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Contagious Ecthyma: Case Report and Review

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Abstract: After recourse of a sheepman from Sarvestan township of Fars province to Department of Pathology, School of Veterinary Medicine, Shiraz University, due to occurrence of a disease with history of oral ulcer and mortality in lambs and kids, a group from this faculty left for the area to diagnose the disease. At first, the affected and dead animals were studied macroscopically and raised lesions on the commissures of the mouth, muzzle, lips and tongue were observed. Pustular lesion, 2 cm in diameter, developed on the index finger of right hand in one of the article authors two weeks after the macroscopic examinations. This lesion was diagnosed as orf based on macroscopic typical features, clinical course and history. Microscopically, there were epidermal or epithelial hyperplasia with long extensions into underlying connective tissue. In some sections, the affected epidermis had hydropic degeneration and small pustule formation with tissue debris at the surface. Infiltration of inflammatory cells, hyperemia and neovascularization were seen beneath the affected epidermis. In this study, We report macroscopic and microscopic lesions of contagious ecthyma in the affected animals, the characteristics of it in the human.

Key words: Contagious ecthyma, pathology

INTRODUCTION

Contagious ecthyma, also called contagious pustular dermatitis, infectious labial dermatitis, sore mouth and scabby mouth (Jones *et al.*, 1997). This disease is called Orf when it occurs in man (Gourreau *et al.*, 1986). Contagious ecthyma is a common localized infection of young sheep and goats caused by a parapoxvirus with worldwide distribution. Less commonly, human beings, cattle, wild ungulates and dogs are infected (Hargis and Ginn, 2001). Human transmission typically occurs in people in contact with the infected animals or by handling contaminated animal products such as wool or meat. The infection in humans is classically characterized by a solitary papule on the fingers or hands (Bodnar *et al.*, 1999). Contagious ecthyma is of economic importance due to mortality and weight loss in lambs that are reluctant to eat because of oral and perioral lesions (Hargis and Ginn, 2001).

In humans, numerous cases of orf have been described in various parts of the world (Bassioukas *et al.*, 1993; Georgiades *et al.*, 2005; Huerter *et al.*, 1991; Sanchez *et al.*, 1985; Schimmer *et al.*, 2004). In this study, We report macroscopic and microscopic lesions of contagious ecthyma in the affected animals, the characteristics of it in the human.

MATERIALS AND METHODS

After recourse of a sheepman from Sarvestan township of Fars province to Department of Pathology, School of Veterinary Medicine, Shiraz University, due to occurrence of a disease with history of oral ulcer and mortality in lambs and kids, a group from this faculty left for the area to diagnose the disease. At first, the affected and dead animals were studied macroscopically and then for histopathological study, tissue samples were taken from the lesions and fixed in 10% neutral buffered formalin. They were processed in routine way, sections of 5 µm thickness were stained with hematoxylin and eosin and studied microscopically.

RESULTS

Macroscopic study of the affected and dead lambs and kids revealed raised lesions on the commissures of the mouth, muzzle, lips and tongue. There were thick and brown to black scabs on the some lesions.

Pustular lesion, 2 cm in diameter, developed on the index finger of right hand in one of the article authors two weeks after the macroscopic examinations (Fig. 1). This lesion was diagnosed as orf based on macroscopic typical features, clinical course and history.



Fig. 1: The pustular lesion of orf is surrounded by hyperemic zone

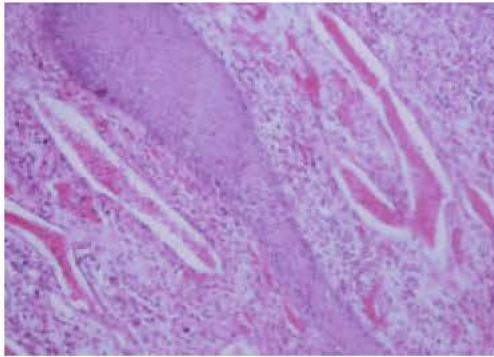


Fig. 2: The down growth of epidermis into the dermis, infiltration of inflammatory cells, hyperemia and neovascularization (H and E, x185)

