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Successful treatment of contagious ecthyma (ORF) in Assam hill goats by using turmeric powder and aloe vera gel preparation

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Abstract

Orf is an acute contagious and economically important zoonotic viral skin disease of sheep, goat, and wild ruminants caused by orf viruses. Infected animal is sick, fail to thrive and susceptible to bacterial infections. Characteristic of the disease are proliferative and often self-limiting lesions on the skin of the lips, on the oral mucosa and around the nostrils. The mortality rate related to orf is usually low, but it may be very high when bacterial or fungal secondary infections occur. Three kids with comparable age group of six months were affected with orf in Sheep and Goat Farm, Livestock Research Station, Assam Agricultural University, Mandira. The affected kids developed fever, dull, depressed and lesions on nostrils, lips and inside the mouth. Affected goats was isolated from other healthy goats. Lesions were wiped with potassium permanganate solution. Affected goats was treated intramuscularly with Inj. Enrofloxacin @ 5mg/kg body weight, Inj. Meloxicam @ 0.5 mg/kg body weight and Inj. Chlorpheniramine maleate @ 0.5 mg/kg body weight. An ethno veterinary medicine, comprised of aloe vera gel and turmeric powder in the ratio of 1:1 was mixed and applied over the lesions twice daily. There was complete recovery within one week of treatment.

Keywords: Aloe vera gel, assam hill goat, turmeric powder, Orf

Introduction

Orf also known as contagious ecthyma, scabby mouth, contagious pustular dermatitis or sore mouth is a zoonotic viral disease of sheep's, goats and some other domesticated and wild ruminants. It is a viral skin and mucosae disease which causes scabby lesions around the area of the mouth, lips and nose [1]. The economic importance of this disease is notable as it is related in causing severe impact in young lambs and kids. Orf causes significant financial losses in livestock production as the lesion often jeopardise optimum productivity and reduce the market value of meat [2]. Orf cases are more often noticed in pasture or manual feeding under drought conditions. Orf virus can resist dry environment and can continue to live for considerable length of time ranging from months to years in dry environments [3]. Contagious ecthyma is a non-systemic eruptive skin disease having worldwide distribution [4]. This virus primarily causes acute pustular lesion [5]. Direct or indirect contact can transmit the virus through broken, scarified or damaged skin [6]. The morbidity of the disease can be as high as 100%, but the mortality rate in uncomplicated cases rarely exceeds 1% [7]. The high mortality in young animals is due to the inability of the animals to feed due to oral lesions associated with secondary infections leading to anorexia. Maggot infestations and secondary bacterial or fungal infections aggravate the condition to worst contributing to mortality [8]. Ethno veterinary medicine, provides low-cost alternatives to allopathic drugs [9, 10]. In addition, ethno veterinary medicines cover people's knowledge, skills, methods, practices and beliefs about the care of their animals [9]. In many poor rural areas ethno veterinary medicines can play an important role in animal production and livelihood development and often becomes the only available means for farmers to treat ill animals [11]. Use of ethno veterinary medicine, one can minimize the monetary loss owing to treatment courses using antibiotics, antiseptics, anti-inflammatory drugs and antihistamines [12, 13, 14]. Thus, it is necessary to study indigenous knowledge and evaluate the Ethno veterinary therapeutic practices in animal health care.

Materials and methods

Three kids of six months age were affected with orf in Livestock Research Station Farm, Assam Agricultural University, Mandira.

The affected animals were dull, depressed and anorectic. The external skin lesions were dry, ulcerative and scabby in characteristics and appeared on the commissures of lips and then extended to all areas around the mouth (Figure: 1). There was increased rectal temperature and presence of nasal exudates. The animal was treated with antibiotic,

antihistamine and anti-inflammatory drugs. The lesion was wiped with cotton dipped in potassium permanganate solution. Lesion was treated externally by application of herbal paste prepared from turmeric powder and aloe vera gel in 1:1 ratio (Figure: 2). After each application fresh paste was prepared and applied twice daily.



Fig 1: Dry, ulcerative and scabby lesions around lips, mouth, and muzzle

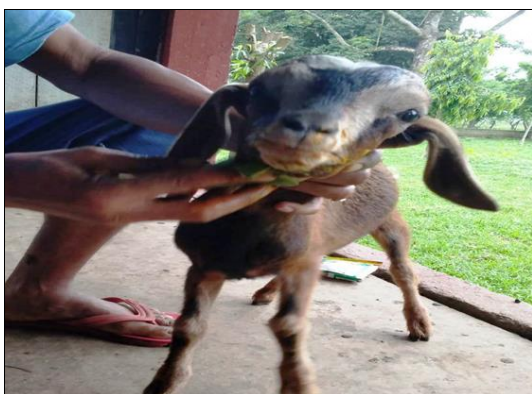


Fig 2: Applied turmeric powder and Aloe vera gel paste

Results and Discussion

Diseased goats were kept in isolation and treated intramuscularly with Inj. Enrofloxacin @ 5mg/kg body weight, Inj. Meloxicam @ 0.5mg/kg body weight and Inj. Chlorpheniramine Maleate @ 0.5 mg/kg body weight [13, 14]. Overused of these drugs is avoided it causes side effects and antibiotic resistance. The lesion was wiped with cotton dipped in potassium permanganate solution. Lesion was treated externally by application of herbal paste prepared from turmeric powder and aloe vera gel in 1:1 ratio. After each application fresh paste was prepared and applied twice daily. There was complete recovery within one week of treatment (Figure 3). Aloe vera contains Anthraquinones that are known for anti-virus properties which inactivates various enveloped viruses. Aloe vera contains six antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamomic acid, phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses. Glucmannan, a mannose-rich polysaccharide and gibberellin, a growth hormone interacts with growth factor receptors on the fibroblast thereby stimulating its activity and proliferation which in turn significantly increases collagen synthesis after topical and oral aloe vera application [15]. Aloe vera gel changed collagen composition and increased the

degree of collagen cross linking due to this accelerated wound contraction and increase breaking strength of scar tissue [17]. Turmeric contains curcumin (diferuloylmethane), is the main curcuminoid responsible for imparting yellow colour. Turmeric has anti-inflammatory, anti-oxidant, anti-carcinogenic and anti-infectious effect. The wound healing activity of curcumin is due to its multifaceted effect viz., anti-inflammatory [16], anti-infectious [17, 18] and antioxidant [19, 20] activities. Topical application of curcumin has been found to promote re-epithelialization and improves neovascularization.



Fig 3: Completely healed after 7th days of treatment

Conclusion

Ethno veterinary medicine prepared out of turmeric powder and aloe vera gel was found very effective in treating orf in goats. Ethno veterinary medicine could be used cost effectively in goats against orf.

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