JUST AGRICULTURE
multidisciplinary e-Newsletter

Lumpy Skin Disease in Cattle and Water Buffaloes

Jyoti Chanda Kalita* and Sawan Kumar**

Department of Veterinary Medicine, CVASc., GBPUA&T Pantnagar, Uttarakhand.

ARTICLE ID: 101

Introduction:-

As we know that India is one of the largest Agriculture based country of the world. Indian agriculture system consist of three pillars which can be depicted by "AAA" or 3A system (Agriculture, Animal Husbandry, and Aquaculture), where each "A'' is having its own importance. Animal Husbandry is having its vital contribution in the economic growth of the country and its helps in the uplifting of the living standards of the marginal and small farmers of the country. Cattle and water buffaloes are the main livestock of the Indian farmers. Several diseases affects the livestock of Indian farmers, Lumpy Skin Disease (LSD) is one of them.

(LSD) is a transboundary viral disease of cattle and water buffalo characterized by the development of several hard lumps on the skin. Recently in 2019, there have been outbreaks of this disease in various parts of the country viz. the North-Eastern region, Orissa, Maharashtra, Kerala, Karnataka, Chhattisgarh, Madhya Pradesh, etc. This disease is transmitted very rapidly among animals and is a major economic downfall for livestock rearing farmers. This disease contributes to huge losses from incurring expenses of treatment to drastically reduced milk yield within a very short period.

Historical Background:-

Lumpy Skin disease (LSD) was first described in Zambia in 1929. In 2019, for the first time, LSD outbreaks were reported from India, China, and Bangladesh sharing boundaries with each other. The first confirmed transcontinental spread of LSD from the African to Middle-East Asian countries occurred when the disease was reported in Israel in 1989. In the month of August 2019, the first outbreak was reported in Odisha state during the humid monsoon season after which the disease spread very rapidly to the neighboring states.

Etiology:-

This particular disease is caused by a type of virus known as Lumpy skin disease virus (LSDV) which falls under the Poxviridae family. So, the signs somewhat resemble pox,

JUST AGRICULTURE
multidisciplinary e-Newsletter

often owners confuse this disease with Pox viral disease. This disease is seen to be restricted to ruminants viz. cattle and water buffaloes.

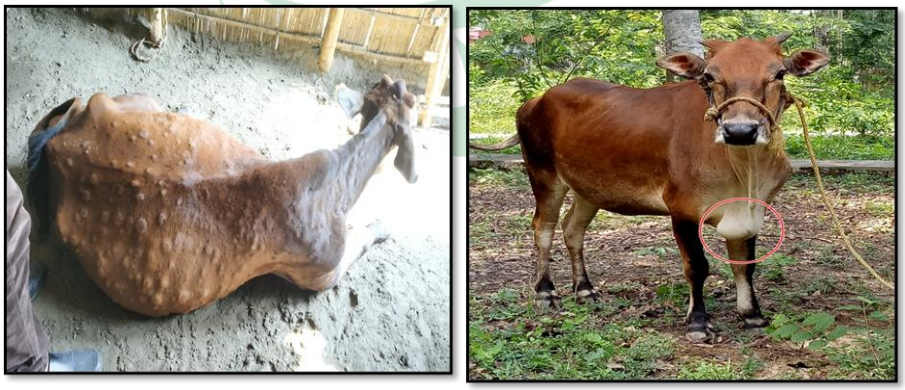
Mode of Transmission:-

It is a transboundary disease, transportation of animals; illegal buying-selling of livestock across borders can introduce the disease to a newer area. Within an area, the disease mainly spreads by insect vectors which include biting flies, mosquitoes, and ticks. In some cases, the disease may also spread directly from animal to animal.

Clinical Signs and Symptoms of LSD:-

Animals of any group, from newborns to adults can be affected by this disease. Signs will vary from mild to severe form according to the immune status of the animal. Some of the signs that can be noticed are-

- Hard nodular lumps all over the body with varying sizes- pea-like to ball like
- The high rise of body temperature up to 105ºF
- The animal is depressed and reluctant to move
- Refusing to eat
- Swollen lymph nodes
- A sudden drop in milk yield
- After about 1 week, the skin of the lumps will fall off leaving fresh deep wounds which require management.
- Complete recovery may require 3-4 week
- Pea-sized to ball sized lumps in the body
- Swollen lymph node Tail wound after a lump on skin fell off



Pea sized to ball sized lumps in the body

JUST AGRICULTURE
multidisciplinary e-Newsletter

Swollen lymph node

Tail wound after lump on skin fell off

How the disease can be identified?

Lumpy skin disease of animals can be diagnosed by History and Clinical Signs, Physical examination, Skin nodule biopsies, Serological Diagnostic Techniques like Elisa, FAT, DBT (Dot Blot Hybridization) and PCR can be employed as a tool of confirmatory diagnosis of LSD in cattle and Water buffaloes.

What to do if an animal is infected?

First of all, the farmers need not panic as the disease is not fatal and can be completely cured if proper treatment is followed at right time. As the disease is caused by a virus, hence treatment is aimed at managing the symptoms and boosting the immunity of the animal. Antibiotics, anti-histaminic, analgesic-antipyretics, immunity boosters, and management of wounds is the general line of treatment of this disease. Proper care and nursing of the animal during the disease course are to be undertaken.

