

Management of Burns in Companion Animals: A Report of Three Cases

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Abstract

Three cases of burns in a dog, monkey and an emu bird were reported. The dog had a deep partial thickness burn, on the anterolateral aspect of right hind limb and a superficial burn on the tip of the glans penis. The baby monkey had a deep and full thickness burn on the abaxial surface of the left palm. The emu bird had a partial thickness burn. They were treated successfully with fluid therapy, antibiotics, opiates and silver sulphadiazine ointment.

Keywords: Burns, antiseptic ointment, partial thickness burns, full thickness burns

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INTRODUCTION

Burn injuries occur universally and have plagued mankind since antiquity till the present day. Sushruta, the great Indian surgeon, was the first in describing the clinical features of a burned victim, almost, 2,500 years ago [1]. When compared to other diseases and disorders, the number of cases of burns in animals is generally very less. The knowledge of pathophysiology, treatment adopted in animals is extrapolated to a large extent from that of human medicine. Research on burns has generated sustained interest over the past few decades, and several important advancements have resulted in more effective patient stabilization and decreased mortality, especially among young patients and those with burns of intermediate extent [2]. In this paper, three cases of burns in a dog, monkey and an emu bird reported to the department of veterinary surgery and radiology, at different times have been presented.

HISTORY AND CLINICAL EXAMINATION

One mixed breed dog was presented with a history of having been caught up in a holy fire and sustained a deep partial thickness burn, on the anterolateral aspect of right hind limb characterized by loss of subcutaneous tissues, exposing the tibia, with blotchy white lesion that was slow to bleed on pin prick, and was not blanching on pressure (Figure 1). The tip of the glans penis was shrivelled in appearance due to partial exposure to heat (Figure 2). The

dog was brought in an apprehended state with sub conscious demeanour. The pulse was rapid and thready, the respiration increased and became costoabdominal, and the temperature was normal. The conjunctival mucous membrane was dry and congested. The animal was grunting and howling due to pain. There was moderate salivation.

The second case, a baby monkey, reared by beggar was reported to have fallen from a tree to catch the food from a large bandy kept over a burning furnace. It had lesions over the limbs and mouth. The monkey anxious and moving restlessly and was crying out of severe pain. However it was responding to the commands of the owner and was showing its damaged hands (Figure 3). There was deep and full thickness burns on the abaxial surface of the left palm (Figure 4). The skin and hair coat over the posterior aspect of the left hand was lost due to superficial and partial thickness burns. In addition, there was oedema of the right leg. The monkey was frequently assuming a praying posture, perhaps to ameliorate the pain (Figure 5). The monkey was not cooperative for physical examination.

The third case was an emu bird reared in a farm. The bird was reported to have passed through a fire intended to keep the mosquitoes away. Though it ran faster, the legs were caught in the fire and hence the lesions were seen on anterior aspect of tarso-metatarsal joint (Figure 6). When pressure was applied,

the wound bled considerably, indicating that it was a partial thickness burn. The bird could not walk properly, due to involvement of joint (Figure 7). However, it was said to take feed and water normally.



Fig. 1: Photograph Showing Deep Partial Thickness Burn on the Antero-Lateral Aspect of Right Hind Limb in a Dog.

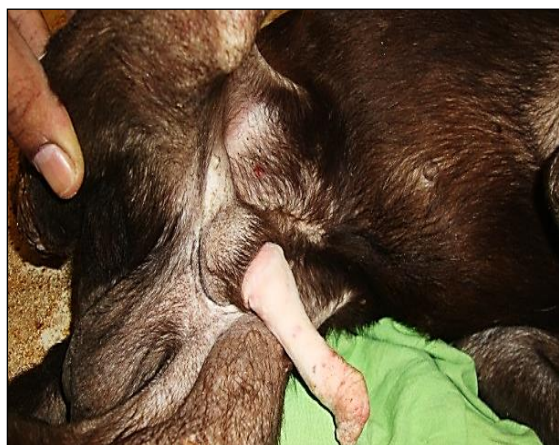


Fig. 2: Photograph Showing Shriveled Appearance of Glans penis in a Dog due to Exposure to Heat.



Fig. 3: Photograph Showing Damaged Hands of a Monkey due to Burns.



Fig. 4: Photograph Showing Full Thickness Burns on the Abaxial Surface of the Left Palm in Monkey.



