

## FIELD MEDICINE

### ANIMAL RELATED INJURIES TO THE TROOPS IN FIELD

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#### ABSTRACT

**Objective:** To determine the mechanism and pattern of animal related injuries in the troops deployed in field.

**Design:** A hospital based observational study.

**Place and Duration of Study:** Main Dressing Station Kotli Azad Kashmir from Jan 2004 to Jan 2006

**Material and Methods:** An observational hospital based study was carried out on all the patients who reported to the Main Dressing Station (MDS) between Jan 2004 to Jan 2006. The data was collected by using hospital information system. A proforma was developed after review of literature which included necessary information related to patient's age, sex, type of injury and species of animal involved. The information collected was analyzed in detail. Laskin and Donohue<sup>1</sup> classification was used to classify wounds.

**Results:** A total of 48 patients were reviewed. These were all males and the mean age was 25 years. Thirty three (69%) patients had soft tissue injuries, 7 (15%) had fractures, 5 (10%) had head injury and 3 (6%) had abdominal injury. Mule kick injuries occurred in 37(77%) patients, dog bite in 7(15%) cases and donkey bite in 4(8%) cases.

**Conclusion:** Troops deployed in the field are exposed to the hazard of animal related injuries which can be fatal at times. The complex nature of these injuries entails early and appropriate management in order to achieve satisfactory outcome and prevent complications. Prevention strategies include proper animal handling techniques based upon animal behavior and the appropriate use of well designed confinement facilities.

**Keyword:** Troops, animal related injuries

#### INTRODUCTION

Various types of injuries [1] from animal encounter represent a significant health risk for troops in the field. Interestingly they are usually work related [2]. The following troops are more prone to animal related injuries;

- Personnel of animal transport regiments in mountainous terrain, as they use mules for carrying supplies to troops in forward areas.
- Personnel of artillery units deployed in hilly areas who use mules for transportation of guns.
- Infantry troops located in forward area using dogs for security and donkeys for fetching water.

We evaluated our two years experience with animal related injuries in the field, in

order to determine the mechanism and pattern of animal related injuries.

#### PATIENTS AND METHODS

A cohort analytic study was carried out in MDS Kotli from Jan 2004 to Jan 2006. Patients were identified by using hospital information system. The data was taken by review of hospital documents of all the patients who presented with animal related injuries during this period. A Proforma was developed, which included information related to the patient's age, sex, mechanism of injury, whether work related or otherwise and species of the animal involved. All patients who reported to main dressing station were included in the study.

Laskin and Donohue [1] classification was used to classify bite wounds: type I as puncture or linear wound, type II as

separation of pedunculated flap of tissue and type III as complete avulsion of an area of tissue. The treatment protocol adopted was tetanus prophylaxis for all the cases and a

Intravenous co-amoxiclav 50/mg/kg body weight, followed by oral co-amoxiclav 50/mg/kg body weight for 7 days was administered. This protocol has been found successful in other studies as well [3]. Wound irrigation with copious amount of saline was done in all the cases and all wounds were closed by delayed primary closure. Data was analyzed using SPSS version 10. Frequency and percentage were used to describe the data.

## RESULTS

In total 48 cases were received during the study period. All were males. Age range was between 19 to 40 years with mean age of 25 years. 33 (69%) patients had soft tissue injury, 7(15%) had fracture, 5(10%) had head injury and 3(6%) had abdominal trauma. The duration of injury varied from ½ hr to 1 day with median time of 6 hours. Mule kick injuries occurred in 37(77%) patients, dog bite in 7(15%) cases and donkey bite in 4(8%) cases.

**Mule Kick Injuries:** All 37 mule kick injuries were inflicted by mules during feeding or cleaning them. The pattern of injuries caused by mule kicks is shown in table I.

Out of 37 mule kick injuries, 23 (62%) had soft tissue injuries (these included lacerations, contusions, abrasions and ecchymosis on face, hands, forearm and legs) 18 had type I and 5 had type II injuries.

