ORAL MELANOMA IN A CAPTIVE WALLABY, Wallabia rufogrisea

Author: A. GARMA-AVIŃA

Source: Journal of Wildlife Diseases, 17(3) : 409-412
Published By: Wildlife Disease Association
URL: https://doi.org/10.7589/0090-3558-17.3.409

ORAL MELANOMA IN A CAPTIVE WALLABY, *Wallabia rufogrisea*

A. GARMA-AVIÑA, Department of Pathology, Faculty of Veterinary Medicine, National Autonomous University of Mexico, Mexico 20, D.F.

Abstract: An oral melanoma was removed from a captive wallaby *(Wallabia rufogrisea),* housed at the main Mexico City Zoo. The cytopathology and histopathology of the tumor are described. Five months after surgery the tumor recurred but the animal has not shown any evidence of metastases.

INTRODUCTION

Melanomas are melanocytic-system tumors described from man, domestic animals and wildlife. Knowledge of these tumors is rapidly increasing and each year clinicians are more apt to deal with them in veterinary medicine. There are very few reports of melanomas in wildlife or exotic vertebrates.[10] Melanomas have been reported in Indian buffalo *(Bubalis bubalis),*[11] ground squirrels *(Spermophilus tridecemlineatus),*[1] gerbils *(Meriones unguiculatus),*[4] frogs *(Rana temporaria),*[9] axolotls *(Ambistoma mexicanum),*[5] tiger salamanders *(Ambistoma tigrinum),*[8] crested newts *(Triturus cristatus)*[7] and platyfish/swordtail hybrids *(Xiphophorus maculatus/X. helleri).*[12] The present report describes an oral melanoma in a captive wallaby *(Wallabia rufogrisea).*

CASE REPORT

A 40 month-old female wallaby at the main Mexico City Zoo was submitted for examination because of a 3×3 cm black, bleeding mass located in the left side of the upper lip and protruding partially into the oral cavity. The mass was surgically removed and submitted fresh to the Pathology Department, Faculty of Veterinary Medicine, National Autonomous University of Mexico, for examination. Upon arrival, the specimen was sectioned and touch imprint slides were prepared and stained with Wright's. Once this was done, the mass was fixed in 10% formalin and processed routinely for paraffin embedding and staining with haematoxylin and eosin. A diagnosis of melanoma was made in both the touch imprint slides as in the histologic sections. Five months after excision, the tumor recurred and this time as a diffuse swelling of the lip. A fine-needle biopsy was carried out and upon examination of Wright's stained smears, the original diagnosis was maintained.

CYTOLOGIC FINDINGS

On touch-imprint slides, there was a marked cellularity and the background was composed of abundant dispersed melanin granules detached from the cells. Occasional fibroblasts as well as a moderate amount of erythrocytes were scattered between the tumor cells. Neoplastic cells ranged in size from 2 to 3 erythrocytic diameters; the vast majority were round and only occasionally elongated. Cytoplasmic limits were imprecise and the melanin granules, which varied from few to many, often completely obscured nuclear detail. In those elongated cells, the pigment was arranged in a bipolar fashion. At 1000× magnification, examination revealed the melanin granules to be round or elongated and yellowish-green. Nuclei were round, purple, 1.5 to 3 erythrocytic diameters and the chromatin had an homogeneous appearance. A small,

light-blue nucleolus was sometimes present. On the smears made with the material obtained by fine-needle biopsy on the recurrent tumor the cellularity was abundant. The background was composed of large amounts of erythrocytes, but there were few melanin granules detached from the cells, therefore the nuclear detail was more evident than in touch-imprint slides. No fibroblasts were seen. Except for a coarse chromatin pattern in the recurrent tumor cells (Fig. 1), other cytologic features were similar to those already described.

HISTOLOGIC FINDINGS

The specimen was a densely pigmented mass, covered by a thin epithelium with an extensive area of ulceration (Inset, Fig. 2). Most of the tumor cells were located in the reticular dermis, rather than in the papillary dermis (Fig. 2). In a few small areas, the tumor cells extended up to the dermo-epidermal junction. Architecturally, the tumor was composed of several nests of heavily pigmented cells, which sometimes formed cords between the dermal collagen and following the pattern of the latter. There was abundant intercellular edema, giving to the mass a cribriform appearance in some areas (Fig. 3).

Cytologically, the tumor cells were round to elongated and varied markedly in size as well as in cytoplasmic pigment. The melanin load was much heavier in the larger cells. Nuclei were small, round to oval and centrally located. The chromatin was arranged in a fine pattern and nucleoli were small and infrequent (Fig. 3). Based on the microscopic features a diagnosis of melanoma was made.

