

Therapeutic management of Contagious Ecthyma (Orf) in Black Bengal goat: A case report

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Abstract

The current report describes a case study on successful treatment for Orf in Black Bengal goat at the College of Veterinary Sciences and Animal Husbandry, Central Agricultural University, Jalukie, Nagaland. The animal had hard crusted lesion on and around the lips. Inj. meloxicam injection @ 0.5 mg/kg body weight once daily and inj. streptopenicillin (Dicrysticin-S) @ 10 mg/kg body weight intramuscularly was given for 5 days. Inj. chlorpheniramine maleate @ 0.5 mg/kg body weight intramuscularly once for 5 days was given. Autoimmune therapy in three divided doses, each with 7 mL deep intramuscularly, was given on the 0th, 7th and 14th day of treatment. The lesion was cleaned with povidone iodine solution twice in a day and applied Charmil PlusTM which is enriched with neem oil. The lesions subsequently subsided within 4 weeks of treatment.

Key words: Goat, Orf, Streptopenicillin

Highlights

- Temperature subsided within 24 hours after the administration of Inj. meloxicam @ 0.5 mg/kg body weight through intramuscular route. No further administration of meloxicam was required.
- Appetite was improved within 2 to 3 days of treatment; thereafter animal became active and alert.
- Dicrysticin-S and chlorpheniramine maleate was administered as per the required dose till 5 days from day one of treatment. Autoimmune therapy was given to the animal on the 0th, 7th and 14th day of treatment by injecting 7 mL of venous blood via deep IM route.
- Topical application of Charmil Plus was applied on the affected area until healing. There was a marked improvement in the process of healing.
- There was complete healing of the wound within 4 weeks of treatment. The animal is healthy and performs well.

Orf is an acute, highly contagious, zoonotic and economically important non-systemic viral skin disease primarily observed in sheep, goats, domesticated animals (camel, alpaca) and wild ruminants (reindeer, black buck, antelope). The disease is caused by a member of the genus *Parapoxvirus* belongs to the family of *Poxviridae* (Murphy *et al.*, 1995). It is a self-limiting disease and affects all age groups of animals; however, young or immune-compromised animals are more susceptible. The disease is more severe in goats than in sheep

(Nandi *et al.*, 2011). The disease is known with 80 medical names (Merino *et al.*, 1996; Taieb *et al.*, 1998) and is more often known as contagious pustular dermatitis, contagious ecthyma, sore mouth, scabby mouth, infectious labial dermatitis, thistle disease etc. The word Orf in old English means Rough and Tough (Maclachlan and Dubovi, 2010) and when the disease occurs in humans, it is more popularly known as Orf (Nourani and Maleki, 2006). The disease is commonly found in pasture or manual feeding under drought conditions (Brahma

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et al., 2020) and is transmitted to animals or humans through broken/damaged/infected areas either by direct/indirect contact with contaminated materials (Frandsen *et al.*, 2011) or exposure to the contaminated environment and fomites carrying the virus (Vikram *et al.*, 2015) and in dog consumption of contaminated carcass (Hagis and Ginn, 2001). However, a rare human-to-human transmission is recorded (Gerceker *et al.*, 2014). The virus has developed a wide range of mechanisms by which it can escape the host immune system (Joseph and Amor, 2017). The economic importance of the disease is that there is a risk of lower productivity and body weight gain of animals due to stress, which reduces the market weight of meat, wool, leather etc. The lesions are normally benign (Kassa, 2021) and appear after an incubation period of 3 to 7 days (Rajesh *et al.*, 2015). Lesions are mostly concentrated in and around the lips, mouth commissure, gingiva, tongue, hard palate oral mucosa, muzzle, on the teats of nursing ewe and does and usually resolved in 1-2 months (Nandi *et al.*, 2011). However, in an unattended case, there may be maggot wounds, fungal infestations and secondary bacterial infections, which add complications to the disease. The mobility rate of the disease may reach up to 100%, while mortality is generally less than 1%. Although, the mortality rate in small ruminants due to secondary infections may reach as high as 20-50% (Haig and Mercer, 1998; Hosamani *et al.*, 2009). Mortality in young animals may be an inability of the kids to feed due to pain leading to anorexia, associated with maggot infestations and secondary bacterial infections (Housawi and Abu, 2000).

