

Camel Pox





Camelpox is an economically important contagious skin disease of camelids occurs in almost every country in which camel husbandry is practiced. The disease has an important economic impact through loss of production and sometimes death.

Etiology:-

Camelpox is caused by Orthopoxvirus cameli virus, which belongs to the genus Orthopoxvirus within the family Poxviridae. Orthopoxviruses are enveloped, brick-shaped and the outer membrane is covered with irregularly arranged tubular proteins. A virion consists of an envelope, outer membrane, two lateral bodies and a core. The nucleic acid is a double-stranded linear DNA. Virus replicates in the cytoplasm of the host cell, in so-called inclusion bodies.

Camelpox virus is the most closely related to variola virus, the aetiological agent for smallpox.

Clinical signs:-

The incubation period of Camelpox is between 3 and 15 days. The clinical manifestations range from inapparent infection to mild, moderate and, less commonly, severe systemic infection and death. The disease is characterized by fever, local or generalized pox lesions on the skin and in the mucous membranes of the mouth and respiratory tract. The lesions begin as [papules](#) and vesicles, and later turning into pustules. Crusts develop on the ruptured pustules. These external symptoms usually begin on the head, neck, eyelids, nostrils and the margins of the ears but eventually spread throughout the body, being especially concentrated on the limbs and genitalia.

The disease occurs more frequently and more severely in young animals and pregnant females. Pregnant females may abort. Death is usually caused by secondary infections and septicaemia.



Post mortem finding:-

The lesions observed on post-mortem examination of camels that die following severe infection with camelpox are multiple pox-like lesions on the mucous membranes of the mouth and respiratory tract.

The lung lesions are characterized by hydropic degeneration, proliferation of bronchial epithelial cells, and infiltration of the affected areas by macrophages, necrosis and fibrosis. Pox lesions are also observed in the mucosa of the trachea and retina of the eye causing blindness.

Transmission:-

Transmission is by either direct contact between infected and susceptible animals or indirect infection via a contaminated environment. Dried scabs shed from the pox lesions may contain live virus for at least 4 months and contaminate the environment. The virus is spread through milk, saliva, ocular secretions, and nasal secretions.

The virus has been isolated from camel ticks ([Hyalomma dromedarii](#)) removed from infected animals. It is believed that the ticks can transmit the disease from camel to camel. This theory is supported by increases in Camelpox infections immediately following heavy rains, during which the camel tick population increases greatly.

Camelpox virus is very host specific and does not infect other animals. Zoonotic camelpox virus infection in humans associated with outbreaks in dromedary camels (*Camelus dromedarius*) was described in the north-eastern region of India during 2009. This was a single incident illustrating that camelpox is of limited public health

Epidemiology:-

Outbreaks have been reported in the Middle East (Bahrain, Iran, Iraq, Oman, Saudi Arabia, United Arab Emirates and Yemen), in Asia (Afghanistan and Pakistan) , in Africa (Algeria, Egypt, Ethiopia, Kenya, Mauritania, Morocco, Niger, Somalia and Sudan and in the southern parts of Russia and India. The disease is endemic in these countries and a pattern of sporadic outbreaks occurs with a rise in the seasonal incidence usually during the rainy season.

Diagnosis:-

Camelpox diagnosis can be based on symptoms. However, both Camel Contagious [Ecthyma](#) (Orf) and Camel [Papillomatosis](#) cause indistinguishable symptoms under similar conditions. Several diagnostic methods are available and more than one should be used to make a confirmatory diagnosis of disease.

Transmission electron microscopy (TEM):- The fastest method of confirmation the camelpox by the demonstration of the characteristic, brick-shaped orthopoxvirions in skin lesions, scabs or tissue samples.

Immunohistochemistry:- Camelpox can be confirmed by demonstration of the camelpox antigen in scabs and pock lesions in tissues.

Virus isolation in cell cultures:- Camelpox virus shows typical cytopathic effect on a wide variety of cell cultures.

Virus isolation on chorioallantoic membrane (CAM) of embryonated chicken eggs:- After 5 days, characteristic lesions can be observed on the CAM

Polymerase chain reaction:- The presence of viral nucleic acid may be confirmed by polymerase chain reaction, and different strains of camelpox virus may be identified using DNA restriction enzyme analysis.

Serological tests:-

Virus Neutralization test (VN):- In this method the test sera are titrated against a constant titre of camelpox virus

ELISA:- Detection of antibodies against camelpox virus.

Prevention and control:-

Animal can be vaccinated by either live attenuated or inactivated vaccine. The live attenuated vaccine gives long-term protection against camelpox. However, a booster vaccination is recommended for young animals at the age of 8–12 months, 2–3 months after the initial vaccination to avoid interference by maternal antibodies. When inactivated vaccine is used, the animals must be vaccinated annually.

The disease can be treated with anti-viral medications. The most common medication used to treat Camelpox is [Cidofovir](#), a broad spectrum anti-viral that acts by inhibiting the viral DNA polymerase. Cidofovir has proven to be 100% effective at preventing death in infected camels.

References:-

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