

Lumpy Skin Disease and Homoeopathy

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Abstract

Review Article

The live stock of humans is in danger as the epidemic of Lumpy Skin Disease is a concern both for morbidity and mortality. It is both a global and national problem. The extension of the monsoon this season in the state of Gujarat and Rajasthan have added salt to the wounds as the LSD became a major killer of cattle in these two states. To deal with the issue, the central and state governments are using the Goat Pox Vaccine as there is no specific vaccine for LSD till date. There is no specific treatment available as the only approach is symptomatic only. It is here that Homoeopathy can play a succour to the existing problem as it provides not only symptomatic relief but also preventive and curative relief for the vast live stock that is a source of livelihood for a number of families in India. The state and central governments can use this cheap and effective mode of prevention and treatment while keeping on the efforts of vaccination. This approach will not only lead to less morbidity but also less mortality.

Keywords: LSD, GPV, FAO, Homoeopathy, Materia Medica.

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INTRODUCTION

Lumpy Skin Disease (LSD) infects both cows and buffalo through vectors like blood feeding ticks and mosquitoes. Veterinary experts opine that the disease leads to the formation of nodes on the animal's skin or hide which appear like lumps and the cattle suffer fever, reduced milk yield, runny nose and difficulty in eating [1].

In Haridwar district of Uttara Khand, 1025 cattle got infected by LSD as on August 2022 [1]. Several states including Gujarat and Rajasthan have

been battling the outbreak of LSD, a viral infection of the cattle.

Since the first LSD case was reported on April 23, 2022 in Kutch in Gujarat, the disease has spread to 26 of Gujarat's 33 districts and has claimed more than 4,000 cattle heads. In Rajasthan, around 27,000 cattle heads have reportedly succumbed to the virus. Since 2019, out breaks of the disease have been reported in 20 states of India [2].

LSD is caused by the Lumpy Skin Disease virus (LSDV), a virus of the Capripox virus genus in the pox viridae family. The LSDV mainly affects cattle

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& cows and its progeny including the Asian Water buffaloes [3].

In the Food & Agriculture Organisation (FAO) report of 2021, the outbreaks occur in epidemics several years apart. As per the report, the existence of a specific reservoir for the virus is not known nor is it known as to how and where the virus survives between epidemics.

In Gujarat's Kheda and Anand districts had small outbreaks in 2020 and 2021. In 2022, the first case of LSD was reported from Kaiyari, a village on the Indo-Pak border in Lakhpat Taluka of Kutch on April 23 and has spread to the entire state. The fatality rate is around 4% as in the last week of August 2022. As on last week of August 2022, Rajasthan cases stand at 11 lakhs (1.1million) and casualty at 27,000.

LSD Spread in India [2]

LSD spreads through blood sucking vectors like ticks and mites like houseflies, mosquitoes etc. It also spreads through contaminated water, fodder, feed, mosquito and housefly. Infestations remain at their peak during the monsoon and veterinary scientists and Government officers blame a very wet July for the rapid spread of the infection in Gujarat this year of 2022. The problem of feral cattle in Gujarat led to the problem as the free ranging cattle led to rapid spread of LSD.

Global Prevalence of LSD [3]

The FAO report mentions that LSD was long restricted to Sub-Saharan Africa. However, over the past decade, it spread to Middle East & Turkey. From 2015 onwards, it has impacted the Balkan/South East Europe countries. Thereafter, it reached to Caucasus/Eastern Europe and Russia through which route LSD entered in India, Bangladesh & China in July 2019. Since then, outbreaks of the disease have been reported from 20 Indian states such as Assam, Andhra Pradesh, Bihar, Chhatisgarh, Goa, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Manipur, Odisha, Tamil Nadu, Telengana, Uttar Pradesh and West Bengal.

LSD was identified in an outbreak in Zambia in 1929. Until the 1980s, multiple outbreaks of LSD were confined to the African subcontinent. The first reports of infections outside Africa were in 1989 from Israel. In 2016, LSD was reported from Russia and South-East European nations. In the Indian Subcontinent, the disease was initially observed in Bangladesh in 2019, followed by China, India, Nepal, Bhutan, Vietnam, Hong Kong and Myanmar. In Russia, outbreaks were reported in 2015-19 [5].

Symptoms of LSD

LSDV attacks the circulatory system of the animal and causes vasculitis and lesions in various organs like liver, lungs, spleen, lymph nodes etc. In turn, it causes epidermolysis, making the outer surface

of the skin to get separated from dermis, the inner layer of the skin. This in turn leads to formation of lumps or nodules on the animal's body. Fever, increased mucus secretion, loss of appetite etc. are the other symptoms [3, 4].

About Mortality

Post mortems in Kutch and Banaskantha in Gujarat found that the virus had caused necrotic vasculitis or death of living tissues in local areas and fibrosis in various organs of infected cattle. Such a situation leads to failure of various organs & eventually leading to death [4].

The nodules may burst due to outer pressure or friction of skin covering such nodules is very thin. Such open wounds make animals susceptible to secondary infections such as bacterial and protozoal leading to development of maggots and can prove fatal. Animals may also develop Broncho-pneumonia thus impairing their respiratory system. The animal falls in a vicious cycle as it loses stamina due to loss of appetite, oedema in brisket and thus worsening the disease [4].

