

Effectiveness of antibiotic ointment and eye drop therapy for the treatment of chlamydiosis in cats

Raida Raisatulhaq¹, Andi Hiroyuki^{1,*}, Nurul Aeni Ayu Lestari²

¹ Veterinary Professional Program, Faculty of Medicine, Padjadjaran University, Sumedang

² West Java Provincial Animal Hospital at Cikole, Lembang, Bandung

ABSTRACT: *Chlamydomphila felis* is one of the most common pathogenic agents causing conjunctivitis in cats and is commonly referred to as chlamydiosis. This paper reports the effectiveness of topical treatment using antibiotics in the form of eye ointment and eye drops in a cat with a case of chlamydiosis. Clinical signs in cats include conjunctivitis, mucopurulent ocular discharge followed by nasal discharge. Treatment begins with administering eye ointment until the condition improves within 6 days and treatment switches to using eye drops. The results of the treatment showed that administering topical medication in the form of an ointment provided fairly good healing results within 6 days, while eye drops appeared to be ineffective where the conjunctivitis became worse after 3 days of treatment. The cat was then treated with enucleation on the 9th day because the disease condition had an infaustal prognosis.

Keywords:

chlamydiosis, cat, conjunctivitis, eye ointment, eye drop

■ INTRODUCTION

Conjunctivitis is an inflammatory condition of the conjunctival tissue, accompanied by swollen blood vessels, ocular discharge, and pain (Azari & Arabi 2020). *Chlamydomphila felis* (*C. felis*) is one of the agents that causes conjunctivitis in cats and generally clinical symptoms will appear after an incubation period of 2-7 days. In addition, cats will show clinical symptoms in the form of fever and poor appetite, generally followed by ocular discharge. Conjunctivitis due to *C. felis* generally occurs unilaterally and can then develop bilaterally (Gruffydd-Jones *et al.* 2009). Eye drops and ointments are antibiotic drugs that are commonly used to treat cases of conjunctivitis (Setiawan *et al.* 2023). The treatment of chlamydiosis is effective using the antibiotic doxycycline (Sykes 2005), and local application is reported to be more effective than systemic treatment (Sparkes *et al.* 1999). Although reports of resistance to the antibiotic chloramphenicol have reached 50% (Bale *et al.* 2023), studies on its effectiveness in treating animal chlamydiosis in Indonesia are currently limited. This article reports the progress of treating chlamydiosis in cats using local antibiotics in the form of an ointment (chloramphenicol) and eye drops (ofloxacin).

■ CASE

Anamneses and symptoms: A 7-month old female cat was found in the West Java Veterinary Hospital with greenish-yellow mucopurulent ocular discharge, and the palpebral of the right eye was inflamed, followed by nasal discharge. The cat was kept in a cage with other cats that had a history of disease with the same clinical symptoms. The cat was

fighting another cat in the cage. The cat had not been vaccinated. **Physical examination:** The right eye had conjunctivitis, fever 39.7°C, tachypnea and tachycardia. **Diagnosis:** Chlamydiosis. **Prognosis:** Infausta. **Treatment:** Administration of topical antibiotic eye ointments, eye drops, vitamins, anti-inflammatory drugs, and enucleation.

■ RESULTS AND DISCUSSION

Chlamydiosis is caused by *Chlamydomphila felis* (*Chlamydia psittaci* var. *felis*), with transmission through direct contact with another infected cat. Traumatic wounds from fighting on palpebrae facilitate the penetration of bacteria into the eye tissue. *C. felis* expresses Polymorphic Membrane Proteins as major virulence factors and important targets for inducing protective immune responses against the host. The presence of bacteria invading tissue epithelial cells activates the body's immune response by stimulating inflammatory cells in the area of infection (Harley *et al.* 2007). Redness, swelling, and heat occur due to the increased permeability of blood flow and pain due to the migration of inflammatory cells from the blood vessels to the tissue. Nasal discharge occurs due to chlamydiosis, which spreads to the upper respiratory tract through the nasolacrimal duct.

The course of conjunctivitis in the cats is shown in Figure 1. The progress of healing began to appear after 6 days of topical treatment using antibiotics in the form of an eye

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ointment containing chloramphenicol. Chloramphenicol binds to the bacterial 50S ribosomal subunit and inhibits bacterial protein synthesis. Chloramphenicol binds to the mitochondrial ribosomes of rapidly proliferating mammalian cells and can cause reversible bone marrow suppression (Plumb 2018). Furthermore, eye ointment administration was stopped on the 7th day considering the risk of bone marrow suppression.



Figure 1. The course of local antibiotic treatment in cats. (A) initial condition before eye ointment therapy, (B) after 3 days of eye ointment, (C) after 6 days of eye ointment, (D) 24 hours after using eye drops, (E) after 2 days of eye drop therapy, and (F) post-enucleation.

Chloramphenicol has been reported to be slightly more effective in the treatment of chlamydisis than ofloxacin (Bron *et al.* 1991). The next treatment on day 7 was eye drops containing ofloxacin. Ofloxacin is bactericidal, especially against gram-negative bacteria, and acts by inhibiting the synthesis of bacterial cell proteins. However, after the administration of this antibiotic, the cat showed no indication of recovery; instead, the conjunctivitis worsened. Topical treatment will be better if the preparation lasts for a long time in the tissue, so the use of oil-based ointments or antibiotics is highly recommended (Constable *et al.* 2017). Eye ointments can last longer in the eyes and are superior to preparations in the form of solutions (Ditmar 2011). Eye drops do not remain in the tissue for a long time, so they are less effective in this case.

The condition of conjunctivitis can be worsened by infections caused by the microflora in the conjunctiva. According to Hussein (2018), *Staphylococcus* is the bacterial species most commonly isolated from the conjunctiva, followed by *Bacillus* spp., *Corynebacterium* spp., *E. coli*, *Pseudomonas* spp., *Actionobacillus* spp., *Proteus* spp., and *Neisseria* spp. The prognosis in this cat is classified as infausta, where inflammation is persistent, resulting in an imbalance and dysregulation of the body's immune function. The treatment option was enucleation of the cat's right eye on day 9.

CONCLUSION

Cats in this report with chlamydisis had a poor recovery process after changing topical eye medication therapy from ointment to eye drops. Topical medication in the form of an ointment provides quite good healing results, while eye drops are ineffective, conjunctivitis worsens, and enucleation is performed due to infausta.

AUTHOR INFORMATION

Author for correspondence

*AH: a.hiroyuki@unpad.ac.id

Veterinary Professional Program, Faculty of Medicine, Padjadjaran University, Sumedang, Jln Raya Bandung, Jatiningor, Sumedang, West Java, 45363, INDONESIA.

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