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CASE REPORT

Clinical and Surgical Intervention in Tail Necrosis of Buffaloes: Report of Four Cases

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ABSTRACT

Tail necrosis in buffaloes is an important clinical condition that compromises animal welfare and productivity. The tail plays a vital role in thermoregulation and insect deterrence and injuries, if neglected, may progress to necrosis and gangrene due to trauma, frostbite, infection, vascular compromise or nutritional disorders such as Degnala disease. The present report describes four cases of tail necrosis in buffaloes and their successful management by surgical intervention. Four adult female buffaloes aged 4–7 years were presented with foul-smelling discharge, tissue sloughing, black discoloration and non-bleeding necrotic lesions of the distal tail. Two cases were trauma-induced, one was attributed to frostbite and one to chronic fly strike with secondary bacterial infection. Clinical examination confirmed non-viable and painful tissue distal to the mid-coccygeal vertebra. Surgical amputation was performed under caudal epidural anesthesia using 2% lignocaine hydrochloride (0.2 mg/kg). Standard aseptic preparation, proximal tourniquet and ligation of coccygeal vessels with absorbable sutures were

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followed by cruciate silk skin sutures. Postoperative therapy included ceftriaxone, meloxicam, daily antiseptic dressing and fly repellents. All animals recovered uneventfully, sutures were removed on Day 10 and complete wound healing was achieved by Day 14 without complications. These outcomes align with earlier studies that advocate prompt surgical management of tail gangrene in bovines (Dhillon *et al*., 2006; Jena and Sahoo, 2014; Patil *et al*., 2020; Nuss and Feist, 2011). Conservative dressings may help in mild cases, but advanced necrosis necessitates surgical amputation to prevent ascending infection, osteomyelitis and systemic illness.

In conclusion, early diagnosis and surgical amputation under regional anesthesia provide favorable outcomes in buffaloes with tail necrosis. This approach, combined with appropriate wound care and antimicrobial therapy, ensures complete recovery, enhances animal welfare and maintains productivity.

KEYWORDS

• Tail necrosis • Amputation • Epidural anaesthesia • Gangrene • Wound management

INTRODUCTION

The tail in bovines plays a critical role in thermoregulation and insect deterrence. However, tail injuries, if left untreated, may develop into necrotic or gangrenous lesions requiring surgical intervention. Necrosis can result from trauma, infectious agents, vascular injury or environmental exposure (Sikdar *et al*., 2000). Tail amputation, when indicated, is a relatively safe and effective procedure in large animals (Dhillon *et al*., 2006).

Case History and Observations:

Four adult female buffaloes aged between 4 and 7 years were presented at the Department of Veterinary Surgery and Radiology, Veterinary Clinical Complex (VCC), PGIVER, RAJUVAS, Jaipur with complaints of foul-smelling discharge, tissue sloughing and swelling at the tail region. Duration of illness ranged from 5 to 10 days.

- **Case 1 and 2** had trauma-induced distal tail necrosis due to accidental lacerations during loading.
- **Case 3** presented in winter, suggestive of frostbite-induced ischemia and gangrene.
- **Case 4** had a history of chronic fly strike and secondary bacterial infection (*Figure* 1).

On clinical examination, the distal tail showed signs of necrosis with black discoloration, absence of bleeding on pinprick, foul odor and local temperature drop. In all animals, tissue distal to the mid-coccygeal vertebra was non-viable and painful.

Surgical Management:

All buffaloes were restrained in standing position. Epidural anaesthesia was administered using 2% lignocaine hydrochloride (0.2 mg/kg) at the first intercoccygeal space (Ismail, 2016).

The tail was shaved, scrubbed with povidone-iodine and a tourniquet was applied proximally. Surgical amputation (*Figure* 3) was performed using a scalpel at a level proximal to necrotic tissue. Haemostasis was achieved with ligation (*Figure* 2) of coccygeal artery and veins using absorbable suture (Catgut No. 2). Skin was closed with interrupted sutures (silk) in a cruciate pattern (Nuss and Feist, 2011) and antiseptic dressing was done (*Figure* 4).