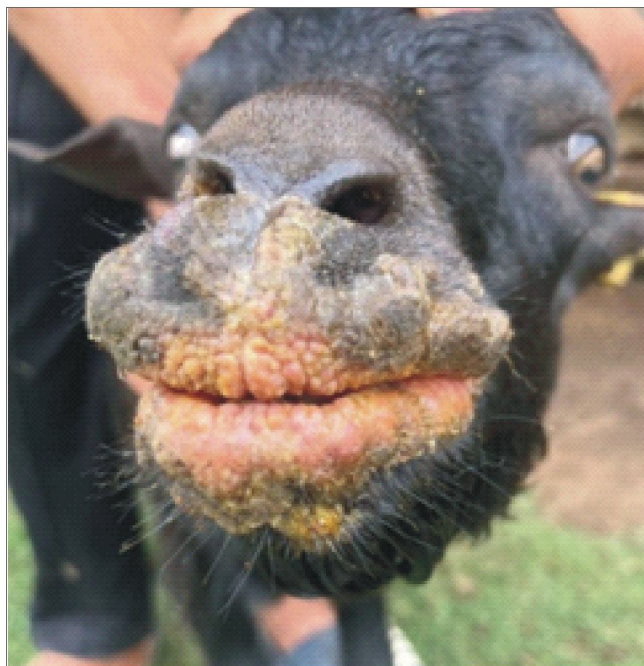
A kid of 8 months old was infected with Orf in the farm of the College of Veterinary Sciences and Animal Husbandry, Jalukie, Nagaland (Central Agricultural University, Imphal). The animal was dull, inactive and in anorexia. The external lesions in and around the mouth and muzzles were dry, ulcerative and scabby: lesions in oral mucosa appear to be round red raised papules (Fig. 1a & 1b). Based on the

clinical signs, the disease was diagnosed as Contagious Ecthyma (Orf). In order to prevent further infection to the herd, the kid was isolated, and rectal temperature on the first day of treatment was recorded (105°F). The lesions were wiped and cleaned with an antiseptic solution and administered antibiotic, antihistamine, antipyretic and applied herbal skin gel ointment.

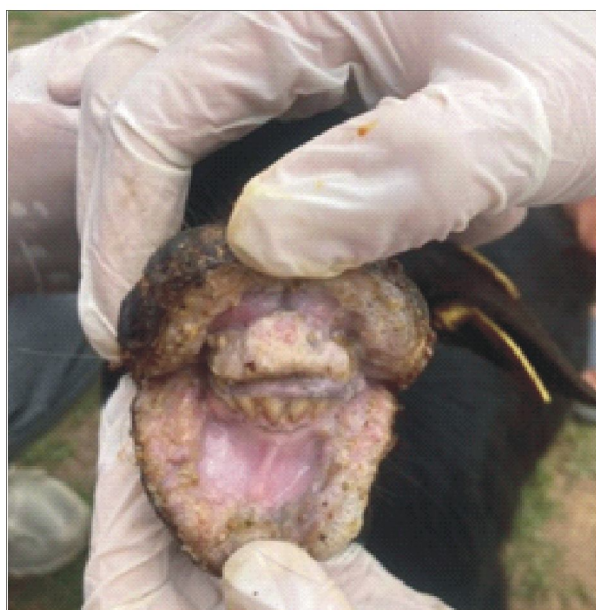
To prevent the further spreading of infection, the kid was isolated, and a strict biosecurity measure was followed in the farm. Symptomatic treatment was given with Inj. meloxicam injection @ 0.5 mg/kg body weight once daily till fever persists, Inj. streptopenicillin (Dicrysticin-S) @ 10mg/kg body weight intramuscularly for 5 days, Inj. chlorpheniramine maleate @ 0.5 mg/kg body weight intramuscularly once for 5 days. The lesion was cleaned with povidone iodine solution twice a day and applied ointment Charmil plus™ (enriched with neem oil). Autoimmune therapy was carried out to subside the swelling and pain, for which 7 mL of blood was withdrawn from the jugular vein and injected deep intramuscular route on the 0th day, 7th and 14th day of treatment. Significant recovery was observed after the third dose of treatment.

As there is no specific treatment against Orf due to the fact that it is a viral disease, therefore, the treatment is diverted towards the control of secondary bacterial infections and supportive therapy to enhance the immunity of the hosts (Onyango *et al.*, 2014). In the present study, complete wound healing was observed within 4 weeks of treatment (Fig.1c). As streptopenicillin is highly effective against a wide range of gram-positive and gram-negative bacteria, it shows a positive response in Orf treatment. Many studies have reported that procaine penicillin has a wide spectrum of activity against *Staphylococcus* spp., *Streptococcus* spp., *Arcanobacterium pyogens*, *Klebsiella pneumonia*, *Salmonella* spp. etc (Schwarz *et al.*, 2007). Applying Charmil plus™ in affected areas enhances the healing process by combating secondary infections. The neem

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(a)



(b)



(c)

Fig. 1. (a) and (b)- Orf lesions in a Black Bengal goat before treatment, (c)- Disappearance of Orf lesion after 4 weeks of treatment

content in the Charmil plus™ has anti-inflammatory, antimicrobial, antiviral, antifungal, antioxidant and wound healing properties (Rudra *et al.*, 2019).

The Orf infection can persist in a herd and may create economic loss for the farmers. The disease has gained popularity across the globe due to its zoonotic importance affecting mainly the stressed, weak and immune-compromised hosts. Adequate determination of pathophysiology, risk factors associated with the occurrence of the disease, early detection and isolation of infected animals from the herd may help to minimize the incidence.

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Conflict of interest: Authors have no conflict of interest in this study.

Author's contribution: KMD: Studied the case thoroughly, treated the animal and present a case report; TGD: Helped in overall farm management; AS: Helped in checking and editing the manuscript; I: Being a Veterinarian Farm Manager treated the animal till recovery.

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