

CLINICAL ASSESSMENT OF LIQUID NITROGEN CRYOTHERAPY IN MANAGEMENT OF ORF LESIONS IN GOATS

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ABSTRACT

A total of 16 clinical cases of orf in goats belonging to either sex having different age were divided into two groups: Group- I (10 Goats) given routine medicinal treatment like antiseptic dressing, antibiotic therapy and analgesic support for three consecutive days. Group-II (06 Goats) - In addition to the routine medicinal treatment protocols, lesions were frozen to -20°C using liquid nitrogen cryotherapy. Cryotherapy found to be advantageous in treating lesions with big size scabs. As the scabs were not removed, they remained at the place providing biological coverings and have helped in early recovery of the lesions. Complications like temporary obstruction of nares, anorexia, sneezing and salivation following cryotherapy were noticed.

KEY WORDS: Goat, orf lesions, medical treatment, cryotherapy

INTRODUCTION:

Orf is a highly contagious, zoonotic, viral skin disease that affects sheep, goats and some other domesticated and wild ruminants. It is transmitted through animal and object contact, to the teats and udder of the mother, causing pain and abandonment of the lamb or kid (Jones et al., 1997; Hargis and Ginn, 2001). The skin lesions are painful and often occur on the mouth and muzzle, where they can cause anorexia or starvation. Orf is also known as contagious ecthyma, contagious pustular dermatitis, contagious pustular stomatitis, contagious bovine ecthyma, infectious labial dermatitis, sore mouth, thistle disease and scabby mouth (Jones et al., 1997). The Parapox virus is very hardy and live virus has been found in dried scabs up to twelve years after they have been shed. It is important to realize that like all other diseases caused by viruses; orf cannot be treated with antibiotics. If infected animals are kept clean, the disease will clear up in two to four weeks without treatment. Once one animal comes down with sore mouth, it tends to infect the entire herd over a period of 1 to 2 months. Antibiotics are widely used against possible bacterial infection, but they do not affect the course of the disease (Bassioukas et al., 1993).

Susceptible goats develop the first signs of papules (elevation of the skin) in 4 to 7 days after exposure as incubation period is relatively short and progresses to blisters (fluid- filled pouches) or pustules before encrusting into wet pus-like (suppurative) scabs which persists for 1-6 weeks or longer periods, eventually break down to release more of the virus or can become a site for the development of secondary bacterial infections. It is marked by an increase in incidence and severity if not controlled among small ruminant herds. Raised brown thick scabs (Plate-1) tissues are extremely painful, preventing sick animals from eating. Infected goats and kids present lesions on their gums and lips. Does and ewes can acquire lesions on their udder (Plate-2) due to direct contamination during nursing that can also lead to mastitis. The disease usually clears up on its own unless the animal is severely affected, the scabs drop off and the tissues heal without scarring (Merck Vet. Manual, 2008). Removal of the scabs and application of the ointments and astringent lotions are practiced as rational therapy but it delays healing in most of the cases. Cryosurgery is selective and controlled application of cooling agent for inducing cryodamage to target tissues (Tank et al., 2003), which the surgeon wishes to destroy (Borthwick, 1970). Tank et al. (2003) emphasized the importance of case selection for success in cryosurgery. Use of cryotherapy (Ocampo et al., 1993), interferon (Tan et al., 1991) and surgical excision of the lesions have been reported in clinical management of orf lesions. Diathermy and cryosurgery have been used to treat lesions in lambs but may not be economical. According to Weaver (1986) cryosurgery was faster, safe with no haemorrhage and relatively free from postoperative complication. Andrews (2004) stated that cryosurgery required short preparation time, low risk of infection, minimal postoperative care and rarely required anesthesia.

Hence the present clinical study was carried out to assess the utility of liquid nitrogen cryotherapy as an adjunct treatment to the routine clinical management of the orf lesions in goats.

