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Shivaraju S

Veterinary Officer, Government
of Karnataka, India

Divya Mohan

Veterinary Assistant Surgeon,
Government of Kerala, India

Kalaiselavn E

Division of Surgery, IVRI,
Izatnagar, Bareilly, Uttar
Pradesh, India

SK Maiti

Division of Surgery, IVRI,
Izatnagar, Bareilly, Uttar
Pradesh, India

Prakash GV

Division of Surgery, IVRI,
Izatnagar, Bareilly, Uttar
Pradesh, India

Corresponding Author:

Shivaraju S

Veterinary Officer, Government
of Karnataka, India

Successful clinical management of contagious ecthyma (Orf) in goat: A case report

Shivaraju S, Divya Mohan, Kalaiselavn E, SK Maiti and Prakash GV

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Abstract

Clinical management of orf in animals is a challenging task due to as there is no specific treatment for this viral infection. Orf disease caused by a double-standard (ds) DNA virus belongs to Poxviridae family. A female black goat of 1.5 years presented with the history of lameness and proliferative skin lesions around the oral cavity. On clinical examination characteristics lesions and physical examination findings pointed towards contagious ecthyma. The animal was treated with Ceftriaxone (15mg/kg, IM, BID, Intacef®) for five days, meloxicam (0.5mg/kg IM, Melonex®) for 3 days. The owner was guided to a regular application of boric acid mixed with Desi curd on skin lesions and honey for oral mucosal wounds, twice a day. Good personal hygiene (both veterinarian and owner) was maintained in order to avoid zoonotic transmission. Animal shown drastic improvement in the clinical condition with complete recovery from oral lesions after 30 days of treatment.

Keywords: clinical management, contagious ecthyma (Orf), goat

Introduction

Contagious ecthyma, also called contagious pustular dermatitis, orf, ecthyma contagiosum, and scabby mouth or sore mouth (CDC 2015) [3]. A disease caused by a double-standard (ds) DNA virus belongs to Poxviridae family. It is a non-systemic eruptive skin disease and distributed globally, affects wild and domesticated artiodactyls, frequently causes disease in small ruminants like sheep and goats (Haig *et al.* 2006) [4]. Goats are more affected than sheep. Contagious ecthyma can be transmitted to humans through direct/indirect contact with infected animals (Groves *et al.* 1991) [6]. Dog can contact infection from consumption of orf-contaminated meat. Typical clinical signs include proliferative skin and mucous membrane of the oral cavity, tongue, lips and ears are developed sequentially in the form of papules, vesicles, pustules, scabs which are important for the diagnostic point of view (Jaiswal *et al.* 2019) [9]. The disease also results in genital, udder and foot lesions in the lambs. During outbreak morbidity can be as high as 100%, whereas mortality is less than 1%. More common in late summer, fall and winter on pasture and in feedlots (Nandi *et al.* 2011) [11] due to resistance of the virus and it can live in a dry environment for a longer period (Radostits *et al.* 2007) [12]. Orf has become a potentially serious health threat for the small ruminants industry with an important economic impact.

Case history and clinical observations

A female black goat of 1.5 years presented to the veterinary hospital with the history of inappetence, dull, nasal exudates, lameness and proliferative skin lesions around the oral cavity (lips, oral commissure), nostril and muzzle region (Figure. 1). On clinical examination, it observed that the animal was dehydrated, skin lesions were dry and had an offensive odour. The pulse rate and respiratory rate are within the normal physiological range, whereas fever off 104.3 °F was noticed. The owner stated that he and neighbor lost 1 animal (Goat) each 45 days back respectively. Characteristic lesions and physical examination findings pointed towards contagious ecthyma.

Treatment

As there is no specific treatment for this viral infection, in this case, the goat was treated with

Ceftriaxone (15mg/kg, IM, BID, Intacef®) for five days, meloxicam (0.5mg/kg IM, Melonex®) for 3 days. The owner was guided to a regular application of boric acid mixed with Desi curd on skin lesions and honey for oral mucosal wounds, twice a day. Good personal hygiene (both veterinarian and owner) was maintained throughout the treatment period in order to avoid zoonotic transmission of the disease. This intervention had shown drastic improvement in the clinical condition with complete recovery from oral lesions after 30 days of treatment (Figure. 2).



Fig 1: Goat with proliferative, ulcerative skin lesions around the mouth, lips and muzzle



Fig 2: After treatment, reduction orf infected in the skin lesions

Discussion

The orf virus (ORFV) belonging to the Poxviridae family, Chordopoxvirinae subfamily, Parapoxvirus genus. The importance of orf infection has recently increased due to the emergence of this virus in new territories, the occurrence of re-infection of previously infected animals, as well as interspecies infection (Hosamani *et al.* 2009) [8]. Risk factors for orf virus infection include age, congestion due to increased stocking density, orphaned lambs and stress (Abdullah *et al.* 2015) [1]. The disease is usually transmitted through contact from infected to susceptible animals. The incubation period varies from 4 to 8 days with an initial rise in temperature. Even though infection is confined to the skin (epidermal cell layer) of the oral cavity, eyelids, teats and coronary band of affected animals with a combination of secondary bacterial infections (Gelberg *et al.* 2012) [5], however, lesions may extend to the squamous epithelium of the digestive tract, causing ulcerative gastroenteritis (Zachary *et al.* 2012) [5, 7, 13]. And these symptoms mimic the vesicular diseases (foot and mouth diseases and bluetongue) of cloven-footed animals. Nandi *et al.* (2011) [11] also reported that in

combination with skin lesions goats showed pneumonia, arthritis and lymphadenopathy in ORFV infection. The ecthyma contagiosa can be diagnosed on the basis of characteristic lesions on the predilection site (skin). It should be differentiated from the foot and mouth disease (FMD), staphylococcal dermatitis, dermophilosis and ulcerative dermatosis sheep pox and goat pox (Watson, 2004; Nandi *et al.* 2011) [11, 14]. The commonly employed laboratory test for diagnosis is the serological test like enzyme-linked immunosorbent assays (ELISAs), complement fixation test (CFT), histopathology of affected tissues, cell culture isolation and polymerase chain reaction (PCR).

Zoonosis most commonly occurs during lambing, shearing, drenching, handling during treatment, or slaughtering of the affected animal. Infection in humans is self-limiting, heal spontaneously. Personal hygiene should be followed during handling of affected animals in order to avoid transmission zoonotically and to the healthy flock.

Contagious ecthyma can cause massive economic losses in the flock. Although orf is a self-limited disease, symptomatic treatment with dressings and local antiseptics are very helpful. The secondary bacterial infection is common in orf infection, so systemic and local antibiotics must be included in the treatment protocol. The aim of treatment was reducing the severity of the lesions and speed recovery as removal of the scab may delay healing (Radostits *et al.* 2007) [12]. Both synthetic and traditional herbal therapies help in treating the infection (Nandi *et al.* 2011) [11].

Orf disease can be effectively controlled by vaccination. An autologous vaccine can be used by triturating the scab material in saline followed by the addition of antibiotics (Bath *et al.* 2005) [2]. Although various types of vaccines are available against the orf disease. Particularly live attenuated vaccines are used because of its efficacy.

Although, vaccination is the efficient and cost-effective method of preventing the infection. Sanitary measures and disinfection practices like isolation of infected animals, quarantine of new animals, regular disinfection of fomites should be done along with the vaccination. It is difficult to eradicate once the orf outbreak occurred in flock or herd.

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