



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; SP-12(8): 2051-2053  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 30-05-2023  
Accepted: 10-07-2023

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## Studies on the comparative efficacy of Ethnoveterinary herbal formulation (*Lumpicare*) alone and in combination with conventional treatment against lumpy skin disease in cattle

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### Abstract

Lumpy skin disease (LSD) is one of the emerging infectious viral diseases causing severe morbidity and less mortality among cattle in India. The affected cattle not only lose productivity and costs associated with hides, it also causes a serious economic loss to the farmers. In the present investigation, 30 LSD cattle were treated with three different treatment regimens by dividing them into three different groups. Group I cattle were managed with conventional allopathic drugs and group II with ethnoveterinary medicine *Lumpicare* for 5-10 days. Whereas, the cattle placed under GIII were treated with a combination of conventional and ethnoveterinary drugs. The common clinical signs noticed *viz.*, lumps on the body along with fever, general weakness, and reduced milk yield showed improvement from day 5 and completely alleviated by day 10 among groups I and II but with a relatively shorter period in group II cattle that were treated with *Lumpicare*. However, these signs improved much faster and there was a complete clinical recovery along with improvement in milk yield within 3-5 days when treated with a combination of conventional and *Lumpicare*.

**Keywords:** Lumpy skin disease, ethnoveterinary medicine, lumpicare, conventional treatment, cattle

### Introduction

Lumpy skin disease (LSD) has emerged as a significant health issue affecting the livestock industry, particularly in developing countries like India. This infectious viral disease is caused by the Lumpy skin disease virus (LSDV), a member of the Capripoxvirus genus in the Poxviridae family with the Neethling strain as the prototype. LSD is an enzootic infectious, eruptive, and seldom fatal disease that primarily affects cattle and is transmitted through arthropod vectors such as biting flies, mosquitoes, and ticks<sup>[13, 2]</sup>. While the disease has a limited host range and is non-zoonotic, it poses a threat to animal health and has severe economic implications. Initially endemic to African countries, LSD rapidly spread to other parts of the world, including India in November 2019 resulting in significant economic loss in the cattle industry, impacting meat and milk production, hide quality, draft power, and reproductive efficiency<sup>[12]</sup>. As the mechanical transmission by insect vectors is the main way that lumpy skin disease (LSD) spreads, its incidence increases with the onset of the rainy season and summer when insect activity is high<sup>[13, 16]</sup>. As there is no specific cure for viral infections in general, treatment options for lumpy skin disease (LSD) are limited and mostly symptomatic and supportive<sup>[10, 16]</sup>. The present investigation puts on record the clinical efficacy of the ethnoveterinary herbal formulation *Lumpicare* against LSD in cattle.

### Materials and Methods

The present clinical study was carried out retrospectively in clinically occurring LSD cases of farmer-owned cattle in certain districts of Telangana State from March to July 2023. A total of 30 cattle of various breeds, gender, and age that were showing signs and lesions suggestive of LSD were selected for the study. After a thorough clinical and physical examination whole blood in EDTA, nasal swabs, and skin scrapings from selected cases were sent for PCR. Later, LSD cattle were divided into three groups *viz.*, group I, II, and III with 10 each and treated as follow.

Group I cattle with conventional allopathic treatment for 3-5 days, G II cattle with Ethnoveterinary Herbal formulation (*Lumpicare*\*) @ 15–30 g along with jaggery as electuary, twice daily for 3-5 days. Whereas, the G III cattle were treated with a combination of

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*Lumpicare* and conventional allopathic treatment for 3-5 days. However, treatment was extended in required cases for another 5 days. Further, all the cattle were also supplemented with an ethnoveterinary herbal mixture *Revivol\** @ 15-30g, with jaggery as electuary for 10 days. Efficacy was assessed based on improvement in clinical signs and lesions along with improvement in general health and milk yield.

**Results**

Almost all the LSD cattle showed similar manifestations such as, circular lumps generally distributed all over the body, including the udder, neck, face, ears, nasal area, and legs. Mild to moderate fever followed by nodules that progress to papules, vesicles, pustules, and scabs. Some of them were ulcerative lesions with secondary myiasis. Few lactating cattle were also presented with the signs of mastitis. A few animals were also showing respiratory distress and lameness (Fig. 1 to 6).

