



CLINICO-PATHOLOGY OF BURN INJURY IN COWS-A CASE REPORT

¹S.N. Anjaneya and ²M.S.Rudra Swamy

¹Veterinary Doctor, Department of Animal Husbandry and Veterinary services, Shikaripura, Shivamogga District, Karnataka-577427, India

²Department of Animal Nutrition, Veterinary College, Gadag, Karnataka state, India

ABSTRACT

Burn injury is seldom noticed in animals. But it often occurs, when the animal is kept under thatched house catches the fire accidentally. The burns are classified into three groups depending upon depth and extent of injury as first, second and third degree burn injury. Prognosis of burns is favourable in first degree burns as against poor or doubtful in second degree burns but grave in third degree burns. Three cross breed cows presented with third degree burn injury with more than 50% of the total body surface area was involved. One animal died before initiation of treatment due to severe damage to vital organs. Remaining two animals were treated with the application of boil and cooled water to the burnt area. The eyes were flushed with normal saline. These animals were in a state of shock and dehydration was evident. Both the animals were infused with intravenous solution of Ringers lactate and Dextrose (5%) for five successive days. Anti-inflammatory drug, steroid and Antibiotics were administered to prevent inflammatory reactions and secondary bacterial infections respectively. Both the animals did not withstand the treatment but died within a week duration. Up on post mortem examination, there was a foul smelling fluid in the body cavities noticed. The PM lesions includes congestion of kidney, myocardium and brain. Duodenal ulcers, diffused peritonitis, shrunken brain, enlarged lymph nodes and spleen were seen. Cloudy swelling and necrosis of liver was evident. The death may be due to septicemia and toxemia.

KEY WORDS: Third degree burn injury, cross breed cows, Body weight (BW), Post mortem (PM),

INTRODUCTION

Burn (Charring of tissue) is an injury, when the animal is exposed to dry heat and it is uncommon in free range system of rearing animals. But, it often occurs in stall fed system of rearing when the animals kept under thatched house catches the fire accidentally. Burns are classified into three groups depending up on depth and extent of injury as first, second and third degree burn injury. The prognosis of burn injury largely depends on degree, age of animal, physiological condition, ability of tissue to dissipate heat and its complications (Shock, respiratory failure, septicemia, renal failure). In field conditions, lack of facilities to control the patient's surroundings and extensive microbial contamination of burns aggravates the conditions. Burns do not cause death as a rule. But, burns of the genital organs and the lower part of the abdomen are often fatal due to severe complications, in spite of possible treatment undertaken with better management. This paper describes the three cases of cross breed cows met with burn injury, its complications and post-mortem findings.

MATERIAL AND METHODS

The case was undertaken as field study wherein there was sudden fire mishap in cow shed with thatched roofing. The animals along with household materials are saved with guanine efforts

Case history and clinical signs: Three crossbreed cows aged between 5 to 7 years were presented with the third degree burns at Kanivemane village, Shikaripura Taluk, Shivamogga District. Anamnesis revealed the fact that

burns were due to accidental burning of thatched cow-shed with the animals under restraint. So, there was no way for the animals to escape. One animal died before the initiation of treatment indicating extensive damage to vital organs. Remaining two cows had a temperature of 104^o F and 105^o F and their pulse was feeble. Detailed clinical examination of the animal revealed hyperaemia, charring of skin and tissue, desquamation, exudation, subcutaneous oedema, decreased sensitivity, ruptured vesicles on skin and about more than 50% of the total body surface area was involved(Fig.1). Burn lesions were distributed on head, neck, thorax, abdomen, fore limbs, hind limbs, hooves, teats and vulva and udder. Singeing of hairs and eyebrows were noticed.

