

Is Bovine Papular Stomatitis an Infectious Viral Zoonosis?

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Man has domesticated many species of animals like dog, cat, goat, sheep, horse, donkey, yak, buffalo, camel, elephant etc. Domestication of animal species was done for food, clothing, work, medicine, and other uses. It is believed that cattle were domesticated around 10,500 years ago. Cattle (*Bos taurus*) belonged to Kingdom: *Animalia*, Class: *Mammalia*, Order: *Artiodactyla*, Family: *Bovidae*, Genus: *Bos*. Cattle are very important ruminant, which are raised throughout the world for milk, meat, hide, manure, transport etc. There are many diseases of varied etiologies, which can be transmitted from cattle to humans directly or indirectly [1]. The infectious diseases that are naturally transmitted from animals to human beings are called zoonoses. Some of the cattle zoonoses include anthrax, brucellosis, listeriosis, campylobacteriosis, tuberculosis, salmonellosis, staphylococcosis, cowpox, pseudocowpox, Q fever, dermatophytosis, beef tape worm etc. [1].

Bovine papular stomatitis also known as granular stomatitis, proliferative stomatitis, is a viral disease of cattle, which has been reported from many countries of the world, such as Australia, Brazil, Canada, Europe, Kenya, Nigeria, South Korea, USA [1-4]. The disease is caused by bovine pustular stomatitis virus (BPSV) virus that belonged to the Genus: *Parapoxvirus*, Family: *Poxviridae*. Parapox virus is an oval, enveloped, double stranded DNA. This virus is also the etiologic agent of other zoonotic diseases, namely contagious ecthyma, and pseudo-cowpox [1].

Human can get bovine papular stomatitis virus (BPSV) infection from direct contact with diseased cattle. An accidental bite during inspection of sick cattle can also result into infection. Virus may also enter through pre-existing skin lesions [1]. BPSV has the potential to infect the human beings and therefore, it has zoonotic importance. Several investigators reported that diseased cattle can transmit BPSV infection

to human beings [2,5-7]. The incidence and prevalence of bovine papular stomatitis in humans is not well defined.

Natural infection due to BPSV is reported in cattle but occasionally in human beings. In this context, de Sant Ana and co investigators (2012) [2] reported an outbreak of disease in dairy cows in Brazil. The persons who were milking the affected cows developed lesions on the hands. The painful papules progressed to ulcerative and scabby lesions in 4-7 days. Outbreak of bovine papular stomatitis in young cattle is also described from South Korea [4].

Clinical symptoms in humans include papulo-pustular lesions, erythematous eruptions, verrucose nodules on the fingers, hands, arms and face besides axillary adenopathy. The affected cattle show papular, pustular lesions on the skin of muzzle, nose, lips, and buccal mucous membrane, profuse salivation, fever, and diarrhea [1]. Occasionally, teats of milking cows are also affected [2].

Clinical signs are not very characteristic to warrant the diagnosis of bovine papular stomatitis. Therefore, laboratory help, which includes isolation of virus in bovine kidney or bovine testicle tissue culture, electron microscopy, serology, and polymerase chain reaction (PCR) is required to make an unequivocal diagnosis of disease [1,2,4]. The disease should be differentiated from pseudo-cowpox by using standard laboratory techniques.

The infection is self-limiting and hence, no treatment is needed. However, the antibacterial antibiotic cream, like framycetin, mupirocin, ensamycin, etc. may be applied on the cutaneous lesions to prevent secondary bacterial infection [1].

Certain measures, such as care in handling of diseased cattle, use of gloves during examination of sick animal, proper attention to the skin lesions, through washing of hands with antiseptic solution (dettol, savlon), and quarantine of the newly purchased animal can certainly help to control this viral disease.

It is emphasized that patient showing skin lesions with a history of contact with cattle should be investigated for bovine papular stomatitis viral infection. There is a need to create awareness of zoonotic diseases among the livestock handlers. Early recognition of infection is highly important for preventing the spread of virus.

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