Neoplasia of the Nictitating Membrane in A Domestic Short-Haired Cat based on Cytology of Fine Needle Aspiration

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Abstract

A 3-year-oldmaledomestic short-hairedcat was presented with the complain ofa dark red mass of the nictitating membrane of the right eyecovered most of the cornea, mucopurulent eye secret, lost appetite, medium dehydration, and cough. Physical examination was performed and showedhigh temperature (38,6°C). Ultrasonographic examination was not performed due to tool limitations. Cytologyof fine-needle aspiration masses suggested an ophthalmic neoplasm with the characteristic of neutrophils infiltration, multinecluated giant cells, and cells having glanular cytoplasm.Enucleation bulbi was performed subsequentlyto exenteration the eye and the contents of the orbit.

Keywords: *cat, cytology, neoplasia, nictitant membrane*

Introduction

Tumors are the frequent cause of death in cats (32%); which 0.34% of those affect the ophthalmic area.[1,2]Most cases of the feline ophthalmic disease were neoplastic. The neoplasms were organized according to location (orbit, conjunctiva, eyelids, nictitating membrane,globe). Neoplasia of the nictitating membrane (NM)is relatively uncommon in veterinary species, especially cats.[3] However, the following neoplasms have been reported such as adenocarcinomas, adenomas, carcinomas, ependymomas, fibrosarcomas, histiocytic sarcoma, mast cell tumors, melanocytomas, melanomas, osteosarcomas, papillomas, and squamous cell carcinomas.[4,5]When considering cases with neoplasia, an evaluation of how the health and longevity of the eye and patient is essential to determine biologic behavior. Inflammation and secondary glaucoma may arise from neoplasms, which are considered vision-threatening and may cause loss of the eye.[6] The most common cause of enucleation in cats is the ophthalmic neoplasm.[2]

Case History

A 3-year-old(3.6 kg) male,domestic short-haired cat was referred to the Maha Pet Care Clinic, Bandung, Indonesia with the complaint of irregular roughed masses affecting the bulbar and nictitating membrane of the right eye. The cat's eye was injured in a fight, but the cat disappeared and returned two weeks later in a very bad condition. The nictitating membrane was severely hyperemic and covered most of the cornea (Figure 1) with inflammation on the eyelid, so we could not evaluate the internal ocular structures.The cat appeared to be in pain. On physical examination findings were normal. The cat had no history of other medical problems, and its vaccination status was current.

Ultrasonographic examinationwas not performed due to tool limitations. Fine-needle aspiration of the nictitating membrane's masses suggested an ophthalmic neoplasm.Cytological evaluation wasof an unencapsulated, well-demarcated, multilobular neoplastic mass composed of basal cells seated within a moderately dense fibrovascular stroma (Figure 2). Based on the cellular morphology, the neoplasm was diagnosed as a presumptive basal cell tumor. Due to the lack of natural borders and the size of the tissue fragments, it was difficult to determine whether the neoplasm represented

a benign process or a malignant process. There was no evidence of sebaceous or squamous differentiation in the examined sections.Considering the extensive nature of the lesion, the cat's pain, and the owner's financial constraints, we recommendedenucleation bulbi to remove the eye and the contents of the orbit.

Treatment

Pre-anesthetic drugs included atropine sulfat (0.08 ml/kg) and acepromazine (0.02 ml/kg)given intramuscularly. Anesthesia was induced with intramuscular ketamine (0.05 ml/kg).

The exenteration was performed by enucleation bulbi approach. Scalpel blade No. 22was used to incise the skin from the eyelid edge in an elliptical fashion to allow for smooth skin apposition at closure. The orbital contents were removedwhich were kept as close to the bones of the orbit as possible. The medial and lateral orbital ligaments were transected, and the nictitating membrane was completely removed. The dissection was continued around the eye and mass until the optic nerve was encountered. The nerve was then transected, and the tissue was completely removed.The subcutaneous tissue was closed with vicril 2.0 in a simple continuous suture, and the skin was closed in a simple interrupted suture*(Figure 2)*.

The surgery was successful and the cat recovered from anesthesia. It was released to the owner following day. For pain management, the cat was given tramadol (0.1 ml/kg intramuscularly) for three days.A two-week postoperative reevaluation was scheduled and the cat was in a good condition.

Discussion

Following 2 weeks history of eye enlargement and ocular discharge from the right eye, an ophthalmic examination was performed on both eyes. Severe mucoid discharge was detected on right eye, inflammation of the nictitating membrane was covered almost entire the right eye.Pupillary light reflexes both direct and indirect were present.Incisional biopsy sections were of an infiltration of neutrophils, multinucleated giant cell, granular cytoplasm, different cells sized, irregular outlines of nucleus, and no mitotic cells was found. Based on the cellular morphology, the neoplasm was diagnosed. Due to the lack of natural borders and the size of the tissue fragments, it was difficult to determine whether the neoplasm represented a benign process or a malignant process.The nictitating membrane is composed of numerous tissue types including conjunctival epithelium, vascular substantia propria, lymphoid tissue, supporting hyaline cartilage, and associated glandular tissue which contributes to lacrimation.Once nictitating membraneremoved, the eye become dry and possibility of corneal ulcers. In this case, neoplasm is located in the nictitating membrane, metastatis/recurrence to the eyeball will sooner or later occur. Based on the case, we did not have any choice except surgical enucleation bulbi and the cat will loss of the right eye.The cause of the neoplasm remains unknown.

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Ethical Clearance: Compliance with ethicalstandards.

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