Treatment: Treatment was initiated with frequent application of boiled and cooled water to the burn areas in small portion at a time to avoid over cooling and iatrogenic hypothermia. Eyes were flushed with sterile normal saline. The quality of pulse was feeble and animal response to external stimuli was decreased which established that the animal was advancing to a state of shock. The shock may be due to fact that large area of skin was involved, since this might have caused severe evaporative losses during and at the time of incident. Due to severe dehydration, fluid therapy is primarily aimed at establishing the circulatory volume (Pierson, 1969). Both the animals were immediately infused with intravenous Ringers lactate and Dextrose(5%) at the rate of 25ml/kg body weight at that moment and consecutive three days also reduced the dose of fluids by 50% on fourth day. The

goal of fluid therapy in the burn patient is to establish and maintain intravascular and intestinal fluid volume, normalize electrolyte and acid-base balance and maintain oncotic pressure. Isoflupredone acetate (Isoflud²) was administered @ 10ml/day for three days in a row. Both the animals were treated with Strepto-Pencillin(Dicrysticin S LD²) @ 10mg/kg body weight on first three days then with Ceftriaxone(Intacef¹)@10mg/kg BW and Meloxicam-paracetamol(Melonex plus¹) @0.5mg/kg BW to control secondary bacterial infection and as an antipyretic, analgesic, antiinflammatory effect respectively for a successive five days. The wound is cleaned with diluted potassium permanganate solution(1:1000) and dressed with Zinc oxide(25%), boric acid powder(10%) and Glycerine(25%) daily followed by protective covering with banana leaves was carried out. The burn lesions started healing from fourth day onwards which is evident from the fact that there was peeling off of charred skin and exposing the underlying tissue. Then slowly in less affected areas development of melanin pigment started developing which showed tendency to change to dark colour from 5th day onwards and continued to grow over other affected areas (Fig.2). The treatment with antibiotics and fluids was stopped on 5th and 6th day respectively but topical dressing with antiseptic solution was continued to prevent bacterial contamination which could cause delay in healing process. In spite of the above treatment carried out, two animals died within week.(i.e. on 6th day and 7th day) from the commencement of the treatment.

RESULTS

The physical condition of the animal upon observation revealed as more than 50% burning of the skin and deeper tissues with oozing of the exudates. However they were treated with maximum efforts. But since the prognosis was grave, the animal succumbed. Following this the post mortem of the animal was performed.

Postmortem findings: The following post-mortem lesions were noticed. As soon as the body was opened there was a typical evidence of foul smelling fluid in the body cavities noticed. Congestion and ecchymotic haemorrhages in kidney and myocardium was noticed. Blood stained serous exudate in abdominal and thoracic cavities. The ulceration was found in the duodenum. The pleura was congested and lungs were shrunken. Diffuse peritonitis due to perforation of the reticulum or uterus. The brain and its meninges were congested. There was extravasation of blood, usually as a brick red deposit up on the upper surface of the dura mater. The brain appears to be shrunken. Toxins also cause direct damage to endothelial epithelium resulting in haemorrhages into tissue. Enlarged oedematous and haemorrhagic lymph nodes were seen. Spleen was enlarged but softened. The liver showed cloudy swelling and focal necrosis. Death may be due to septicaemia and toxemia which might develop due to secondary bacterial infection and a result of absorption of toxic products from the injured tissues in the burned area.

DISCUSSION

Yadav *et al.*(2010) advised the use of Strepto-Pencillin, Melonex, inj. Anistamin, Tribivet, Ringers Lactate and cleaning of wound with Wockadine and dressing with Zinc oxide, Boric acid and glycerine paste for 20-25 days and covering the burnt portion with banana leaves which acts as protective layer(Choudary *et al.*, 2011). The ulceration probably results from the elimination by the liver of some irritating substance produced in the burnt tissues which is capable of causing thrombosis of the small vessels. Most fatalities occur in the first week.(Dabas and Saxena, 1994). Tyagi and Singh(2010) reported that hypovolemia along with sepsis as a major complication of extensive burn. Moreover, prognosis is unfavourable if the percentage of burn involves more than 50% of the skin (Venugopalan, 2007) because of water and electrolyte loss which is directly related to the extent of burns.

CONCLUSION

If the animals are housed under thatched roof system, then there should be adequate precautions for the rescue of the animals along with regular watch and care with precautions of the emergency. Much more studies should be conducted on skin grafting and treatment of burn injuries. If the animal is met with a third degree burns and more than 50% of body surface area is involved then the prognosis is grave.

2-Brand of Zydus AH Limited, Ahmedabad

1-Brand of Intas pharmaceuticals, Ahmedabad

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Fig: 1 Animal met with burn injury



Healing of lesions started on fifth day (Fig.2)