Prevention and Control Measures of LSD:-

The disease can be prevented by adapting following measures-

- Illegal buying-selling or transportation of livestock across borders should be restricted.
- The import of animals from infected countries should be avoided.
- Quarantine of newly introduced animals on a farm for a brief period.
- Vaccination- LSD virus closely resembles sheep and goat poxviruses, hence vaccines against these two diseases can be used for LSD. Calves should be immunized at the age of 3 to 4 months. Pregnant cows, breeding bulls should be vaccinated annually.
- Cleaning and disinfection of the premises and insect control.
- If an animal dies, the carcass should be properly disposed of by burying.

Can people get infected by this disease?

JUST AGRICULTURE
multidisciplinary e-Newsletter

The answer is no, the virus is non- zoonotic meaning that it can't be spread from animals to people.

Economic Impact of LSD:-

Although the mortality is low (1-3%), the morbidity is very high (3-85%), so farmers face major losses. Lowered milk production, abortion, infertility, the occurrence of secondary diseases, inferior hide quality, loss of draft power from lameness, and heat intolerance are some of the notable effects seen in the aftermath of the disease.

Conclusion:-

In conclusion, Lumpy Skin Disease is an economically significant emerging disease that has a serious impact on the livestock rearing population. Due its resemblance with the pox disease of animals sometimes farmers get worried and they thinks about the destruction of animal but proper diagnosis and treatment can absolutely help in cure of the condition. Timely preventive measures and good managemental practices are to be followed to keep this disease away from the livestock.

References

A.N. Choudhari, S.D. Moregaonkar, G.R. Gangane, N.M. Markandeya, B.W. Narladkar, 2020 Lumpy Skin Disease (LSD), an Emerging Disease in India: A Review. *Agricultural Reviews*, **(41):**398-402,

Al-Salihi, K. A., & Hassan, I. Q. (2015). Lumpy skin disease in Iraq: Study of the disease emergence. *Transboundary and Emerging Diseases*, **62**, 457-462.

Das, Moumita & Rahman Chowdhury, Md. Shahidur & Akter, Sharmin & Mondal, Apurbo & Uddin, Md Jamal & Rahman, Md & Rahman, Md. Mahfujur. (2021). An updated review on lumpy skin disease: perspective of Southeast Asian countries. 10.5455/jabet. 2021.d133

F.G. Davies,1991 Lumpy skin disease, an African capripox virus disease of cattle, British Veterinary Journal,Volume **147, Issue 6,** Pages 489-503,

Gupta, T., Patil, V., Bali, D. et al. A review: Lumpy skin disease and its emergence in India. Vet Res Commun **44,** 111–118 (2020).

Krishna Prasad Acharya, Deepak Subedi, First outbreak of lumpy skin disease in Nepal, Transboundary and Emerging Diseases,**67, 6,** (2280-2281), (2020). *Wiley Online Library*

Kumar N, Chander Y, Kumar R, Khandelwal N, Riyesh T, Chaudhary K, et al. (2021) Isolation and characterization of lumpy skin disease virus from cattle in India. PLoS ONE 16(1): e0241022.

Lumpy skin disease: III. Data collection and analysis. European Food Safety Authority (EFSA), Calistri P, DeClercq K, Gubbins S, Klement E, Stegeman A, Cortiñas Abrahantes J, Antoniou SE, Broglia A, Gogin AEFSA J, 17(3): e05638

Shashi B. Sudhakar, Niranjan Mishra, Semmannan Kalaiyarasu, Sandeep K. Jhade, Divakar Hemadri, Richa Sood, Gopal C. Bal, Mihir K. Nayak, Sunil K. Pradhan, Vijendra P. Singh, Lumpy skin disease (LSD) outbreaks in cattle in Odisha state, India in August 2019: Epidemiological features and molecular studies (2020) https://doi.org/10.1111/tbed.13579. Wiley Online Library

Sprygin A, Pestova Y, Prutnikov P, Kononov A.2018 Detection of vaccine-like lumpy skin disease virus in cattle and Musca domestica L. flies in an outbreak of lumpy skin disease in Russia in 2017. *Transbound Emerg Dis.* **65(5):**1137-1144.

Sumit Jyoti, Surendra Karki, Rojina Nepal, et al.2020 A Review of Global Epidemiology of Lumpy Skin Disease, its Economic Impact, and Control Strategies. Authorea. DOI: 10.22541/au.160312355.54636593/v1

T. Bedeković, I. Šimić, N. Krešić, I. Lojkić, Detection of lumpy skin disease virus in skin lesions, blood, nasal swabs and milk following preventive vaccination, 2017, https://doi.org/10.1111/tbed.12730

Tuppurainen ES, Oura CA.2012, Review: lumpy skin disease: an emerging threat to Europe, the Middle East and Asia. *Transbound Emerg Dis* ;**59(1)**:40-8

Yasir Razzaq Khan, Ahmad Ali, Kashif Hussain, Muhammad Ijaz, Ameer Hamza Rabbani, Rabia Liaquat Khan, Syed Nazar Abbas, Muhammad Umair Aziz, Awais Ghaffar, Hina Afzal Sajid, A review: Surveillance of lumpy skin disease (LSD) a growing problem in Asia, Microbial Pathogenesis, Volume **158**, 0882-4010