Genome of the virus [5]

The first complete genome sequence of LSDV known as Neethling strain was available in 2001. It was originally isolated in Kenya in 1958. Pox virus's adaption is dominated by genomic mutations, deletions and re-combinations. The virus isolated from Russia in 2016 was similar to earlier genomes. The use of homologous/attenuated LSDV vaccine in 2016 led to vaccine like isolates from affected cattle in 2017 as it failed to contain the outbreak. In 2018, all field isolates of LSDV in Russia were replaced by viruses bearing genetic signatures of the LSDV vaccine. This meant that the Russian outbreak in 2017-19 was due to a novel (new) LSDV recombinant vaccine.

The outbreak in the state of Odisha in 2019 had genetically similar strains like the Kenyan outbreak virus. The July 2022 outbreak in Gujarat & Rajasthan led to 80,000 cattle deaths & the viruses had 177 unique mutations compared to the Neethling strain of 2001. Out of these 177, 47 mutations were not present in any other global genome sequence of LSDV.

About the LSD Vaccine in India [6, 7]

Goat Pox Vaccine (living) is a preparation derived from Vero cell cultures infected with an attenuated strain (Uttarkashi strain) of Goat Pox Virus. The vaccine is prepared just before use by reconstituting the freeze-dried vaccine with respective diluents. Each dose of 1 ml should contain not less than $1 \times 10^{3.0}$ TCID₅₀ Goat Pox Virus.

The recommended dose is single dose for use as early as 4 months of age. Currently, GOI uses this vaccine to deal with LSD cases. As on September 2022, 15 lakh cattle have been affected and GPV is 100%

effective against the LSD as per the union ministry of fisheries, animal husbandry and dairying [8]. During outbreak, 3 ml doses of the vaccine have been given for prevention and control [8].

Malaysian Model [9,14]

The 'immune belt' used by Malaysia in 2020 was successful and the Government of Uttar Pradesh will adopt the model that passed through 23 blocks of 5 districts of western UP covering a 10-kilometre-wide range area. All the cattle in this zone were vaccinated. The LSD started in western UP and that's why the Government of Uttar Pradesh created an immune belt from the Pilibhit district to Etawah district. There is/was restriction of buying and selling cattle among these districts to curb the spread of infection. The model also reduced morbidity and mortality among cattle to a great extent. As on 13.10.2022, more than 90 percent of the cattle have been vaccinated in 7 districts (Bareilly, Mathura, Kasganj, Gautam Buddha Nagar, Etah, Pilibhit, Bulandshahr) of Western Uttar Pradesh where the Malaysian Model was used.

Livelihood and LSD

LSD leads to loss of milk secretion and this is where livelihood comes to play. Most of the families in Gujarat and Rajasthan depend on milk consumption and selling milk. Homoeopathy can be a succour to all these families who depend on live stock. Indian Veterinary Research Institute, Bareilly has brought out a report that informs that milk of the cattle affected by LSD is safe for consumption. LSD is a non-zoonotic disease and thus is not transmitted from animals to humans [12].

Homoeopathic approach [10, 11, 13]

Homoeopathy can not only treat LSD comprehensively but also can prevent LSD. The treatment protocol given below adheres to addressing the multiple symptoms that LSD exhibits. Both the central and state governments can follow the vaccination schedule along with Homoeopathy for effective and sustainable intervention.

The suggested treatment protocol is given below:

1. LSD affects the lymph nodes and makes the nodes like lumps and the nodes becomes hard. Here, 'Calcarea Flour' in 1000CH potency is to be prescribed where a single dose is to be given for a week.
2. LSD leads to increased mucus secretions from nose and mouth and the animal loses appetite. Here 'Kali Chlor' in 200CH potency is to be prescribed where a daily dose is to be given for a week. This will reduce the acidity of the secretions.
3. Another symptom is lack of milk secretion. Milk of the LSD affected is safe for consumption as already mentioned above. Here, 'Agnus Castus' in 1000CH potency is to be prescribed where a single dose of the medicine is to be given daily for a fortnight.

4. Fever is also a primary symptom of LSD. In order to reduce viremia and to prevent the spread of infection, 'Pyrogen' in 1000CH potency is to be prescribed where the dose is a single dose per day for a week.
5. The lymph nodes burst and the open nodes help houseflies and mites to spread the infection to other cattle. In order to avoid the bursting of nodes, 'Trifolium Pratense' in 30CH potency is to be given in a single dose per day schedule for a week.
6. To address the appetite and the affection of mucus membranes, 'Natum Mur' and 'Kali Mur' in 6X potency is to be given with 4 tablets from each daily four times a day for a fortnight.
7. In case the cattle develop lungs infection or respiratory problems, 'Antim Ars' in 3X potency is to be given with 4 tablets four times a day for a week.

Homoeopathic Prevention

As LSD affects the lymph nodes primarily, 'Scrophularia Nodosa' in 30CH potency is to be prescribed for each cattle with a twice daily dosage for a week.

All these medicines can be given in globules or in dilutions along with the drinking water of the cattle.

CONCLUSION

Government should use the existing Homoeopathic system to use this treatment protocol in training/orienting all the stakeholders related to the Homoeopathic service system. As this is a highly economical, with an easy way to reach large cattle population and clinically effective way to deal with LSD, the public, private, corporate and charitable sectors should follow the prescribed protocol. Adoption of this approach will not only reduce morbidity and mortality among live stocks but also impact the livelihoods of the families who depend on live stock and the milk of live stocks for a living.

The Homoeopathic fraternity has to accept such public health challenges to prove its mettle or else these opportunities will be lost opportunities for the therapeutic system to prove its efficacy to deal with such challenges.

Declaration

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