



The tail form of contagious ovine ecthyma in animals with review of literature of human oral and skin infection: A case Report

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ABSTRACT

Contagious ovine ecthyma is a zoonotic viral skin disease associated with necrotic dermatitis. Geographically, the disease is widely distributed. The disease is caused by parapoxvirus which belongs to family of poxviridae. Trauma is a predisposing factor to contagious ovine ecthyma. Necrotic dermatitis associated with skin slough is characteristic. Contagious ovine ecthyma can be seen in several forms; the facial form, the genital form, the feet form, the mammary form and the tail form. Hemorrhagic ulcer of the tail dermis was observed. No specific treatment for the disease and spontaneous recovery was observed. According to severity of the disease, the tail form of contagious ecthyma can be classified as a begin form of pustular dermatitis.

Keywords: Ecthyma, parapoxvirus, dermatitis, tail form, necrosis, oral mucous, lip .

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INTRODUCTION

Contagious ovine ecthyma is a highly contagious viral skin disease of animals which infects humans well [1], causing papulovesicular lesions ending with necrotic dermatitis. The disease is caused by parapoxvirus which belongs to the poxvirus family. Contagious ovine ecthyma is also known as ORF, contagious pustular dermatitis, contagious pustular stomatitis, sore mouth, scabby mouth and malignant aphtha. The micro-organism can live in dry scabs for several years at low temperature [2]. Over 40 strains of contagious ecthyma viruses were detected with host specificity of some strains [3]. Contagious ovine ecthyma is world widely distributed; it was reported in several countries including USA, Europe and Australia [4]. The mortality rate of contagious ecthyma is generally low, however in lambs the mortality rate is high due to secondary bacterial and fungal infections [5]. Trauma with presence of viral particles in the animal surrounding environment predisposes to contagious pustular dermatitis [6]. ORF virus has tropism to epithelial cells, infection with the virus leads to formation of proliferative lesions in the oral mucosa, lips, around the nostrils, and teats [7]. Contagious ovine ecthyma is a self-limiting disease and its severity is exacerbated in stressed or immunocompromised animals [8]. The lesion starts as papule and develops to vesicle, pustule and ends with formation of brown necrotic debris. The mouth form of pustular dermatitis is the commonest form of the disease [9], whereas the tail form is the rarest form [10]. The disease is transmitted to people through direct contact with infected animal or contaminated materials [11]. It has been that, in humans, ORF reveals as an ulcer of the skin lesion sometimes resembling bacterial infection or neoplasm. Infection in man classically is associated with occupational animal contact. The lesion commonly occurs in hands of people who working in close contact with animals in the sheep industry. Moreover, ORF has been reported in children after visiting petting zoos and livestock fairs [12, 13]. In addition, it has been proposed in immunocompromised patients the lesion manifests as large highly vascularized tumour like lesions of the skin [14, 15]. Contagious ecthyma (ORF) usually infects the host through abrasions and injuries on the skin surface and reproduces in regenerating keratinocytes [16]. Human ORF virus infections also have been linked to Muslim religious practices and, more worldwide, to household meat processing or animal slaughter [17, 18]. Previously, diagnosis of pustular dermatitis was based on observation of gross lesions and can be confirmed by electron microscopy [19]. Recently scientists use Polymerase chain reaction for identification of the virus [20]. There is no specific treatment for contagious ecthyma and symptomatic treatment such as using local

antiseptic and dressing of the lesions are beneficial. Vaccination is the best option for ecthyma control [21]. Re-infection in previously infected and vaccinated animals was reported [22].

MATERIAL AND METHODS

On 7th of August 2019 a farmer reported cases of skin disorder to the shiny desert clinic which locates in district of Algatroun in southern Libya. All investigated animals were males. 14 heads of rams were imported to Libya from Republic of Chad, animals were overcrowded during transportation, among the 14 animals one ram has exposed to tail trauma followed by tail cut during transportation. The outbreak was reported to the clinic after one month of animal's arrivals to their destination, animals were housed in palm tree branches-made houses (Red arrow in figure A) which characterized by presence of palm tree stings. Animals were first examined physically, and then scabs from the lesion were collected for microbiology examination using Geimsa stain to detect bacterial, fungal or mange infection. No specific treatments were given to the infected animals, no vaccination history was also reported.

