

Treatment of myiasis in Lombok civets (*Paradoxurus hermaphroditus*) at ex-situ conservation institutions

Fatimatus Sa'diyah Putri¹, Gilang Kala Maulana², Aryani Sismin Satyaningtjas³, Damiana Rita Ekastuti³, Hera Maheswari³, Koekoeh Santoso³, Ronald Tarigan³, Pudji Achmadi³, Isdoni Bustamam^{3,*}

¹ Veterinary Professional Program, School of Veterinary Medicine and Biomedical Sciences, IPB University

² Lombok Wildlife Park, Lombok Utara, Nusa Tenggara Barat

³ Division of Physiology, School of Veterinary Medicine and Biomedical Sciences, IPB University

ABSTRACT: Lombok Wildlife Park is an ex-situ conservation institution in the form of a wildlife park that supports the safety of wild animal species. The Lombok civet (*Paradoxurus hermaphroditus*) is a wild animal kept in the same cage as the female moon civet (*Paguma larvata*). The Lombok civet was found to have a vulnus at the base of its tail and continued with myiasis. The Lombok civet was treated with antibiotics and anti-inflammatory drugs for wound healing. Myiasis was treated by administering larvicide, and larvae were manually removed. After five days of treatment, the vulnus was still not completely healed, fly larvae were no longer visible, and appetite was still poor.

Keywords:

myiasis, *Paradoxurus hermaphroditus*, ex-situ conservation

■ INTRODUCTION

The Lombok civet (*Paradoxurus hermaphroditus*) is a nocturnal mammal. This animal can live in bushes, secondary forests, plantations and human settlements. Civets are omnivorous animals that consume fruit (coffee, bananas, papaya, mango) and meat (insects, earthworms, lizards, mice). Weasels are not included in the group of true omnivores because of the structure of the teeth of ferrets, which are not designed as predators specifically to eat meat as their main food; instead, weasels are called frugivores; that is, they choose fruit as their main food and switch to preying on small vertebrates, reptiles, or insects when there is a scarcity of fruit. fruit (Mudappa *et al.* 2010; Jothish 2011; Winaya *et al.* 2018).

Myiasis is a pathological condition resulting from parasitic infestation of tissues or organs caused by the larvae of fly species (Diptera sp.) (Lobo *et al.* 2014). This incident occurs when the host is injured and emits a foul odor that attracts female flies to lay eggs in the wound area. The eggs that hatch and become larvae will dig into the host's tissue, causing tissue damage and causing the wound to become larger and deeper (Obanda *et al.* 2013). However, myiasis in civets has not yet been reported. This article reports on the treatment of myiasis in the Lombok civet at a conservation institution, the Lombok Wildlife Park. Lombok Wildlife Park is an ex-situ conservation institution in the form of a wildlife park to support the safety of wild animal species.

■ CASE

Anamneses and Signalement: The male Lombok civet (*Paradoxurus hermaphroditus*) weighed 3 kg and lacked an appetite. The civet was placed in the same cage as the female moon civet (*Paguma larvata*), and a vulnus was found at the base of the tail on the right side because of fighting (Figure 1). Due to the vulnus, Lombok civets are increasingly showing poor appetite.



Figure 1. The condition of the wound at the tail of the Lombok civet (*Paradoxurus hermaphroditus*) at Lombok Wildlife Park.

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The vulnus appeared to have progressed to become larger and myiasis was discovered on the 4th day of treatment. **Diagnosis and prognosis:** Based on physical examination and clinical signs, the Lombok civet is diagnosed with myiasis with a Fausta prognosis if treatment and therapy are carried out quickly and does not cause excessive stress to the animal. **Treatment:** Treatment of cases of myiasis in Lombok civets, which is carried out during the first 2 days, involves topical administration of povidone iodine, oxytetracycline, and enbatic powder. Two days later, oxytetracycline was changed to topical Procaben LA. After four days of wound treatment, it was discovered that the fly larvae were investing in the wound. The Gusanex® preparation was inserted into the wound, which was getting larger to remove the fly larvae in the wound area. After 5 days of treatment, the vulnus was still not healed, the fly larvae were no longer visible, and the appetite was still poor. After gusanex® liquid was administered, the wound area was procaben, dried, and then topical administration of povidone iodine and enbatic powder® was continued. On the 5th day, hematodin® and Biodin®, 0.8 ml each, were injected intramuscularly.

■ RESULTS AND DISCUSSION

Treatment for Lombok civets when the vulnus wound has not yet progressed to myiasis is carried out by administering Povidone iodine to the wound area, followed by appropriate amounts of Oxytetracycline and Enbatic powder topically. Povidone-iodine is a complex iodine that functions as an antiseptic to kill microorganisms by destroying their proteins (Ferdina *et al.* 2022). Oxytetracycline is an aminoglycoside antibiotic that is useful for treating infections caused by gram-positive and gram-negative bacteria by inhibiting protein synthesis. The enzymatic powder preparation contained bacitracin zinc and neomycin sulfate, which are used to treat skin infections caused by bacteria and pyoderma. Neomycin sulfate is a broad-spectrum aminoglycoside antibiotic that is effective against gram-negative and gram-positive bacteria. Enbatic itself is usually used to prevent wounds from being contaminated by microorganisms from outside the body and to speed up the drying of wounds (Gorda 2016). Five days later, the wound had not healed. This can occur because the civet frequently licks or scratches the wound, and the wound-healing process takes longer. On the sixth day, larval infestation by the flies was observed. Treatment consisted of administering 1% dichlofen-thion (Gusanex®) to the wound, followed by removal of the larvae that came out of the wound using tweezers until they were clean.

After cleaning the larvae, the remaining Gusanex fluid was dried, and the wound was treated with Procaben LA as an antibiotic. After administering the antibiotics, the enbatic

powder was evenly distributed. Civets were injected intramuscularly with Biodin and Hematin (0.8 ml of each administered intramuscularly). Biodin functions to improve the metabolic processes of the animal's body, thereby improving muscle function better and the animal's immune system being better. Hematin functions as a multivitamin and hematopoietic in animals so that it can accelerate wound healing (Prudenta *et al.* 2021). It is hoped that these vitamins can also provide energy for the civet and increase their appetite.

■ CONCLUSION

The Lombok Wildlife Park is an ex situ conservation institution in the form of a wildlife park that supports the safety of wild animal species, and one of these cases was myiasis in the Lombok civets (*Paradoxurus hermaphroditus*). Treatment involves administering antibiotics and anti-inflammatory drugs for wound healing. Myiasis was treated by administering antilarvae and manually removing larvae. After 5 days of treatment the vulnus was still not healed, the fly larvae were no longer visible, appetite was still poor.

■ AUTHOR INFORMATION

Author for correspondence

*IB: yuthia@apps.ipb.ac.id

Division of Physiology, School of Veterinary Medicine and Biomedical Sciences, IPB University. Jln Agatis Kampus IPB Dramaga, Bogor, 16680 West Java of INDONESIA

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