Six (16%) patients had various types of fractures. One patient had simple fracture of proximal third of radius, one had simple fracture of both radius and ulna distal third, and 3rd patient had simple fracture of ulna proximal third. Two patients had nasal bone fracture and one had ribs fracture.

course of antirabies vaccination for the dog and donkey bites. A single dose of co-amoxiclav on admission and per operative

Head injury occurred in 5 (14%) patients, 3 had minor head injury and 2 had severe head injury (GCS 8/15 or below). One of these patients recovered after a craniotomy was done at a tertiary care hospital, while the other sustained fatal head injury.

Abdominal trauma occurred in 3 (18%) patients, one patient underwent laparotomy and splenectomy was done for ruptured spleen due to left lower ribs fracture. Remaining two patients were managed conservatively as they had no abdominal viscera injury.

### Dog Bite Injuries:

Among the 7 (15%) dog bite injuries, 4 cases were bitten by their own pet dogs and the remaining 3 cases resulted from bites of stray dogs, who were confirmed as non rabid by observing them for 7 days.

One case of dog bite resulted in loss of middle finger up to distal inter phalangeal joint. 4 cases had type I injury, 2 cases had type II injury and 1 case had type III injury. Three patients had their upper limbs wounded. One patient had laceration on dorsum of hand, the second one had deep lacerated wound with avulsion of soft tissue of forearm and third patient had crush injury of little finger of left hand. Remaining 4 had their lower limbs affected. One had avulsion of soft tissue on medial side of left thigh. One had punctured wound near right knee joint. Two patients had lacerated wound on lower part of legs.

### Donkey Bite

All 4 (8%) cases of donkey bite occurred during feeding the animal, 2 cases had upper limb injury and 2 had lower limb injury, 3 had type II injury and 1 case had type III injury. One patient had contusion of right forearm

**Table: Mule Kick Injuries (Total 37)**

Type of Injury	Number (%age)
Soft tissue Injuries	23 (62%)
Fracture	6 (16%)
Head Injury	5 (14%)
Abdominal Trauma	3 (8%)

## Animal Related Injuries

and one had crush injury of right hand. In cases of lower limb injury, one had a deep bite injury on posterior aspect of thigh and other had crush injury right leg anterolateral aspect. Both cases of type III injury (1 due to dog bite and other one due to donkey bite) were transferred to plastic surgery unit of a tertiary care hospital.

## DISCUSSION

This study has shown that maximum injuries (77%) occurred due to mule kicks, all of them were work related as observed in other studies [2]. Similarly most serious injuries and fatality were due to mule kick injury. It is also interesting to note that all the injuries inflicted by mules were due to kicks where as all the injuries caused by donkeys were due to bites.

Most dog bite injuries in our study were not deeply penetrating. It is because of the fact that dogs have dull edged teeth that do not penetrate deeply and thus usually do not injure deeper structures like tendons, joints or bones etc. Other studies have shown that dog bites are particularly dangerous in children [3-5] but in our study we had no child victims.

The donkey bite injuries were found to be deeply penetrating with injuries seen to both the upper and lower limbs. Mammalian bite wounds have a bad reputation for severe infection. However studies have shown that mammalian bites occurring anywhere other than hand presented no additional risk for infection [6, 7]. This has also been observed by authors.

The treatment protocol adopted was tetanus prophylaxis for all cases, a course of antirabies vaccination for dogs and donkey bites. Administration of single dose of co-amoxiclave on admission, per operative

intravenous co-amoxiclave 50mg/kg body weight followed by oral co-amoxiclave 50mg/kg body weight for 7 days. This protocol has been found successful in other studies as well [8, 9].

## CONCLUSION

Animal related injuries can be serious. They can cause soft tissue injuries, head injuries, abdominal viscera injuries and thoracic injuries. The complex nature of these injuries entails early and appropriate management in order to achieve satisfactory outcome and prevent complications. Early evacuation of seriously injured patients to tertiary care hospital can save life.

The most important aspect in management of such accidents is prevention which should always be a priority.

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