Popular Article

Lumpy skin disease: An re-emerging disease of livestock

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Introduction

Lumpy skin disease (LSD) is re-emerging or transboundary viral disease of cattle caused by LSD virus (LSDV) of the family Poxviridae characterized by skin nodules presents all over the body. Lumpy skin disease virus (LSDV), a virus from the family Poxviridae, genus Capripoxvirus. The two other virus types in this genus are Sheeppox virus and Goatpox virus.Due to its rapid spread and extreme economic losses, such as decreased milk production and weight gain, mastitis, infertility, and death, the OIE has classified this disease as "List A.". Incubation period of LSD is 7-14 days in experimental infections and 1-4 weeks in natural outbreaks. Morbidity and Mortality rate is varies between 10-20% and 1-5% respectively.

Synonyms

Pseudo-urticaria, Neethling virus disease, exanthema nodularis bovis, and knopvelsiekt

Economic Impact

Epidemiology

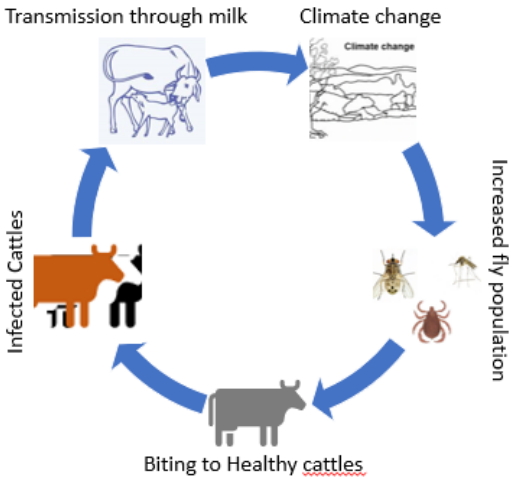
LSD is endemic in most African countries. LSD has been reported in most countries in Africa, the Middle East including Egypt, Lebanon, Jordan, Israel, Iran, Iraq, and Turkey, and Central Asia. In India the disease was first reported in Odisha in august 2019. LSD has been discovered in North-Eastern states likes Manipur, Assam, Arunachal Pradesh earlier. Thereafter the outbreaks were also reported in Andra Pradesh, Karnataka and Telangana. Recently in 2020, Vidarbha, Marathwada, ssMaharashtra were severly affected with

LSD.

Host Susceptibility

LSDV is highly host specific and causes diseases mainly in cattle (*Bos indicus* and *B. taurus*) and water buffalo (*Bubalus bubalis*).

Transmission cycle



Clinical sign and Patholgy

The first clinical sign in LSD infected animals will be fever that may exceed 41°C followed by rhinitis, conjunctivitis and excessive salivation, depression, anorexia and emaciation. The superficial lymph nodes will be enlarged. Skin nodules of 2–5 cm in diameter develop, particularly on the head, neck, limbs, udder, genitalia and perineum within 48 hours of onset of the febrile reaction. The skin, subcutaneous tissue, and often even the underlying muscles are all involved in these nodules, which are circumscribed, firm, round, and elevated. Large nodules may become necrotic and gradually fibrotic and persist for several months ("sitfasts"); the scars may remain indefinitely. Small nodules can resolve on their own without any consequences. Myiasis of the nodules may occur. Vesicles, erosions and ulcers may develop in the mucous membranes of the mouth and alimentary tract as well as in the trachea and lungs. Limbs and other ventral parts of the body, such as the dewlap, brisket, scrotum and vulva, may be oedematous, causing the animal to be reluctant to move. Bulls may become permanently or temporarily infertile. Abortion may occur in pregnant cows and be in anoestrus for some months. Recovery from severe infection is slow due to emaciation, mastitis, secondary pneumonia, and necrotic skin plugs, which are subject to fly strike and shed leaving deep holes in the hide.

Diagnosis

LSDV is routinely diagnosed based on case history, clinical signs, gross and histopathological findings but more accurately by using molecular technique like PCR. In serological test, Virus neutralisation is the gold standard test for the detection of antibodies raised against capripoxviruses. Capripoxvirus antibody enzyme-linked immunosorbent assay: new commercial kits for detection of capripoxvirus antibodies are currently being developed and released on to the market.

Treatment

Since LSD is a viral disease, there is no specific treatment for this disease. However, treatment of affected animals by

administration of antibiotics (Dicrysticin, OTC, Enrofloxacin) to prevent secondary bacterial infections and NSAID medicines has been practiced with supportive therapy (B-complex, Dextrose saline and Immunomodulator) for 5–7 days, which may be useful to reduce the severity of the disease. Treatment and management of clinical cases of LSD or in the event of outbreaks in cattle and buffalo are necessary to minimize the economic losses to farmers.

Prevention and Control

The current LSD outbreak in Europe and Western Asia has revealed that early identification of the index case, accompanied by a rapid and widespread vaccination campaign, is essential for effective control and eradication of LSD. Using statistical modelling, the effectiveness of complete stamping-out (killing both clinically affected cattle and unaffected herd-mates) and selective stamping-out (killing only clinically affected cattle) policies were compared. The researchers discovered that complete stamping-out and partial stamping-out had equal chances of eradicating the infection. The study also emphasized the importance of starting vaccination programs before the virus makes an appearance. Control and management of fly population play significant role in prevention of LSD outbreaks.

Sanitary prophylaxis

Free countries: Import limits on domestic cattle and water buffaloes, as well as some animal products. Surveillance for LSD should be carried out at least 20 kilometres away from an infected country or region.