

Clinical Management of Burn - A Report of Six Ongole Cattle

V. Devi Prasad¹, N.V.V. Hari Krishna² and P. Ravi Kumar²

Department of Veterinary Surgery and Radiology
NTR College of Veterinary Science
Sri Venkateswara Veterinary University (SVVU)
Gannavaram - 521101 (Andhra Pradesh)

Abstract

Six Ongole cattle of different ages got involved in a fire accident and had mixed degree burns over the body. The chief symptoms ranged from abrasions to full thickness superficial burns, dehydration and restlessness. They were treated using intravenous fluids, broad spectrum antibiotics like Amoxicillin and Cloxacillin, Metronidazole, Anti-histaminics etc., topical application of Silver Sulphadiazine initially and later on Camphorated honey. All animals recovered completely after a treatment period of 6-15 days.

Keywords: Burn; cattle; camphorated honey; silver sulphadiazine.

Introduction

Burns pose a life threatening critical care problem and the priorities of specialized facilities focus on stabilizing the patient, preventing infection and optimizing functional recovery (Rowan *et al.*, 2015). The reports of burns in animals are comparatively rare. Among animals, the data on large animals appear to be further limited. The knowledge of pathogenesis, treatment and prognosis, most of the times is extrapolated from human medicine to manage burns in animals. Due to hot climatic conditions, especially during summer months, burns of thatched houses and cattle barns are quite common resulting in considerable economic losses to livestock farmers. As the large animals like cattle and buffaloes are tied to poles or walls, they cannot escape easily during burns. In present report, a rare case of burns in six cattle has been reported.

History and Diagnosis

Six Ongole cattle *viz.* three heifers aged between eight months and two years and lactating cows in first to third lactation were brought with burn injuries all over the body. Animals were in severe distress. There were several areas of hyperemia with loss of superficial layers of skin on the flank region, head and tail (Fig. 1). The other signs noted included shrivelled skin, multiple lesions over the fore head, denuded superficial layer of muzzle and excessive ocular discharges (Fig. 2). There was charring and blackish discoloration of skin at frontal region (Fig. 3). In one heifer, the oral mucosa became necrotic

and was protruding outside from the roof of upper jaw (Fig. 4). The convex surface of ears in one heifer showed severe distortion with charring and puckering (Fig. 5). The cow in third lactation got affected to a greater extent in which, the black patches over the white skin made it resemble a crossbred cow (Fig. 6). The skin became severely dehydrated, folded leathery and lost the turgor (Fig. 7). There was edema of the tail just above the switch (Fig. 8). In animals that were standing, a few abrasions were seen on the legs (Fig. 9). According to the classification of burns, it appears that there were mixed first and second degree burns on various parts of body in different animals.

The common signs included moderate to severe dyspnoea, dehydration and lymphangitis in limbs. One animal was in recumbency. As the animals were tied to strong polls with iron chains, they could not escape from the accident. The animals lying down at the time of the fire accident were found affected to a significant level as compared those that were standing.

Animals were inclining to take water but could not take due to oral lesions. Frequent bellowing was observed in all the animals. All the animals were restless and they were frequently changing their positions so as to avoid discomfort due to contact with the ground. The temperature was either normal or subnormal.

Treatment

Fluid therapy with crystalloids and colloids was started immediately. Dextrose normal saline, Ringer's lactate and Normal saline were the crystalloids selected @ 90 ml/kg b. wt. Haemaccel^a

1. Professor and Corresponding author.

E-mail: professorprasad@yahoo.com

2. Assistant Professor

a - Brand of Abbott Health Care Pvt. Ltd., Mumbai



Fig. 1: Extensive areas of hyperemia and abrasions



Fig. 2: Excessive ocular discharges



Fig. 3: Charring of skin at the frontal region



Fig 4: Necrotic tissue protruding



Fig. 5: Puckering of ears due to burns

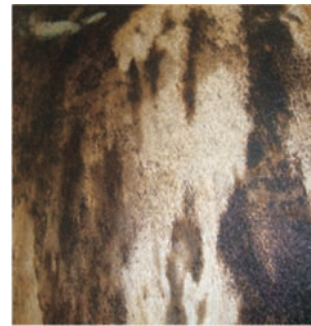


Fig. 6: Multiple patches due to charring



Fig. 7: Leathery skin due to severe dehydration



Fig. 8: Edema of tail switch



Fig. 9: Limited involvement in standing animal with a few abrasions on limbs

was administered after the stipulated volume of fluids was administered. Amoxicillin and Cloxacillin (Intamox^b) 3.5 grams was given IV. Meloxicam (Melonex^b) @ 0.2 mg/kg was administered SC for two days. Metronidazole was also administered intravenously for initial three days to control anaerobic infection. Cool water was sprinkled over the body intermittently so as to mitigate suffering. Silver sulphadiazine ointment (Silverex^c) was

b - Brand of Intas Animal Health, Ahmedabad
c - Brand of Ranbaxy Labs, Delhi

applied topically over the lesions of the facial region for the first day. Honey mixed with camphor was used topically on consequent days, so as to treat the integumentary lesions. Fluid therapy was continued for a period of three to five days, till when the PCV attained normalcy. At the beginning, access to jugular veins was also difficult due to heavy fluid loss and consequent hypotension. Consequently, intravenous access could be improved. All the animals recovered completely after a period of 6-15 days.