DISCUSSION

In this study diagnosis of pustular dermatitis was based on gross lesion⁷, and the usage of light microscopy examination has excluded possibility of bacteria and fungus infection¹¹, as viruses are mainly detected using electron microscopy⁹. All Rams were normal at the arrival time, except 1/14 of rams has tail injury which ends with tail cut (figure A). Appearance of the tail form of contagious ecthyma¹⁰, in the other rams indicates that the tail-injured ram was the source of infection due to direct contact with the normal animals². 3/14 of rams present ed necrotic dermatitis of the tail which end with sloughing of the tail skin leaving hemorrhagic ulcer⁴. Restriction of the disease to the tail (figures 1&2) in this outbreak may indicates that the tail is a predilection site for this strain of the invader virus². Spontaneous recovery was observed in all infected animals without specific treatment, figure A shows recovery of the ram which showed tail form of contagious ecthyma in figure 1.

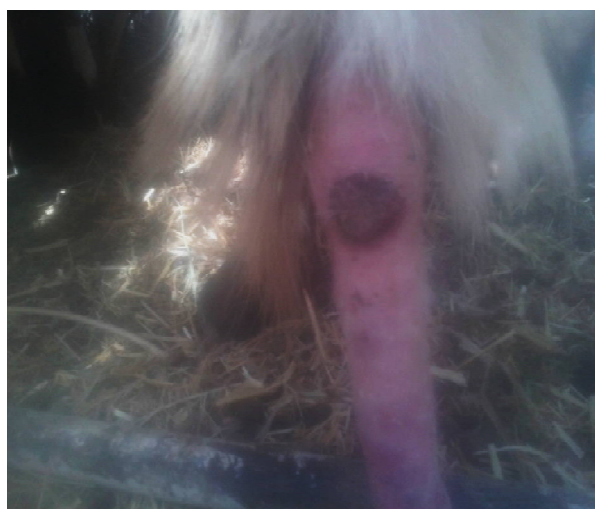


Figure 1

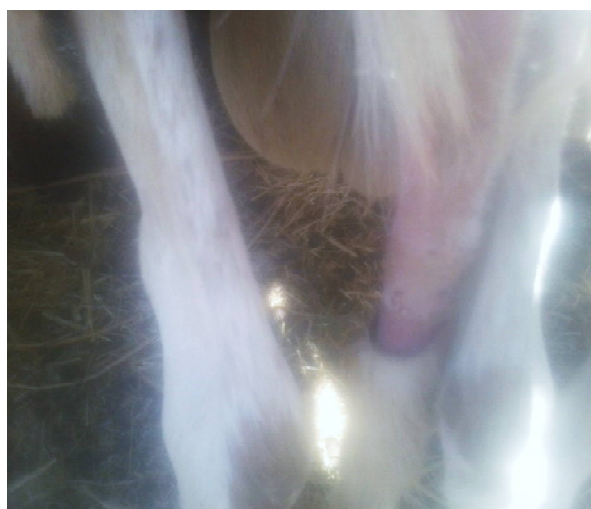


Figure 2

Figure 1. Complete slough of skin of the distal part of the tail leaving hemorrhagic ulcer (green arrow) due to infection with contagious ovine ecthyma virus.

Figure 2. Incomplete slough of tail skin due to necrotic dermatitis caused by contagious ovine ecthyma virus leaving a separation between epidermis and dermis as pointed by red arrow.



Figure 2. the blue arrow shows recovery the infected animal which is shown in figure 1 and the yellow arrow show the cut tail of the animal which was the source of infection. The red arrow shows the material which house made from (palm tree branches)

CONCLUSION

Contagious ecthyma can be classified according to the predilection site of the virus into the tail form, the mammary form, the genital form, the feet form and the facial form. The facial form could also sub-classified into the ear form, the nose form and the mouth form. The most malignant form of the disease is the mouth form which interferes with animal feeding causing anorexia, and debility while the tail form considers a begin form which primarily affects only animals' appearance and welfare rather than animal general health.

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