Fig. 5: Photograph Showing Praying Posture of Monkey Affected with Burn Wounds.



Fig. 6: Photograph Showing Burn Lesions on Anterior Aspect of Tarso-Metatarsal Joint.



Fig. 7: Photograph Showing a Lesion at the Tibiotarsus Joint.

TREATMENT AND DISCUSSION

The dog was treated immediately by connecting an intravenous cannula and normal saline was infused at the dose rate of 90 ml/kg body weight till when the PCV became normal. An empirical therapy was started using injection Ciprofloxacin @ 25 mg/kg and Metronidazole @ 15 mg/kg given intravenously for a period of five days. Butorphanol was given @ 0.2 mg/kg to control the pain for the first three days. Supportive therapy with B complex vitamins were given orally for three days. The lesion was irrigated with cold water for 15 min continuously and scarified till when it bled. Silver sulphadiazine ointment was applied liberally over the skin lesion. A loose protective bandage was applied for the next five days after placing Chlorhexidine Tully bandage.

As there was no fracture, the skin edges were sutured under general anaesthesia using atropine sulphate premedication (0.04 mg/kg SC), Ketamine (5 mg/kg) and diazepam (0.5 mg/kg) induction and isoflurane maintenance. The glans was thoroughly irrigated with cold water for the first day and was treated with mild antiseptic ointment later on. The dog could recover to a near normal state within a period of eight days. The monkey was sedated giving intramuscular injections of xylazine @ 0.2 mg/kg and ketamine @ 10 mg/kg as it was not co-operative. The dressing of the wounds adopted

was quite similar to that of the dog. An exception was that involving the hand where some part of anatomical tissue was lost and hence regular antiseptic dressing was followed by an immobilization bandage. Injection Ceftriaxone sodium @ 50 mg/kg and meloxicam @ 0.2 mg/kg were given intramuscularly. This was continued for five days thereof. The lesion over the mouth was treated by Lignocaine oral suspension to mitigate the pain. This was followed by smearing of mild oral antiseptic like Gentian violet 1%. The monkey recovered fully and could eat without any assistance by second day itself (Figure 8).



Fig. 8: Photograph Showing Voluntary Feeding by the Monkey.

When compared to the other two cases, the bird had less systemic involvement. However due to involvement of the joint it could not walk properly. The wounds were irrigated with diluted povidone iodine solution, followed by application of neomycin ointment. Enrofloxacin @ 5 mg/kg and meloxicam @ 0.2 mg/kg were given IM for three days. Multivitamin syrup was administered orally for five days. The bird recovered within a period of one week. The number of cases of burns in animals is comparatively less. Many cases are brought to the notice of the veterinary physicians either for post-mortem or for insurance claims.

The data available on burns in animals is also meagre. Systemic involvement is commonly seen in case if major portion of body is involved in burns or when there is severe loss of plasma as so happens in second degree

burns. The symptoms in burns depend on the degree of heat and duration of contact. These symptoms easily establish the diagnosis. Contrary to this, Watanabe *et al.* observed no gross or microscopic lesions in four healthy adult cattle that died of lightning stroke [3]. The morbidity of animals under report can be explained by the released burn toxins and oxygen radicals leading to immune dysfunction [4].

The treatment in burns comprises fluid therapy with plasma expanders or crystalloid solutions, antibiotic therapy, topical application of emollients etc. The history of fluid replacement therapy for burns also begins with Sushruta, who first described fever and thirst as the characteristic features [5].

A number of antibiotics are indicated as animals with burns and scalds are not maintained in sterile burns wards. Penicillins may be used initially, however, *Pseudomonas* is a common invader of burnt skin and drugs effective against this pathogen are recommended. The major cause of death in burns is septicemic shock in 56% cases [1]. Waili *et al.* recommended honey as an effective broad-spectrum antibacterial agent as its wound healing properties included stimulation of tissue growth, enhanced epithelialisation, and minimized scar formation [6].

Kavitha *et al.* used antibacterial, steroidal and non-steroidal anti-inflammatory drugs, anti-histamics, tonics, salines, etc. for systemic treatment and permanganate solution, iodine solution, boric acid, sulphur powder and white petroleum jelly or glycerine paste for topical treatment of burns in large animals [7]. The pain in burns could be better controlled by administering tramadol as recommended by Summer *et al.* [8].

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