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Management of Traumatic Balanoposthitis and Flea Infestation in a Dorcas gazelle (Gazella dorcas): A Case Report

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ABSTRACT

Traumatic balanoposthitis is an uncommon but clinically significant penile disorder in wild ruminants, often caused by blunt force trauma leading to inflammation of the glans penis and prepuce. This report describes a 4-year-old intact male Dorcas gazelle (Gazella dorcas) weighing 16 kg, presented to the Large Animal Clinic, Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, with a four-week history of swollen glans penis unresponsive to antimicrobial and anti-inflammatory therapy. Clinical findings included necrosis of the glans penis and heavy Ctenocephalides spp. flea infestation. Laboratory analysis of penile swab cultures yielded Staphylococcus aureus and Pseudomonas aeruginosa, both susceptible only to Imipenem. Treatment involved flushing with 0.06% chlorhexidine, piroxicam, insecticidal dusting for flea control, multivitamin supplementation, and topical aloe vera extract. The necrotic glans sloughed on Day 4, with resolution of swelling and ectoparasite infestation by Day 8. The animal was discharged and remained stable at follow-up. This case highlights the importance of early diagnosis, culture-guided antimicrobial therapy, and ectoparasite management in wild ungulates. Prompt intervention can improve welfare and prevent reproductive losses in captive wildlife.

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INTRODUCTION

Balanoposthitis refers to inflammation of the glans penis (balanitis) and prepuce (posthitis) [1]. When caused by trauma, it may involve disruption of the tunica albuginea and corpus cavernosum, commonly termed penile fracture [2]. In small ruminants, penile and preputial injuries are uncommon but can severely impact breeding performance [5]. Penile fracture can lead to a or combination of dyspareunia (painful mating), abnormal penile curvature, erectile dysfunction, urinary obstruction, urethro-cutaneous /urethro-

cavernosa fistular. While penile trauma is documented in humans, dogs [3] and other exotic pets [9], there are few reports in wild ungulates.

Ectoparasitic Flea are hematophagous insects widely distributed among mammals and birds, and play a significant role in veterinary and zoonotic disease ecology. In wildlife settings, fleas frequently colonies various hosts including ungulates, with potential secondary infestation complications (e.g., dermatitis, anemia) and vector-transmission of bacterial pathogens [16].

The Dorcas gazelle (*Gazella dorcas*), a small desert antelope native to arid regions of North Africa and the Middle East, is listed as Vulnerable by the IUCN [10]. In captivity, improper housing, social stress, and absence of veterinary preventive care can predispose to injury and disease [7]. In the same vein, environmental antibiotic exposure, nature of the pathogen's mechanism of action, as well as host/wound environment all contribute to antimicrobial resistance (AMR) [20]. AMR is when microorganism acquire ability to no longer respond to medications against them. It develops through natural evolution of the pathogens that is has become a major global concern lately. Resistant infections spread faster, are herder to treat and is fueled by inappropriate use of antibiotics in human, animal and agriculture [20, 21]. The best control measures to AMR include maintaining hygiene, vaccinations and appropriate use of antibiotics.

This report presents the clinical management of traumatic balanoposthitis with concurrent flea infestation in a captive Dorcas gazelle, highlighting the therapeutic approach, outcome, and implications for reproduction and welfare.

CASE PRESENTATION

Signalment and history:

A 4-year-old intact male Dorcas gazelle weighing 16 kg was referred from Funtua Veterinary Clinic, Katsina State, to the Large Animal Clinic, Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, on 16th March 2025. The chief complaint was four weeks traumatized, swollen glans penis unresponsive to treatment with penicillin–streptomycin, dexamethasone, and multivitamins. History further reveled that the client approached Funtua Veterinary Clinic 2 week after the incident. The animal, kept with one female for pleasure purposes, had no vaccination or deworming history and was fed bean shaft and corn bran.