Following treatment with conventional medication protocol which includes broad-spectrum antibiotics and other symptomatic drugs improvement in clinical signs and lesions was seen in 7-10 days followed by improvement in milk yield and overall recovery. Whereas, the group II animals that were treated with only ethnoveterinary herbal preparation, *Lumpicare* recovered relatively early within 5-10 days. However, the group III LSD cattle who received both conventional and ethnoveterinary medication has shown clinical improvement from day 3 and complete clinical recovery by day 7 among all the animals which signifies an early recovery when compared to other groups, viz., the group I and II. Though the recovery among 80% of animals was initially noticed by day 5, a few animals that were severely infected along with secondary complications like pneumonia took 10 days for complete improvement when treated with only *Lumpicare*. Whereas, among the group III cattle including severely affected animals that received an adjunct conventional therapy along with ethnoveterinary medicine also recovered by day 5 (Table). There was an overall improvement in general health, an increase in milk yield, and complete clinical recovery was noticed in mild to moderate

LSD cattle with ethnoveterinary herbal preparation, *Lumpicare*. Whereas, severe forms of LSD cattle with complications like pneumonia showed improvement in general health and milk yield when coupled with conventional (allopathic) drugs.



**Fig 1 and 2:** Moderately affected cattle with LSD. Note lumps or nodules on the dorsal thorax that were healed following medication with *Lumpicare*



**Fig 3 and 4:** Mild infection of LSD. Note small vesicles on the dorsal thorax that were completely healed following medication with *Lumpicare*



**Fig 5 and 6:** Severely infected cattle with LSD. Note the affected animal is recumbent with pneumonia and severe lesions all over the body. Recovered animal following medication with a combination of conventional and *lumpicare*

**Table 1:** Days required for clinical improvement of LSD cattle

Group	Treatment	Clinical recovery (days)	Milk yield recovery	Skin lesions recovery	Overall recovery (days)
I	Conventional treatment	7-10	7-10	5-10	7-10
II	<i>Lumpicare</i>	5-10	5-7	5-10	5-10
III	<i>Lumpicare</i> + conventional treatment	3-5	3-5	3-7	3-7

**Discussion**

The lumpy skin disease caused by LSD virus antigenically related to sheep and goatpox virus is an infectious disease of cattle and buffaloes. The causative virus can't be differentiated using routine serological tests and the infection is transmitted by vector species that cause a huge economic loss to the farmers [16]. The disease is associated with low mortality but high morbidity. The disease usually starts with fever followed by circumscribed lumps/nodules on the skin resulting in damage to the skin and hides, anorexia leading to severe weakness and emaciation, reduced milk yield, lameness, and infertility [17, 7]. In general, the disease affects the economics of farmers and animals as it affects the meat and milk production, hides quality, draft power of animals, and reproductive efficiency [14].

In severe condition, more than a hundred nodules developed on the skin all over the body and this stage persist for 7 to 12

days. The nodules are firm and slightly raised from the surrounding skin, separated by a narrow hemorrhagic ring. The nodules involve the dermis, epidermis, adjacent subcutis, and musculature. The lesions then progress towards papules, vesicles, and pustules with exudation and then slowly to scab formation. Healing of the lesions is very slow. With time lesions develop on mucous membranes of nostrils, respiratory tract, mouth, and vulva. The sloughing of the lesions may create hole form "sitfast", the characteristic lesion, which subsequently causes invasion by screwworm fly and bacterial invasion that can further lead to septicemia [9]. The common complication associated with LSD is respiratory infections, particularly pneumonia which is a result of inhalation of necrotic material by the animal itself [9]. Occasionally recovery may be delayed or slowed down in a few cases that had a secondary bacterial infection, and other complications like pneumonia, mastitis etc [2].

The only treatment available in LSD is similar to any other viral infections that includes, antibiotics, antipyretics and anti-inflammatory agents along with other supportive medication [18]. A few scientists also suggested alternative medicine in the treatment of LSD [17, 8]. However, a combination of conventional and alternative therapy for treatment of LSD was used by very few authors from India. The treatment protocol followed in the present investigation is in accordance with previous authors [19] who used allopathic and ethnoveterinary preparations consisting of betel leaves, black pepper, salt, and jaggary orally for 15 days along with topical application made of basil leaves, neem leaves, garlic, turmeric powder and custard apple leaves in coconut oil for 15 days. The common ingredients of the present ethnoveterinary herbal mixture, *Lumpicare* includes, Triterpenes, Tannins, Azadiractins from *Azadiracta* sps, carbohydrate and proteins from Piper, and essential oil from *Coriandrum* sp. The Triterpenoids have been reported to exhibit various biological activities, such as antibacterial, antiviral, antitumor, anti-osteoclastic differentiation activity, hepatoprotection, and antioxidation functions. Triterpenes act as immunomodulatory agents targeting nuclear factor kappa B, toll-like receptors, signal transducer and activator of transcription 3, and PI3K/Akt/mTOR [11]. Since ages, *Azadirachta indica* commonly known as ‘Neem’ is one of the most versatile, multitudinous trees regarded as beneficial to humans and animals. The common phytochemical azadiractin has been used for treating various diseases such as cancer, Dental diseases, stress, ulcers, heart diseases, malaria, skin diseases, viral diseases, AIDS, oral diseases, sexually transmitted diseases, etc in humans. These phytochemicals show anti-diabetic, anti-viral, anti-oxidant, anti-microbial, anti-parasitic, anti-malarial, anti-cancer, anti-ulcer, hepatoprotective and gastro-protective activities [5]. Many herbal preparations with various constituents of neem are being used against various diseases of skin like psoriasis, acne, eczema, including certain viral diseases like chicken-pox, wart and smallpox [4, 6].

