

Surgical Management of Acute Traumatic Lacerations in A 2-Year-Old Intact West African Dwarf Doe: Case Report

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SUMMARY

Traumatic injuries in small ruminants represent significant welfare and economic concerns, particularly when associated with extensive tissue loss and haemorrhage. This report describes the successful surgical management of a severe acute traumatic laceration involving the lateral thoracic musculature in a West African Dwarf goat. The doe presented with a large avulsion wound affecting the lateral thoracic muscles, extending cranially to the region between the forelimbs, and accompanied by substantial blood loss. Initial first aid administered by the owner included wound coverage with clean cloth and application of Gentian violet. Clinical examination revealed a relatively clean wound with exposed musculature and partial rib cartilage involvement. Surgical intervention involved aseptic wound preparation, debridement, lavage, layered closure, and appropriate postoperative care including antimicrobial therapy and analgesia. Healing progressed without complications, and the animal recovered uneventfully. This case highlights the effectiveness of prompt surgical intervention and appropriate postoperative management in achieving favourable outcomes under field condition.

Keywords: Traumatic injury, Wound management, goat, Small ruminants, Surgery

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INTRODUCTION

The primary objective of emergency wound management is the restoration of tissue integrity and function following trauma. Traumatic injuries in livestock are a major cause of morbidity and mortality, with significant implications for animal welfare and farm productivity (Broom and Fraser, 2015; Miranda-de la Lama *et al.*, 2012).

In small ruminants, traumatic lacerations frequently result from environmental hazards, poor housing conditions, and inter-animal interactions, leading to extensive soft tissue damage and haemorrhage. These injuries predispose affected animals to infection,

delayed healing, and economic losses if not promptly managed (Constable *et al.*, 2017).

Effective wound management requires rapid clinical intervention, proper aseptic technique, thorough debridement, and appropriate wound closure. Surgical expertise, particularly in achieving proper tissue apposition and minimizing dead space, plays a critical role in determining healing outcomes (Fubini and Ducharme, 2017; Akinrinmade and Adebayo, 2023).

This report describes the successful surgical management of a severe thoracic laceration in a West African Dwarf goat under field conditions.

CASE PRESENTATION

A 2-year-old intact West African Dwarf doe weighing 25 kg was presented with a history of acute trauma sustained the previous night. The injury occurred when the animal attempted to escape from a buck and was pierced by aluminum roofing sheets. On presentation, the doe exhibited a severe avulsion wound involving the right lateral thoracic region, extending cranially between the forelimbs toward the lower cervical region. The owner reported substantial blood loss prior to presentation and had applied Gentian violet with a clean cloth dressing as first aid. The animal was lactating, having kidded three months prior. Clinical examination revealed

that the doe was alert and responsive but exhibited pain upon palpation of the wound. Vital parameters were within normal limits: rectal temperature (39.6°C), heart rate (103 beats/min), and respiratory rate (25 breaths/min). Mucous membranes were pink with a capillary refill time of less than 2 seconds. Local examination revealed an extensive open wound with exposed musculature and partial exposure of rib cartilage. The wound margins were irregular, and there was evidence of prior haemorrhage. No signs of infection or gross contamination were observed. Haematological findings showed moderate hyperproteinemia and hyperfibrinogenemia, consistent with acute inflammation (Table 1-2).



Figure 1. A-C, doe positioned on lateral recumbency for clipping and aseptic preparation

Table 1. Serum chemistry and Haematological parameters readings

Analyte Panel	Unit	Result
Total Protein	g/dl	8.5
Albumin	g/dl	3.8
Globulin	g/dl	4.7
Glucose		-
Cholesterol		-
Triglycerides		-
AST	u/l	90
ALT		-
ALP		-
GDH		-
SDH		-
GGT		-
Total Bilirubin		-
BUN	mg/dl	33
Creatinine	mg/dl	1.5
Parameter	Unit	Patient Value
Plasma Color	—	Normal
Total Protein	g/dl	9.00
Fibrinogen	g/dl	100
Hb	g/dl	6.5
PCV	%	20
RBC Count	$\times 10^6/\mu\text{l}$	7.55
MCV	fl	27
MCHC	g/dl	33
Reticulocytes	%	-
RDW		-
Platelet Count	$/\mu\text{l}$	114,000
MPV		-

Table 2. Differential white blood cell count

Cell Type	Relative Percentage	Absolute Count ($/\mu\text{l}$)
Total WBC Count	—	5,150
Segmented Neutrophils	68%	3,502
Band Neutrophils	-	-
Lymphocytes	25%	1,287
Monocytes	2%	103
Eosinophils	5%	258
Basophils	-	-
Nucleated RBC	-	-

SURGICAL MANGEMENT

The doe was sedated using xylazine hydrochloride (0.02 mg/kg IM) and positioned in left lateral recumbency. Local anaesthesia was achieved using 2% lidocaine hydrochloride (2 mg/kg) via infiltration around the wound margins. The surgical site was clipped and aseptically prepared. The wound was thoroughly debrided and lavaged using sterile antiseptic solution. Devitalized tissues were excised to create clean wound edges. Layered closure was performed as follows; muscle layers were apposed using a simple

continuous suture pattern, skin was closed using horizontal mattress sutures, and dead space was minimized to prevent fluid accumulation.

Postoperative treatment included: oxytetracycline (20 mg/kg IM, long-acting), topical oxytetracycline spray, sterile wound dressing with gauze and bandage. The animal recovered uneventfully.