Discussion

The Ongole cattle are reared in Andhra Pradesh not only for milk, but also as a matter of pride. Due to prevailing hot summer, the native breeds like Ongole are preferred to exotic animals as they sustain exhausting temperatures better. As the coconut thatched houses are more prone for catching fire, those affected were found burnt to ground. Generally, the attention of farmers is lacking in the mid day temperatures, which adds further to damage. In present instance also the owner of the animals could not turn up immediately, which led to a considerable damage. Burns in individual cases and those involving chemicals are comparatively rare in animals. Fire and flame induced burns are frequently reported causes of burns in large animals (Yadav *et al.*, 2010). Similar etiology causing burns has also been reported by Sandhya *et al.* (2016). Pain due to burn injuries is more acute in these animals. It disappeared after a few days of initial thermal injury. The development of more affective methods of relieving pain associated with burn injury is a major unmet medical need in human beings. Not only is acute, burn injury pain is a source of immediate suffering, but it has been linked to debilitating chronic pain and stress related disorders (Simmer *et al.*, 2007). The burn injury might have damaged the nerve endings and hence pain was minimal in cases with second degree burns, despite severe tissue damage.

In present report, symptoms were severe in animals with second degree burns. The lesions over the skin were clearly suggestive of burns and hypovolemia. Lack of appetite, difficulty in prehension and swallowing, impaction of rumen etc. were observed which might be due to lesions over the facial region. Contrary to this, Watanabe *et al.* (2010) observed no gross or microscopic lesions in cattle that died of lightning stroke.

The parenteral therapy with intravenous fluids and broad spectrum antibiotics was more appropriate in the present instance, as improvement was significant and progressive day by day. In order to reduce the quantity of crystalloid solutions, colloid solution was administered initially as was done by Sagar *et al.* (2010). The treatment adopted in present report was more or less similar to the protocol adopted by Kavitha *et al.* (2011) who treated burns in twenty one Hallikar cattle due to fire accident with antibacterial, non steroidal anti-inflammatory drugs, antihistaminics, tonics, steroids and crystalloids.

Topical treatment was carried out using Silver sulphadiazine ointment in our cases, which could not be continued for the entire period of treatment, due to economic constraints. Camphorated honey was applied liberally over the skin lesions for a period of 3-5 days. This was found highly economical, beneficial and wound healing was comparatively rapid. There were no reports on usage of honey for treating burns in animals. However, Waili *et al.* (2011) reported that, honey from different geographical areas had therapeutic effect through antimicrobial activity and hence recommended for chronic wounds, ulcers and burns. Previously, boric acid, sulphur powder (Kavitha *et al.*, 2011), Silver sulphadiazine (Sagar *et al.*, 2010 and Chowdhary *et al.*, 2011) were employed for topical treatment. Devi Prasad *et al.* (2016) reported similar treatment for treating individual cases of burns in a monkey, Emu bird and a dog with different etiological factors.

References

- Chowdhary, P.S., Varshney, J.P. and Deshmukh, V.V. (2011). Emergency and Critical care of thermal burns in Bovines. *Intas Polivet* 12: 172-79.
- Devi Prasad, V., Ravi Kumar, P., Sreenu, M. and Krishna, N.V.V. (2016). Management of Burns in Companion Animals - A Report of Three Cases. *Research & Reviews. J. Vet. Sci. Technol.* 5: 21-24.
- Kavitha, G., Shivaprakash, G. and Ravindra, R.R. (2011). First and Second Degree Burns in 21 Animals due to Accidental fire and their Therapeutic and Critical care management. *Intas Polivet* 12: 180-82.
- Rowan, M.P., Cancio, L.C., Elster, E. A., Burmeister, D.M., Rose, L.F., Natesan S, Chan, R.K., Christy, R. J and Chung, K.K. (2015). Burn wound healing and treatment - Review and advancements, Critical care: DOI. 10.1186/S/13054-015-0961-2: 1-12.
- Sandhya, M. (2016). Clinico-therapeutic management of 1^o and 2^o burns in cattle and buffaloes. *Int J. Vet. Sci.* 5: 302-03.
- Simmer, G.J., Puntillo, K.A., Miaskowski, C., Green, P.G and Levine, J.D. (2007). Burn Injury pain - The continuous challenge. *The J of Pain* 8: 533-38.
- Waili, N.A., Salom, K. and Ghamdi, A.A.A. (2011). Honey for Wound Healing, Ulcers and Burns; Data Supporting Its Use in Clinical Practice. *The Scientific World* 11: 766-87.
- Watanabe, T.T.N., Ferreira, H.H., Gomes, D.C., Pedrosa P.M.O., Oliveira L.G.S., Bandarra, P.M.M., Antoniassi, N.A.B. and Driemeier, D. (2010). Lightning strike as a cause of death in cattle in Rio Grande do Sul Pesquisa Veterinária Brasileira 30: Print version ISSN 0100-736X.
- Yadav, G.V., Pitalawar, S.S., Chowdhary, K.S. and Masare, P.S. (2010). Management of burns in bovine - A Clinical Study. *Intas Polivet* 11: 52-53.