Clinical Examination

The Animal was bright and active with penile swelling, necrotic prepuce and glans, difficult urination, general epilation and visible fleas. Rectal temperature was 40.0 °C, pulse 80 bpm, and respiratory rate 52 cpm. Ultrasound was conducted. Thereafter, Blood, flea, fecal, and penile swab samples were collected for relevant laboratory analyses and the animal hospitalized.

Ultrasound Report.

Fig. 1. Lateral Penile ultrasound; revealed grade IV penile fracture involving tunica albuginea, corpus cavernosum, corpus spongiosum and urethra (Red & blue arrows shows dorsoventral line of the

injury), Purple arrow indicates length of the swollen, necrotized part.

TREATMENT AND OUTCOME

Day 0 (Admission):

Affected site was flushed with 0.06% chlorhexidine. Amoxicillin L.A. 10 mg/kg IM q72h × 3, Ivermectin 0.4 mg/kg SC (single dose), Piroxicam 0.3 mg/kg IM daily × 3/7 and Multivitamin 0.1 ml/kg IM daily × 3/7.

Laboratory Results

Clinical Pathology Laboratory

The blood parameters of the Animal showed polycythemia (Increased PCV), left shift due to increased immature WBC (seen as bands) as indicated in (Table 1) below.

Table 1. Heamogram of the Animal

Parameter	Animal Patient's value	Reference values
PCV (%)	**52.0**	24-45
HB(g/dl)	11.0	8.0-14
TWBC(x10^9/L)	8.6	4-13
BANDS(x10^9/L)	**0.43**	0.0-0.3
NEUTROPHILIS(x10^9/L)	4.6	1.3-6.5
LYMPHOCYTES(x10^9/L)	3.27	1.6-.9.8
MONOCYTES(x10^9/L)	0.34	0-0.78
EOSINOPHILS(x10^9/L)	0	0.18-1.7
BASOPHILS (x10^9/L)	0	Rare
TOTAL PROTEIN (g/dl)	6.0	6.4-7.9

Source of Reference Values: Ganti, (1983). Veterinary Clinical Pathology. CBS Publishers

Entomology Laboratory

Ctenocephalides spp. Flea was identified [6]

Microbiology Laboratory

Staphylococcus aureus (golden yellow on mannitol salt, catalase & coagulate +ve, gram cocci's clutter) and *Pseudomonas aeruginosa* (none lactose fermenter on MacConkey agar, green on nutrient agar) were isolated.

Antimicrobial sensitivity test showed both bacteria resistant to many antibiotics but Imipenem [4] through disk diffusion method [11] Table 2 below.

Protozoology Laboratory

- No Parasite was found

Helminthology Laboratory

- No Oocyst detected

Table 2. Antimicrobial Resistance

Antibiotic	Reaction
Colistin sulfate	Resistance
Imipenem	**Sensitive**
Augmentin	Resistance
Chloramphenicol	Resistance
Ciprofloxacin	Resistance
Gentamycin	Resistance
Oxacillin	Resistance

Day 3: Animal remained active, Rectal temperature was 40.0 °C, pulse 80 bpm, and respiratory rate 52 cpm. Urine dribbling persisted. Aloe vera extract was applied topically and then Amoxicillin was stopped, even though Imipenem was not available.

Day 4: Rectal temperature was 40.0 °C, pulse 78 bpm, and respiratory rate 48 cpm. Necrotic glans sloughed off. Heavy flea infestation persisted. Therefore, the patient's body was dusted with Rambo® insecticide, while aloe vera extract application continued.

Day 8: Temperature dropped to 39.4 °C, pulse 94 bpm, and respiratory rate 46 cpm. Urine flow became normal, fleas absent and the patient discharged.

Day 13 follow-up: Continued improvement reported; breeding discouraged; castration recommended. Client was also advised to always seek routine veterinary care and management for his animals. Disinfect and clean the environment, also present cases to promptly to clinic.

