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Lumpy Skin Disease (LSD) in Cattle

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Abstract
Lumpy skin disease (LSD) causes huge economic losses in the livestock industry. It is caused by Lumpy skin disease virus (LSDV), which belongs to the family Poxviridae, with the Neethling strain the prototype. LSDV belongs to the genus Capripoxvirus that includes sheep pox virus and goat pox virus. LSD is an enzootic infectious, eruptive and seldom fatal disease of cattle characterised by nodules on the skin.Recently, the disease is reported in LSD free countries (Jordan, Syria, Lebanon, Turkey, Iran and Iraq) with potential economic loss to the livestock industry. This review article intends to discuss LSD in light of the recent situation that raises concerns about the spreading of the disease in LSD free countries.

Keywords: Lumpy skin disease, economic, cow, virus.

Introduction
Lumpy skin disease (LSD, Pseudo-urticaria, Neethling virus disease, exanthema nodularis bovis, and knopvelsiekte) is an infectious disease. It is caused by a virus (LSDV) in the family Poxviridae, genus Capripoxvirus. It is closely related antigenically to sheep and goat pox virus. LSD is a disease of cattle and water buffalo. There is no specific treatment for LSD. However, supportive treatment should be given to infected animals to relieve clinical signs and to control all secondary complications. Immunization of the susceptible animals is the effective method to control the disease in South Africa, and the effective vaccines are produced from the Neethling strain virus.However, the disease is moved outside Africa to Madagascar and the Middle East and causes serious economic loss to the livestock industry. The incubation period in the field is believed to be two to five weeks, and lesions first appear at the inoculation site in 4 to 20 days. Fever is the initial sign that is followed within two days by the development of nodules on the skin and mucous membrane.

Loss caused by LSD
LSD Causes considerable economic losses due to emaciation, damage to hides, infertility, mastitis, loss of milk production, and mortality of up to 20%. The severity of clinical signs of LSD depends on the strain of capripoxvirus and the host cattle breed (Anonymous 1988).

A diagnosis of LSD
It is built upon the basis of the typical clinical patterns (morbidity and mortality). A confirmed diagnosis is based on the following tests.
1)transmission electron microscopic (TEM).
2) immunoperoxidase (IMP).
3) enzyme-linked immunosorbent assay (ELISA).
4) a polymerase chain reaction (PCR).

Transmission

It is a vector-borne disease transmitted by different biting and biting blood-feeding arthropods.

Clinical signs that reflect LSD such as:

1) Contagious disease with generalised skin nodules.
2) A characteristic inverted conical necrosis of skin nodules (sitfast), Enlargement of lymph nodes draining affected areas.
3) Persistent fever, emaciation, and low mortality.
4) Pox lesions of mucous membrane of the mouth, the pharynx, epiglottis, tongue and throughout the digestive tract, mucous membranes of the nasal cavity, trachea and lungs.
5) Oedema and areas of focal lobar atelectasis in lungs.
6) Pleuritis with enlargement of the mediastinal lymph nodes in severe cases.
7) Synovitis and tenosynovitis with fibrin in the synovial fluid.
8) Pox lesions may be present in the testicles and urinary bladder.

Treatment

Lumpy skin disease is caused by virus and, therefore, has no known cure. However, antibiotics, anti-inflammatory drugs or a shot of vitamins are used in some cases to treat secondary bacterial infections or to deal with fever or inflammation and improvement of the animal's appetite.

Control

LSD control can only be by vaccination or immunoprophylaxis. Live vaccines help control losses from lumpy skin disease in endemic areas.

Prevention

Prevention of Lumpy skin disease by quarantine and movement control is very effective because biting flies and certain tick species are most probably the most important method of transmission of the disease.

1)The control of insects was not effective in preventing the spread of LSD, but use of insecticides together with repellents can be an aid in the prevention of the spread of LSD.

2)LSD outbreaks can be eradicated by quarantines, depopulation of infected and exposed animals, proper disposal of carcases, cleaning and disinfection of the premises and insect control.

The following vaccines have been used in protection of the animal

- **Homologous live attenuated virus vaccine** (Neethling strain: immunity conferred lasts up to 3 years).
- **Heterologous live attenuated virus vaccine** (Sheep or goat pox vaccine, but may cause local, sometimes severe reactions). This vaccine is not advised in countries free from sheep and goat pox because the live vaccines could otherwise provide a source of infection for the susceptible sheep and goat populations.
- **Capripox vaccines** are commercially available.

Conclusion

The information presented in this review article shows the importance of understanding LSD(lumpy skin disease) studies and makes awareness in farmers.