AMELANOTIC MELANOMA IN THE RABBIT: A CASE REPORT WITH AN OVERVIEW OF IMMUNOHISTOCHEMICAL CHARACTERIZATION

João Brandão, LMV, MS, Robert Blair, DVM, Amanda Kelly, DVM, Natalie Fowlkes, DVM, Keijiro Shiomitsu, BVSc, Dip. ACVR (Radiation Oncology), Filipe Espinheira Gomes, LMV, Dip. ACVO, Gregory Rich, DVM, and Thomas N. Tully Jr, DVM, MS, Dip. ABVP (Avian), Dip. ECZM (Avian)

Abstract

An adult spayed female New Zealand white mix-breed rabbit was presented for an abnormal cutaneous pigmentation of the left nasal canthus. Biopsy samples were collected when the rabbit was under general anesthesia. Using the results of the biopsy, an initial diagnosis of carcinoma was made. The patient was referred for surgical excision followed by local radiation therapy using strontium-90. The histological appearance was most consistent with an amelanotic melanoma. Neoplastic cells strongly expressed melan-A and vimentin and failed to express pancytokeratin markers. The immunohistochemical findings supported the presumptive diagnosis of amelanotic melanoma. Owing to the high mitotic index, presence of neoplastic cells within the vessels, and incomplete surgical excision, the prognosis was poor. The owner refused further treatment and diagnostic evaluation of the patient. The rabbit was found dead in its enclosure approximately 6 months after the diagnosis. A postmortem examination was not performed. Although melanomas have been reported in rabbits, this condition appears to be under-reported in pet rabbits. This case report describes the clinical presentation and diagnosis of amelanotic melanoma, histological evaluation of affected tissue, and immunohistochemistry in a rabbit. Copyright 2015 Elsevier Inc. All rights reserved.

Key words: pet rabbit; amelanotic melanoma; strontium-90; radiation therapy; immunohistochemistry; melan-A

An adult spayed female New Zealand white mix-breed rabbit of unknown age (7 to 10 years old) was presented to the West Esplanade Veterinary Clinic, Metairie, LA USA, because of an abnormal pigmentation on the left nasal canthus. Initial examination revealed an approximately 1-cm pale to pink skin lesion located on the left nasal canthus. No other significant findings were detected on physical examination, and the lesion did not appear to cause discomfort to the animal. The findings of ophthalmic examination were unremarkable. The owners of the rabbit agreed to whole-body radiographs and an incisional tissue biopsy of the periocular lesion. To obtain the tissue samples, the animal was premedicated with butorphanol 0.1 mg/kg intramuscularly (Torbugesic, Fort Dodge Animal Health, Fort Dodge, IA USA). Ten minutes after administration, the animal was physically restrained and anesthesia was induced with isoflurane at 5% with oxygen at 2 L/min via face mask, after which the patient was maintained on 2% isoflurane and 1.5-L/min oxygen.

From the Department of Veterinary Clinical Sciences, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA USA (Brandao, Kelly, Shiomitsu, Espinheira Gomes, Tully); the Louisiana Animal Disease Laboratory, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA USA (Blair, Fowkles); and the West Esplanade Veterinary Clinic, Metairie, LA USA (Rich).
Address correspondence to: João Brandão, LMV, MS, Department of Veterinary Clinical Sciences, Center for Veterinary Health Sciences, Oklahoma State University, Stillwater, OK 74078.
E-mail: jbrandao@okstate.edu.

1557-5063/15/2101-$30.00
http://dx.doi.org/10.1053/j.jepm.2015.04.009

Before surgical biopsies, whole-body radiographic examination was performed (2 views, ventrodorsal and left lateral). No abnormalities were detected. Local anesthesia was administered by infusion of diluted lidocaine surrounding the mass. Using blunt and sharp dissection, a biopsy sample was collected and placed in buffered formalin (10%). Hemorrhage was controlled by digital pressure and radiosurgery. Recovery from anesthesia was unremarkable. Meloxicam, 1 mg/kg subcutaneously, (Metacam, Boehringer Ingelheim Vetmedica Inc., St. Joseph, MO USA; as single dose) was administered after recovery.

The biopsy samples were submitted for histopathological examination. The pathological description of the collected tissue stated the mass was composed of small nests and trabeculae of closely placed cells supported on a fine fibrovascular stroma. These cells were somewhat polygonal with distinct cytoplasmic borders and moderate amount of fine, slightly granular to vacuolated, pale amphophilic cytoplasm. In some areas of the overlying epithelium, it appeared that some cells may have been proliferating into the stratified squamous epithelium and just subtending the keratin layer. The mitotic index was 10 to 20 mitotic figures per 10 high-power fields. Tentative diagnosis of carcinoma of the nasal canthus was made. The cellular morphology suggested a possible sebaceous gland carcinoma, although a metastatic focus could not be completely ruled out. The surgical biopsies did not provide full excision as neoplastic cells were detected at the surgical margin. The animal was referred to the Louisiana State University School of Veterinary Medicine, Baton Rouge, LA USA, for further diagnostic tests, surgical revision, and local radiation therapy.

The animal presented to the Louisiana State University Zoological Medicine service for further treatment approximately 2.5 months later. On presentation, the animal was bright, alert, and responsive. The body weight was 3.64 kg with a body condition of 3/5. The only external abnormality noted on the physical examination was a pale-pink skin lesion detected on the nasal canthus. The mass measured 11.4 mm in diameter with an approximate thickness of 5.2 mm. An approximately 1-cm long scar was noted over the mass with evidence of dry blood on its surface (Fig. 1). After discussion with the owners, this finding was suspected to be related to self-inflicted trauma. A blood sample was collected for hematology and plasma biochemistry under physical restraint. The findings of hematology were unremarkable, and the findings of plasma biochemistry revealed mildly elevated creatine kinase levels (3348 U/L [normal, $n = 110$, 610 ± 352 U/L]), which was attributed to tissue damage, possibly related to self-inflicted trauma.[1] No ocular involvement was noted on an ophthalmic examination performed by a board-certified ophthalmologist. At this time, cytoreductive surgery of the tumor followed by local radiation therapy, using strontium-90, over the affected area was planned.

The patient was allowed free access to water; however, it was not given food since 2 hours before the surgery. The animal was premedicated with midazolam 0.2 mg/kg intramuscularly (Midazolam Injection, Akorn, Lake Forest, IL USA) and hydromorphone 0.1 mg/kg intramuscularly (Hydromorphone HCl injection, West-Ward Pharmaceuticals, Eatontown, NJ USA). Ten minutes after administration of the therapeutic agents listed earlier, the animal was physically restrained and anesthesia was induced with isoflurane at 5% with oxygen at 2 L/min via face mask. Blind tracheal intubation using a 3.0 mm

FIGURE 1. A cutaneous mass was detected on the nasal canthus of a New Zealand white mix-breed pet rabbit. A scar was suspected to be secondary to self-inflicted trauma. A final diagnosis of amelanotic melanoma was achieved based on histopathology and immunohistochemistry.