

## CATASTROPHIC ABDOMINAL INJURY WITH EVISCERATION OF JEJUNUM AND ILEUM IN A DRAUGHT DONKEY

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### ABSTRACT

The present report describes a catastrophic penetrating abdominal injury associated with a roadside accident in a draught donkey. Though repair of the eviscerated, damaged portion of the small intestine was accomplished successfully, the animal could not be saved. After postmortem it was concluded that hypovolemia and respiratory distress resulted in the death of the wounded donkey before any resuscitating attempt could be made.

**Key words:** Penetrating abdominal injury, evisceration, hypovolemia, catastrophic injury.

### CASE HISTORY

A six-year old male draught donkey was transported recumbent on a two-wheeled pneumatic donkey cart to the outdoor clinics of the Department of Clinical Medicine and Surgery, University of Agriculture, Faisalabad for the treatment of a severe penetrating abdominal injury. According to the owner, about 2 hours ago the donkey had been hit from behind by another two-wheeled pneumatic donkey cart. This accident caused the affected donkey to crash into an iron angle, which produced an abdominal opening of about 7.5 cm. After about half an hour of the accident, portions of small intestine started protruding from that opening due to struggling, manipulation and continuous pressure of the abdominal organs.

### CLINICAL EXAMINATION

The case was dealt with as an emergency and fifteen-milliliter (30 mg) dexamethasone (Dexamethasone®, Elko Organization, Pakistan) was injected intramuscularly to stabilize the animal. Examination of the injured donkey revealed an approximately 7.5 cm skin wound on the mid abdomen 5 cm anterior to the umbilicus. A close examination of protruding intestinal segment revealed two small (3.75 cm each) punctured wounds going through the width of intestine to its lumen. The traumatizing object had also caused a considerable damage to the serosa of a large portion (about 30 cm long) of small intestine leading to its detachment from the adjacent portion of the intestine. A moderate degree of haemorrhage had persisted for the last two hours but apparent signs of shock were absent. The protruding intestinal segments were identified as jejunum and ileum.

### SURGICAL PROCEDURE

After washing the protruding intestinal segments with luke-warm physiological saline, the animal was anaesthetized with 20 ml of 5% solution of thiopental sodium (Pentothal Sodium®, Abbott Laboratories, Pakistan) and placed in the dorsal recumbency. The protruding loops of small intestine were washed once again with sterile physiological saline and reduced back into the abdominal cavity. After reduction of the undamaged intestinal portion, the punctured portion was sutured using Cushing over Lembert sutures (Ducharme *et al.*, 1992) using 2/0 chromic catgut (Johnson and Johnson, Pakistan). Using continuous sutures of 2/0 chromic catgut, damaged serosal layers were sutured with adjacent part of intestine. The repaired gut was then reduced back into the abdominal cavity. A sterile solution of Streptopenicillin (Polybionic®, PDH Laboratories, Pakistan) was instilled into the peritoneal cavity to minimize the chances of post-operative infection.

After skin debridement, the abdominal opening was closed in three layers. First, the muscles were sutured with simple interrupted sutures of No. 2 Vicryl (Johnson and Johnson, Pakistan). Then subcutaneous tissue was sutured with continuous sutures of No. 2 chromic catgut. Skin wound was closed with the help of horizontal mattress sutures with No. 2 surgical nylon. Finally, the skin wound was painted with 1% povidone-iodine (Pyodine®, Brooks Pharmaceutical Laboratories, Pakistan) solution.

Following surgery, the animal was placed in the indoor large animal ward of the department for further care and monitoring. Approximately 2 hours later, animal developed a respiratory distress with distended abdomen. This distention was ascribed to the accumulation of the gases. The temperature was

subnormal (94°F) and pulse was weak. Animal adopted a lateral recumbency posture. Backracking was done and an attempt was made to evacuate the accumulated gases by passing a well-lubricated tube through rectum. Isotonic fluid (Ringolactate-D) was prescribed to compensate the lost blood. Novacoc Forte (Richter Pharma, Austria), a tonic, along with calcium (70 ml and 10 ml, respectively) was also suggested in the resuscitating fluid. But the donkey died before the initiation of the fluid therapy.

### POSTMORTEM FINDINGS

A complete postmortem examination was conducted to find out the cause of death. No fluid and signs of internal bleeding were encountered. Small intestine was found distended with gas. The rectified portion of the intestine was severely congested. Stomach was filled with roughages. The mucosal lining of the stomach was devitalized and hemorrhagic areas of variable sizes were evident. Since the impending problem was an acute abdominal injury and haemorrhage, possibility of the involvement of stomach lining/contents was remote. The bladder was empty. All other abdominal organs were normal. No fluid could be found in the thoracic cavity and heart and lungs were normal. Mucous membranes were pale reflective of excessive blood loss. The cause of death was presumed to be hypovolemia, whereas the gas accumulation was associated probably with paralytic ileus.

### DISCUSSION

Penetrating wounds of the abdomen are always serious and must be treated as emergencies. Surgical debridement and reconstruction of the body wall must be carried out, even for those cases that have sustained severe contamination (Oehme and Prier, 1988). The prognosis of penetrating wound cases is almost always grave (Mallick *et al.*, 1983). As deaths from abdominal trauma results principally from the sepsis or hemorrhage (Lewis and Krupski, 1991), proper estimation of these two pathological conditions is necessary. A penetrating trauma to the abdominal cavity can cause sepsis when a full bowel is injured and the bowel contents spill into the peritoneal cavity. Spillage of the bowel contents may be negligible initially and findings may be minimal. Only an elevated

white blood cell count or fever appearing several hours following injury are keys to early diagnosis (Lewis and Krupski, 1991).

Most stab wounds of the abdomen and chest should be explored for the evidence of spillage and hidden damage to some organs. Delay in treatment can result in severe sepsis when a hollow organ is punctured. Devascularizing injuries to the small mesentery or small bowel require resection while the other injuries can be treated with 2-layer closure. The underlying principle is to preserve as much small intestine as possible (Lewis and Krupski, 1991).

In the present case, the traumatizing object had caused a considerable damage to intestine, which in turn resulted into substantial hemorrhage and blood loss. Also the time consumed during the transportation of the animal to the outdoor clinics of the department proved fatal for the animal and resulted into substantial unnoticed bleeding. Furthermore, the distended abdomen due to accumulation of gases in the intestine probably made the respiration difficult by exerting pressure on the diaphragm. Hence prompt assessment of the blood loss and its replacement with appropriate fluids (blood) is recommended in this type of cases, where bleeding remains unchecked and unnoticed. In animals where blood is not readily available, immediate replacement of blood and fluid loss is addressed by isotonic physiological solutions. Had this animal given us the opportunity to assess the blood loss, we could have instituted the same following IV fluids.

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