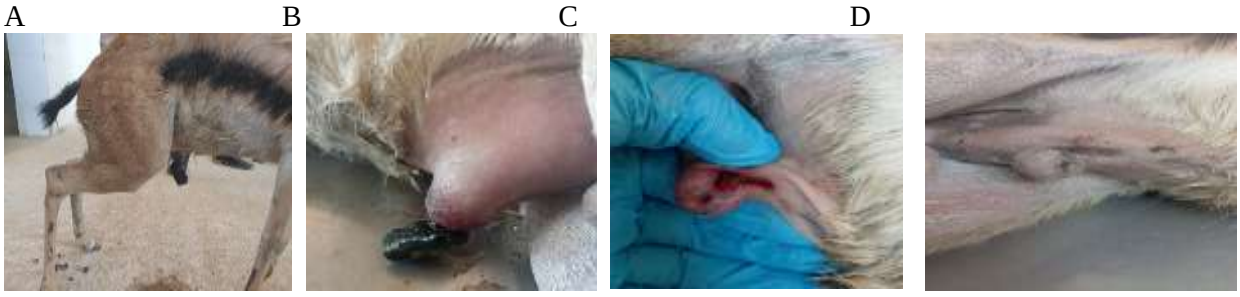

Fig. 2. Penile condition on the Animal; (A)- at Presentation on day 0, (B)- After topical application of Aloe vera extract on day 3, (C)- the necrotic glans sloughed on day 4 and (D) at dischage on day 13.

DISCUSSION

Penile trauma in ruminants may occurs during mating, fighting, or accidental entrapment [5,8]. Although delicate, surgical correction is possible in milder cases when attended promptly. It is categorized in to grades I (mild) to grade IV (severe) depending on penile tissues that are involved. The present case involved damage to all tissues; tunica albuginea, corpus cavernosum, corpus spongiosum and urethra (grade IV) [17]. The extent of the injury and the delayed presentation likely contributed to necrosis and secondary bacterial colonization [4]. Culture-guided antimicrobial therapy was critical, as *S. aureus* and *P. aeruginosa* are common opportunists in contaminated wounds [4, 15]. Even though Imipenem was not available for

use, this case progressed and the sensitivity test helped prevent unbeneficial use of antibiotic (promoting the control of AMR) and reduced cost of treatment. Recent studies highlight the properties, mechanism of action and benefits of use of Aloe vera in wound management. It provides soothing and moisturized covering, aids in wound regeneration and reduces healing time through stimulation of fibroblast activity and collagen synthesis [18, 19]. In this case, observable improvement was realized 24h after the onset of aloe vera used.

Flea infestation (*Ctenocephalides spp.*) can cause irritation, stress, anemia, and act as a vector for other pathogens [6] which may not be unconnected with the general epilation [14], polycythemia (through dehydration) and the left shift that were found. Insecticidal dusting became effective when the flea resisted treatment with Ivermectin. This points to its efficacy in parasite control, environmental sanitation and prevention of re-infestation as reported by [12, 13]. Both bacterial isolates and the flea found in this case exhibited resistance. It is the authors' opinion that contact with human settlement and domestic animals may have influenced exposure to resistant strains. In addition to possible poor sanitary environment, lack of access to veterinary care and proper management as well as delayed medical attention. This is because the animal was brought home from captivity, kept without any medical or vaccination history. Also kept for two weeks after the incident without any medical attention.

Loss of the glans penis may impair fertility, cause urinary complications, and reduce breeding value [2,3,5]. Complications May require or lead to penile amputation, Shortened, curved or amputated penis as in the present case report. Preventive strategies include proper housing, prompt wound care, and routine veterinary checks in captive wildlife [7].

CONCLUSION

This case demonstrates successful management of traumatic balanoposthitis and concurrent flea infestation in a Dorcas gazelle using culture-based antimicrobial therapy, anti-inflammatory treatment, topical care, and ectoparasite control.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

ETHICAL APPROVAL

This case was managed in accordance with ethical guidelines for The Ahmadu Bello University veterinary clinical practice, with owner consent obtained prior to treatment.

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