### Conclusion

The Lumpy skin disease virus causes a serious disease in cattle, characterized primarily by lumps on the skin but with severe economic loss both to the farmer and livestock. Early treatment, vector control and vaccination are essential for the prevention of LSD. Though there is no specific treatment protocol for LSD, the disease can be managed with ethnoveterinary medication, the *Lumpicare* alone or in combination with conventional treatment if the animal is associated with complications like pneumonia.

### References

- Alexander RA, Plowright W, Haig DA. Cytopathogenic agents associated with lumpy-skin disease of cattle. *Bull. Epiz. Dis. Afr.* 1957;5:489-492.
- Al-Salihi K. Lumpy skin disease: Review of the literature. *Mirror Res Vet Sci Ani.* 2014;3(3):6-23.
- Anonymous D. Lumpy skin disease. Paris: O.I.E. Disease Information. 1991;1(1).
- Bhowmik D, Chiranjib YJ, Tripathi KK, Kumar KS. Herbal remedies of *Azadirachta indica* and its medicinal application. *J Chem Pharm Res.* 2010;2:62-72.
- Binita Oli, Deepak G. Medicinal value of *Azadirachta indica*: A review. *Modern Phytomorphology.* 2022;15:161-167
- Biswas K, Chattopadhyay I, Banerjee RK, Bandyopadhyay U. Biological activities and medicinal properties of neem (*Azadirachta indica*). *Current Science*; c2002. p. 1336-1345
- Brenner J, Haimovitz M, Oron E, Stram Y, Fridgut O, Bumbarov V, *et al.* Lumpy skin disease (LSD) in a large dairy herd in Israel. *Isr. J vet. Med.* 2006;61:73-77.
- Chouhan AS, Dahiya R, Dadhich. Future Herbal Treatment for Lumpy Skin Diseases in Cattle: A Systematic Research Journal of Animal Research and Veterinary Science; c2022. DOI:10.24966/ARVS-3751/100038
- Constable PD, Hinchcliff KW, Done SH, Grundberg W. *Veterinary medicine: A Textbook of the diseases of cattle, horses, sheep, pigs, and goats*, 11<sup>th</sup> Edn. Elsevier, London; c2017. p. 1591.
- Datten B, Chaudhary AA, Sharma S, Singh L, Rawat KD, Ashraf MS, *et al.* An Extensive Examination of the Warning Signs, Symptoms, Diagnosis, Available Therapies, and Prognosis for Lumpy Skin Disease. *Viruses.* 2023;15:604.
- Gill BS, Kumar S, Navgeet. Triterpenes in cancer: significance and their influence. *Molecular Biology Reports.* 2016;43:881-896.
- Gupta T, Patial V, Bali D, Angaria S, Sharma M, Chahota R. Lumpy skin disease and its emergence in India. *Journal of Veterinary Research.* 2020;15(3):123-145.
- Hunter P, Wallace D. Lumpy skin disease in southern Africa: a review of the disease and aspects of control. *Journal of the South African Veterinary Association.* 2001;72(2):68-71.
- RGBE H. Lumpy skin disease (LSD): outbreak investigation, isolation and molecular detection of lumpy skin disease in selected areas of eastern Shewa, Ethiopia. Doctoral dissertation, AAU; c2014. p. 72.
- Singh R. Treatment of cattle affected with Lumpy Skin Disease (LSD) by homeopathic & herbal remedy; c2020. <https://www.pashudhanpraharee.com>
- Thakur A, Umang A, Anjali A, Sharma R, Kaundal AK, Kumari P. An Overview on Lumpy Skin Disease: Transmission and Treatments. *International Journal of Innovative Science and Research Technology.* 2023;8(3):1490-1497.
- Tuppurainen ESM, Oura CAL. Review: lumpy skin disease: an emerging threat to Europe, the Middle East and Asia. *Transbound. Emerg. Dis.* 2012;59:40-48.
- Tuppurainen ESM, Babiuk S, Klement E. *Lumpy Skin Disease.* Springer. 2018;17:81.
- Yadav JV, Lakshman M, Madhuri D. A combination of conventional and alternative ethnoveterinary medicine for the treatment of lumpy skin disease in a she-buffalo: A case report. *The Pharma Innovation Journal.* 2021;10(1):83-84.