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Clinical management of the secondary complications of lumpy skin disease in a cow: A case study

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Abstract

This paper reports a clinical management of the secondary complications of the lumpy skin disease in a cow. A cross bred cow with the complaint of widespread nodular eruptions on different parts of the body was presented during a awareness camp conducted by the team of experts. The detailed physical examination of the animal was conducted which revealed that the animal was febrile with rectal temperature of 40.2°C and had combination of small to large sized circumscribed nodules on various body parts, especially in the neck area. Also animal was showing a certain degree of lameness with significant swelling of prescapular lymph nodes. Based on the course of disease and typical clinical findings, the case was suspected to be a lumpy skin disease. During the course of the treatment, the animal starting showing the signs of respiratory distress with labored breathing, nasal catarrh and coughing. The case was managed successfully by the application of combination therapy and the animal recovered fully.

Keywords: LSDV, nodular eruptions, morbidity, pneumonia, notifiable disease

Introduction

Lumpy skin disease (LSD) has been placed in the notifiable animal disease list because of its significant economic importance and its potential for the rapid spread to the susceptible cattle population (Tuppurainen & Oura 2012) ^[10]. The lumpy skin disease virus (LSDV) belongs to genus Capripoxvirus within the family of Poxviridae, which is closely related to small ruminant pox causing viruses but its phylogenetic studies have shown it as a separate and distinct viral entity (Buller *et al.*, 2005) ^[4]. It has a double stranded DNA genome and consists of a comparatively large sized genetic material of approximately 150 Kilobase pairs.

LSDV is highly contagious disease and can be transmitted by close contact with infected animals, contaminated feed and water, or by various blood-feeding arthropod vectors (Sprygin *et al.*, 2019) ^[7]. Uncontrolled animal movement across the borders has been implicated in the long-range transmission of LSDV and play a crucial role for its rapid spread. The disease starts with the high grade fever which normally subsides within 1-3 days. There is an enlargement of lymph nodes accompanied by the nasal and lachrymal secretions, general weakness, anorexia and a variable degree of lameness (Abutarbush *et al.*, 2013; Tasioudi *et al.*, 2016) ^[1, 8]. The skin nodules appear within 1-2 days, which usually become harder thereby inducing severe pain and discomfort to the animal. On an average, the morbidity in LSD is very high and varies from 5%-45% (sometimes up to 100%), whereas the mortality rate is usually low 1-5% but can be occasionally high especially in the unattended cases (Coetzer 2004) ^[5].

The occurrence of LSD causes severe economic losses to the farmers especially in the milch cows wherein there occurs a drastic reduction in milk production (Zeynalova *et al.*, 2016) ^[11]. The treatment of LSD is usually based on relieving symptoms exhibited by the ailing animals and main focus of treatment remains at preventing the occurrence of secondary bacterial complications by using combination therapy of antimicrobial and anti-inflammatory drugs.

Case Report

An ailing cow was presented to the team of experts from Institute of Animal Health and Biological Products, Animal Husbandry Department Kashmir with nodular eruptions on different body parts.

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As per the animal owner, the daily feed intake and production of the animal was greatly reduced. The history revealed that the animal was grazing in community grazing pastures with other animals. The animals were never vaccinated against the lumpy skin disease as this disease was observed for the first time in the union territory of Jammu & Kashmir. Upon thorough physical examination, the animal was listless and febrile with the rectal temperature of 40.2 °C and was also having high respiratory and heart rates. Initially the small sized nodules were seen which later on flared up and large circumscribed nodules were seen all over the body (Figure 1). Besides, a certain degree of bilateral lameness was observed with significant inflammation of pre scapular lymph nodes. Based on the history, signs and clinical sequels, the tentative diagnosis was established as lumpy skin disease (LSD).

Case Management and Treatment Protocol

Treatment Protocol followed for treating the LSD case

From Day 1 to Day 3

1. Injection Meloxicam Plus @ 2.5ml/100kg body weight I/M for 3 days.
2. Injection Ivermectin @ 1ml/50kg of body weight S/C and the same dose was repeated after 14th day.

From Day 3 onwards

After 3rd day the treatment was switched over to parenteral antibiotic therapy as the animal has started showing signs of secondary complications in form of pneumonia as was evident by labored breathing, nasal catarrh and coughing by adopting the following protocol.

1. Injection Enrofloxacin @ 5 ml/kg body weight, I/M x 5 days
2. Injection Chlorphenarimine @ 0.5 mg/kg body weight, I/M twice daily.

After the 8th day the animal was prescribed Isoflupredone 2 mg/10kg body weight, I/M for 3days followed by 1mg/10kg body weight, I/M for next 2days.

The animal so treated was kept on neural and hepatic tonics during the whole course of the treatment. After treatment the animal recovered and also started taking the feed normally (as reported by the owner). Three months later, the nodules disappeared from the whole body but scars of the lesions remained.

Discussion

Based on the history and the typical clinical signs manifested by the animal, the present case was suspected to be lumpy skin disease. Initially the infected animals are febrile, there is an increased nasal and pharyngeal discharges, anorexia, general weakness. Subsequently nodules develop on the skin, lymph nodes get enlarged, there is a localized edema of the skin and also lameness can be seen in many cases. Some LSD cases may complicate and may involve many internal organ systems of the animal (Tuppurainen *et al.*, 2017) [9]. Although the LSD disease may not cause heavy mortalities but its potential to cause significantly higher percentage of morbidities among the suspected population resulting in devastating economic losses to the farmers. There is a significant decrease in feed intake by the affected animal with the result, there is a reduction in milk production and weight gain (Abutarbush *et al.*, 2013; Babiuk *et al.*, 2008) [1, 3]. Also, there are increased chances of abortion, infertility and orchitis among the infected animals (Radostitis *et al.*, 2006; Awadin

et al., 2011) [2, 6].

To avoid the economic losses to the farmers, it is important to initiate the symptomatic treatment of the animal as soon as it is presented with the clinical signs. In the current case, initially a combinational therapy comprising of antibiotics and anti-inflammatory drugs was started to treat the animal symptomatically. After three days of treatment, the animal started showing respiratory complications with labored breathing, nasal catarrh and coughing. Therefore parenteral administration of antibiotics, antihistamines and other supportive therapy was undertaken to avoid further complications. Consequently fever, anorexia, edema, skin lesions, respiratory complications and other body derangements improved significantly following the treatment protocol. However, amelioration of skin nodular lesion took time and healed with the skin scars.

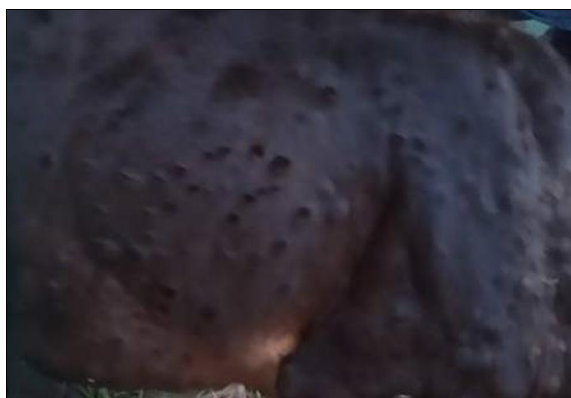


Fig 1: Severely affected LSD case with characteristic skin lesions all over the body

Conclusion

Lumpy skin disease (LSD) is a devastating viral disease causing huge economic losses to the animal farm owners. Timely and proper treatment of the animals is of utmost importance to save the animal populace. In this case also, prompt treatment plan was planned and executed for treating the ailing animal and to prevent the secondary complications from deteriorating and the animal recovered remarkably.

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