Figure 1: Necrotic tail before surgery

Figure 2: Ligation of vessels before amputation

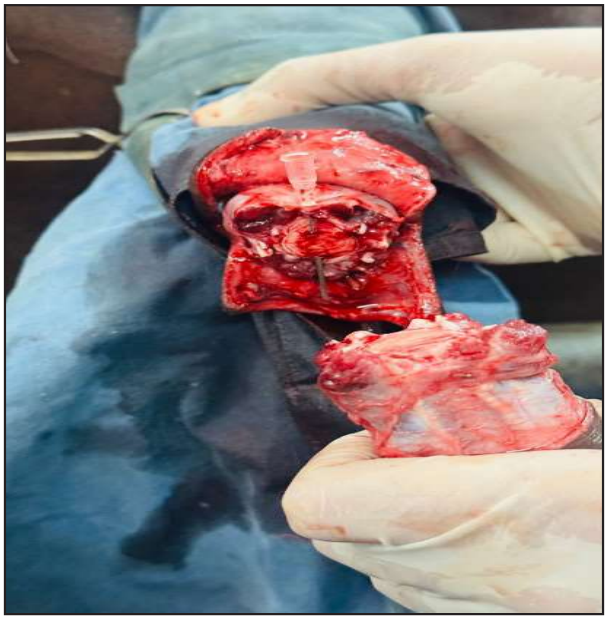

Figure 3: Surgical amputation of tail

Figure 4: Post-operative dressing of tail

Postoperative Care:

- **Antibiotics:** Ceftriaxone @ 25 mg/kg IM for 5 days
- **Analgesics:** Meloxicam @ 0.5 mg/kg IM for 3 days
- **Local care:** Daily antiseptic dressing and fly repellent spray
- Sutures were removed on Day 10. Healing was complete by Day 14 without any complications.

DISCUSSION

Tail necrosis in buffaloes requires early intervention to avoid systemic complications. In all four cases, amputation was necessitated due to the extent of necrosis and poor prognosis for conservative management. Similar clinical decisions have been reported in bovines with tail gangrene, especially in cases of frostbite, trauma or infection (George *et al*., 1970; Dhillon *et al*., 2006).

In cases where conservative therapy may not suffice, a combined medicinal and surgical strategy has been shown to be effective. Patil *et al*., (2020) described the therapeutic management of various tail affections, including necrosis and gangrene, in buffaloes. Some animals responded to medical management, whereas others required surgical amputation. The integrated approach produced favorable outcomes across all cases studied.

Epidural anaesthesia was effective for surgical pain control (Ismail, 2016). Surgical principles of asepsis, haemostasis and postoperative care were crucial for recovery. Outcomes in this report align with findings by Nuss and Feist (2011), who emphasized the value of early surgical intervention in coccygeal osteomyelitis and necrosis in cattle.

For advanced gangrene with vascular involvement, Jena and Sahoo (2014) reported a precise surgical amputation under caudal epidural anesthesia using 2% lidocaine in a buffalo with coccygeal varicosity and distal tail necrosis. The procedure, which emphasized aseptic preparation, use of tourniquet, careful incision and meticulous ligation of vessels, resulted in uneventful recovery. This highlights the importance of applying strict surgical principles to ensure successful outcomes.

The role of environmental and nutritional stressors, such as Degnala disease, must

also be considered in etiological diagnosis of tail necrosis (Sikdar *et al*., 2000). Overall, our findings reaffirm the importance of timely clinical recognition, effective use of caudal epidural anesthesia, prompt surgical intervention and diligent postoperative care. These collectively support that amputation of necrotic tail portions under regional anesthesia remains the treatment of choice for advanced tail necrosis in large ruminants.

CONCLUSION

Tail necrosis, if diagnosed early and managed surgically, results in favourable outcomes in buffaloes. Amputation under regional anaesthesia followed by appropriate wound care and antibiotic therapy can lead to complete healing with restored welfare and productivity.

Author Contributions

Dr. Shree Ram Karir, Dr. Anita and Dr. Alka Bharia was responsible for surgical case management, manuscript writing and coordination. Dr. Nupur Pandey and Dr. Hemant Kumar Fagana was editing the manuscript. Post-operative care was overseen by Dr. Anita and Dr. Sonika Kumari under the supervision of the clinical faculty at the Department of Veterinary Surgery and Radiology, PGIVER (RAJUVAS), Jaipur.

Conflict of Interest Statement

The author declares no conflict of interest related to this case report.

Ethics Statement

This clinical case was managed according to standard hospital protocol at the Department of Veterinary Surgery and Radiology, PGIVER (RAJUVAS), Jaipur. Informed consent for diagnosis, treatment and publication of the clinical details and images was obtained from the animal's owner.

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Conflicts of Interests Disclosure

The authors report no conflicts of interest in this work.

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