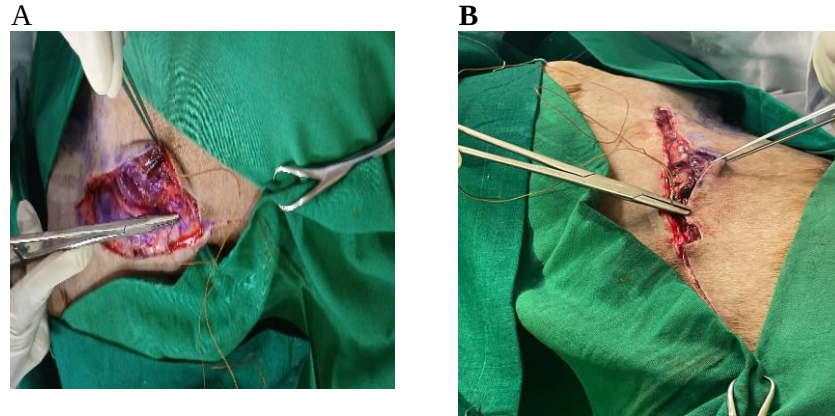


Figure 2. A and B Surgical management of the wound under sedation and local anaesthetic infiltration

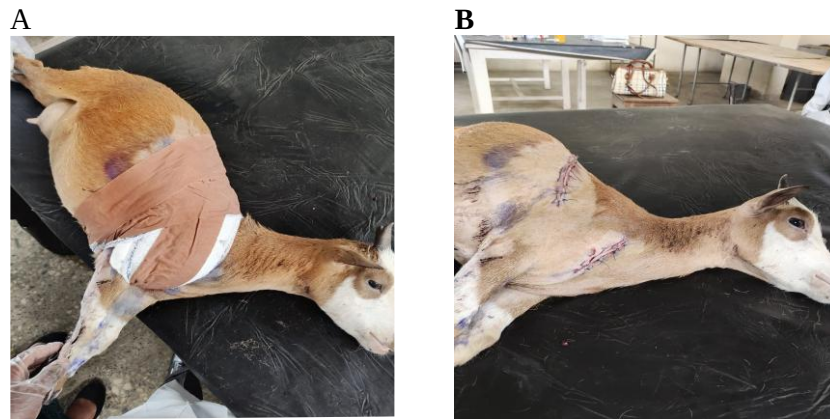


Figure3. A and B wound after apposition of sutures and dressing

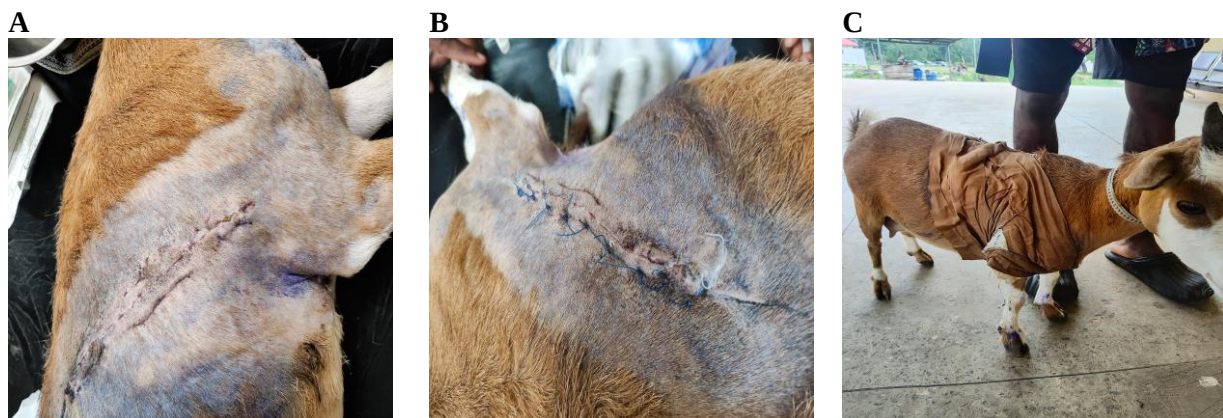


Figure 4. A-C, doe represented 7 days post-surgery, suture removed

POSTOPERATIVE OUTCOME AND RESULTS

The surgical intervention was successful, with proper apposition of the wound edges and no immediate postoperative complications recorded. Healing progressed satisfactorily with no postoperative complications. The doe was re-examined every other day till the seventh day after surgery, at which time the wound had healed completely without discharge, infection, or dehiscence. Sutures were removed, and the animal returned to normal activity.



Figure 5: Doe returned to normal activities on the farm

DISCUSSION

Severe traumatic wounds in small ruminants pose significant challenges, particularly in field conditions where resources may be limited. Prompt surgical intervention, including proper debridement and wound closure, is essential for preventing infection and promoting healing (Anderson and Rings, 2009).

The use of xylazine sedation combined with local infiltration anaesthesia provided adequate restraint and analgesia, making it suitable for field surgery in food animals. Early

presentation and appropriate postoperative care contributed significantly to the favorable outcome observed in this case.

The absence of complications such as infection or wound dehiscence underscores the importance of aseptic technique, appropriate antimicrobial therapy, and proper wound management. Additionally, this case highlights the need for improved farm management practices to prevent traumatic injuries.

CONCLUSION

Severe thoracic lacerations in goats can be successfully managed through prompt surgical intervention, appropriate anaesthesia, and effective postoperative care. Early veterinary

attention and adherence to standard clinical protocols are critical for achieving favorable outcomes in traumatic injuries.

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