Md. Faruk Ahammed. I am an intern student at the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University from Jamalpur (Upazilla: Dewanganj). I completed my Secondary School Certificate (SSC) and Higher Secondary Certificate (HSC) in 2013 and 2016 respectively from Dinajpur and Dhaka. As a future veterinarian after completing my DVM degree, I would like to be a private practitioner and pursue a post-graduate diploma in the field of pet Animals and contribute to the world with my knowledge and skills.