MATERIALS AND METHODS:

A total of 16 clinical cases of orf belonging to different age and sex categories were grouped as: Group-I (10 Goats) - Clinical management of contagious ecthyma by routine treatment protocols which included antiseptic dressing of the lesions using liquid Betadine and Lorexane ointment, Inj. Bayrocin @ 2.5-5 mg/kg BW, IM, and Inj. Neoprofen @ 3 mg/kg BW, IM, for minimum three consecutive days (Plate-3). Group- II (06 Goats) - The orf lesions were cryofrozen with liquid nitrogen spray using cryosystem model-800-777-CRYO cryogen following double freeze-thaw overlapping modality. The cryofreezing was monitored by digital thermometer and the lesions were frozen up to -200C only. In addition to the cryotherapy, the goats were given same treatment as described above for group-I animals. Large nodules required multiple sittings of liquid nitrogen cryotherapy. Heavy gauge plastic covers, Petroleum jelly, glycerin impregnated gauze and plastic frames were used as cryoguard over the mouth to prevent cryodamage to healthy tissues (Plate-4).

In follow-up of the cases, both the groups were clinically observed for changes in orf lesions and compared with special reference to healing by recording tissue changes, sloughing, granulations, myiasis, infection etc. (Plate-5).

RESULTS AND DISCUSSION:

Routine clinical management showed uneventful recovery within an average period of 30 to 45 days. During the dressing, manual removal of orf lesions, especially the scabs led to profuse bleeding and inconveniency which in few of the cases showed tendency of myiasis and or infection (Plate-5). Cryotherapy facilitated progressive necrosis and periodical sloughing of the scabs with simultaneous granulation of the underlying wound surface, acted as biological covering and protected wound surface against external contaminations. The goats recovered a bit earlier, i.e. within 20-25 days, uneventfully following cryotherapy. Scabs should not be removed because of potential scarring and spread of infection. Because of probably increase in immune response; healing was faster in animal treated with cryotherapy as compared to the routine medicinal therapy.

Goat's lips and muzzle are very prehensile and over freezing of surrounding tissue led to open wound (Fretz and Holmberg, 1980). The lesion became necrotic and sloughed off and the necrotic area resembled an infarct with a sharply delineated border. Heavy gauge plastic covers, petroleum jelly, glycerin impregnated gauze and plastic frames were used over the mouth to prevent cryodamage to healthy tissues. This happens to be a known complication of cryofreezing (Plate-6). To prevent such complications additional use of cryoprotectants or cryoguard is advisable (Borthwick, 1970). Large nodules required multiple sittings of liquid nitrogen cryotherapy. A thick rubber tube (Kasundra et al., 2007), locally made wooden cryoguard (Mankad ,2007) as a cryoprotector have also been used to avoid injury to the adjacent normal tissues.

Cryotherapy found to be advantageous in treating lesions with big size scabs. As the scabs were not removed, they remained at the place providing biological coverings and have helped in early recovery of the lesions. Time taken for sloughing off the scab lesions was of shorter duration (20 to 25 days) in cryotherapy as compared to the medicinal protocol (30 to 45 days). Disadvantage included scab adhering to skin leading to sloughing off of skin too. Cryotherapy should be applied directly on the lesions. Complications like temporary obstruction of nares, anorexia, sneezing and salivation following cryotherapy were noticed.

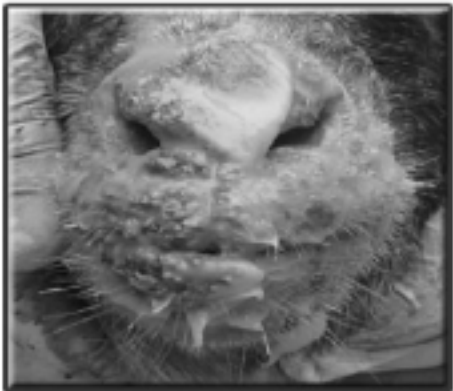
Plates



1



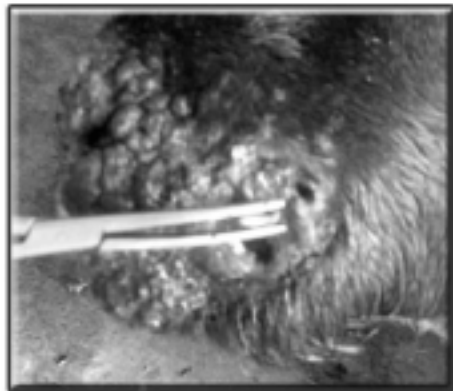
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3



4



5



6

1 Orf lesions
3 Medical treatment
5 Maggot wound

2 Lesions on teat
4 Cryotherapy
6 Complication

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