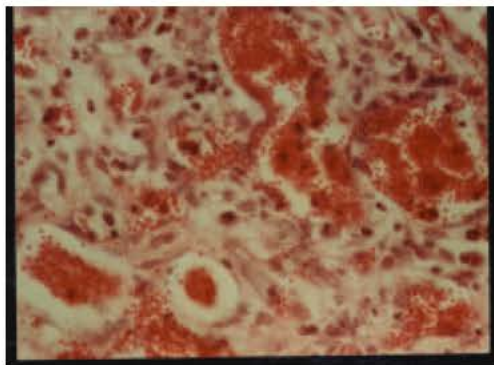


Fig. 3: Hyperemia and neovascularization (H and E, x528)

Microscopically, there were epidermal or epithelial hyperplasia with long extensions into underlying connective tissue (Fig. 2). In some sections, the affected epidermis had hydropic degeneration and small pustule

formation with tissue debris at the surface. Infiltration of inflammatory cells, hyperemia and neovascularization were seen beneath the affected epidermis (Fig. 2 and 3).

DISCUSSION

In this study, typical macroscopic and microscopic lesions of contagious ecthyma were seen. In addition to these macroscopic lesions of affected animals, papules and then pustules of this disease may develop on eyelids, dental pads, palate, esophagus, forestomachs, coronary bands and anus. Scab formation may not occur on the lesions of oral cavity, esophagus and forestomachs. Suckling animals may infect the teats and then the lesions may spread to the skin of the udders (Hargis and Ginn, 2001; Jones *et al.*, 1997).

In addition to microscopic features of contagious ecthyma in this study, eosinophilic cytoplasmic inclusion bodies are present in keratinocytes, but are transitory. The down growth of the basal layer of epidermis into the dermis is a striking feature in this disease (Jones *et al.*, 1997).

In this study, the orf lesion of affected man took two months to regress that was similar to other reports. The clinical and histopathologic study of 17 patients with orf or milkers, nodule infection revealed most lesions affected the hands or arms, ranged in size from 1 to 3 cm and occurred on average 3 weeks after contact with farm animals (Groves *et al.*, 1991). In humans, orf generally manifests as a solitary skin lesion that develops on the dorsal side of the fingers or hands, although rarely it can have an unusual course or be accompanied by systemic symptoms or complications (Gurel *et al.*, 2002; Schimmer *et al.*, 2004). In addition to the fingers or hands, atypical orf lesions have been reported on the head, face, nose, pinna and external auditory canal (Bodnar *et al.*, 1999; Degraeve *et al.*, 1999; Georgiades *et al.*, 2005; Gurel *et al.*, 2002; Shinkwin *et al.*, 1991).

In humans, the diagnosis of contagious ecthyma is usually based on a clinically typical skin lesion, characteristic histology, clinical course and patient's history (Huerter *et al.*, 1991; Rieger *et al.*, 2003; Schimmer *et al.*, 2004). In this study, the diagnosis was made based on these factors too. The diagnosis may be confirmed by isolation and identification of the virus, demonstration of the virus by electron microscopy and polymerase chain reaction (Gameel *et al.*, 1995; Schimmer *et al.*, 2004).

Contagious ecthyma (orf) is a self limiting disease in immunocompetent patients; a spontaneous regression is observed after 6-8 weeks. No specific treatment is required

except for local disinfection to avoid secondary infection. In immunocompromised patients, however, often develop very large and atypical orf lesions. In these cases, multiple treatments have been successfully used such as cryotherapy, surgical excision and 40% topical idoxuridine application. Cryotherapy should be tried as first choice treatment because it is easy to use and there are nearly no side effects (Degraeve *et al.*, 1999).

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