

Contagious Ecthyma: An Infectious Emerging Viral Anthroponotic Disease

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In recent decades, several zoonotic diseases of multiple etiologies have emerged from many regions of the world. These diseases occur in sporadic as well as in epidemic form resulting in high morbidity and mortality in humans as well as in animals. Among these, contagious ecthyma (contagious pustular dermatitis, orf, scabby mouth, sore mouth) is an emerging, highly infectious viral zoonosis, which is important from public health and economic point of view. The outbreaks of disease in sheep are reported from many countries of the world. It is caused by *Orf* virus (double stranded DNA virus) of genus *Parapox* virus, and family *Poxviridae*. The virus is very resistant in the environment as evidenced from its recovery from dried crusts after a period of 12 years. The natural infection is reported in humans as well as in many species of animals, such as alpacas, antelopes, camels, deer, goats, lamas, reindeer, sheep, and wapiti. Human can acquire the infection by direct contact with diseased animals. Indirect transmission may occur through contaminated fomites. The persons who immunize the animals with live vaccine may also be exposed to infection. The virus can enter the skin through abrasions and cuts. Human to human transmission is very rarely noticed. It is an occupational hazard for abattoir workers, livestock handlers, veterinarians, butchers, shepherds, shearers, and goat raisers. The incubation period of disease in man is 3 to 7 days. Lesions, which appear as papule, vesicle, and pustule, are noticed mainly on the finger, hand, wrist, fore arm and sometimes on the face. The lesions may be accompanied by a low grade fever, mild adenopathy of axillary lymph node, and ocular lesions. A solitary lesion develops in most of the infected persons but generalized infections have also be recorded. The lesion usually heals spontaneously in 15 to 30 days without scarring. In goat and sheep, the incubation period is 2 - 3 days. Lesions such as papules, pustules and vesicles occur on the lips, nostril, muzzle, mouth, eyelids, ear, teat, udder, coronet, vulva and scrotum. Lambs show reduced appetite, and lose of condition. Systematic infection is rarely observed. Fatality rate in offspring may reach up to 20%. Disease is uncommon in animals over two years of age. Mastitis has been observed in ewes with lesions on the udder. Extensive lesions on the feet result into lameness. The course of disease in animals is from 7 to 28 days, and during this time, the scabs fall and lesions heal without leaving any scar. In humans, clinical symptoms and history of contact with animal may help in tentative diagnosis. However, the virological (isolation of virus in tissue culture, chorioallantoic membrane of embryonated egg), immunological (virus neutralization, complement fixation, agar gel immunodiffusion, indirect fluorescent an-

tibody,) and molecular (PCR) techniques are essential to confirm an unequivocal diagnosis of contagious ecthyma. Recently, an enzyme linked immunosorbant assay (ELISA) with Western blotting method is developed for the detection of antibodies to *Orf* virus in camel, lama and man. Electron microscopy of scab/crust, biopsy, fluid from skin lesion can reveal the virus particles of contagious ecthyma. Agar gel immunodiffusion test (AGID) is very simple and easy to perform and hence, can be recommended to demonstrate antibodies in sera of patients. In animals, the lesions are characteristic. Contagious ecthyma usually affect the younger animals. The disease should be differentiated from sheep pox, goat pox, foot and mouth disease, and blue tongue. There is no specific treatment but supportive therapy with antibiotics to prevent secondary bacterial infections is suggested. Sheep recovered from a natural attack are highly resistant to re-infection. Immunization of lamb is done with an attenuated cell culture vaccine. It is advised that lambs should be vaccinated at the age of 1- month and then second dose be administered at 2-month of age to achieve good results. Precautions should be taken during vaccination of animals so that uninfected premises are not contaminated. It is pertinent to mention that vaccinated animals should be segregated from unprotected stock until the scabs have fallen. Certain measures such as proper treatment of cut, injury on the finger, hand and arm with antibacterial antibiotics (framycetin, gentamicin, mupirocin, soframycin), careful handling of infected animals in lairage at ante-mortem inspection, proper washing of hands with antiseptic soap (dettol, savlon) after handling diseased animals, use of rubber gloves during vaccination of animals will certainly reduce the incidence of disease in humans. It is emphasized that immunocompromised patients and persons with skin lesions should not be allowed to work with diseased animals or infected materials such as crust, scab and wool. Further work on the role of other animals in the transmission of *Orf* virus to humans should be contemplated.

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