DISCUSSION

There is considerable variation in the behaviour of oral melanomata among domestic vertebrates.[6] Virtually all melanomas located in the oral cavity are

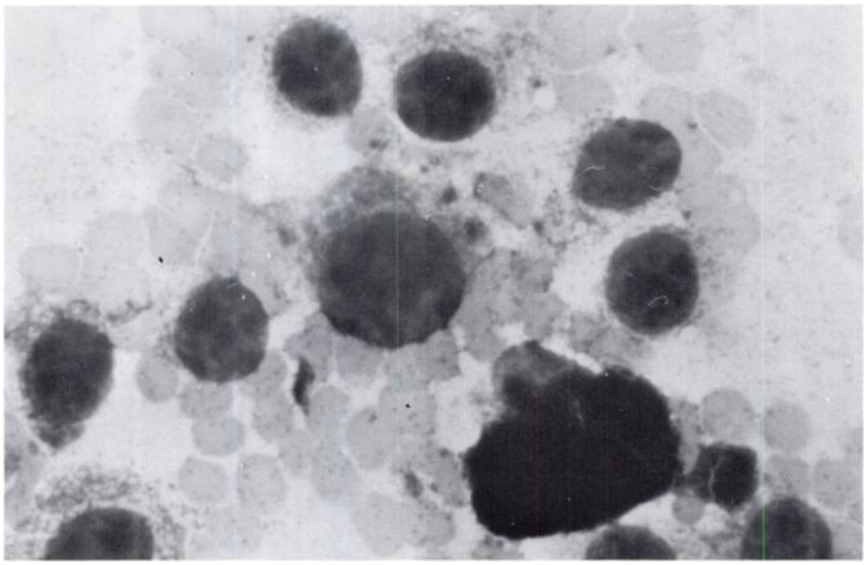

FIGURE 1. Fine-needle biopsy smear of an oral melanoma in a Wallaby. Wright's × 946.

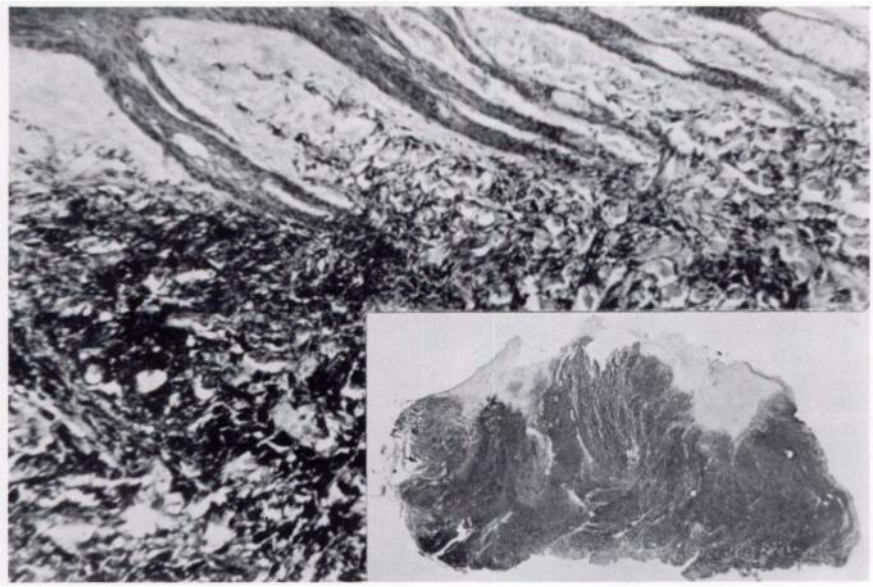

FIGURE 2. Histologic appearance of an oral melanoma in a Wallaby. H & E × 94. Inset: Close-up of the histologic section mounted on a glass slide. There is an extensive area of ulceration in the top. ×2.2.

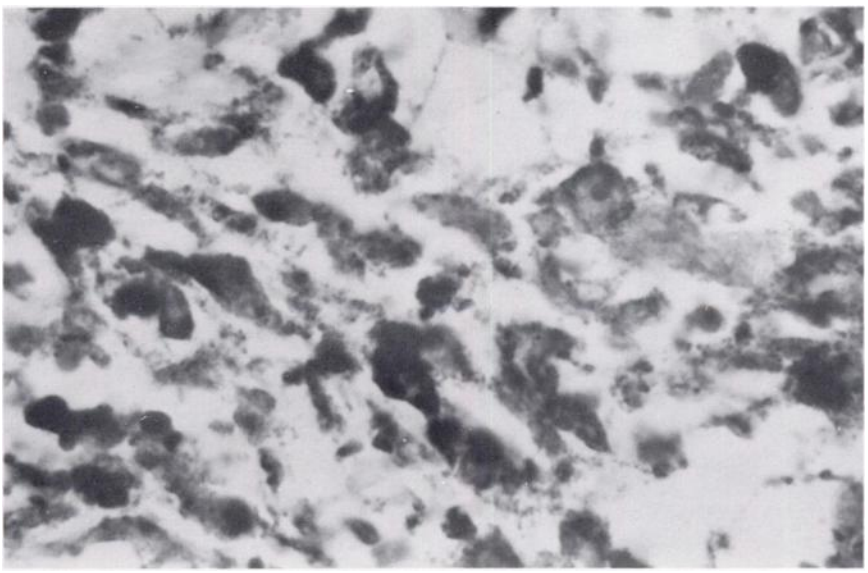

FIGURE 3. Heavily pigmented cells separated by some intercellular edema. H & E ×946.

regarded as malignant in the dog, whereas in other species they may behave as benign growths. It is not known whether the pigmentation of the skin and mucous membranes plays a role in the development of these tumors. It is established that grey horses develop cutaneous melanomas much more frequently than horses of other colors.[6] In contrast, melanomas are very rare among the black race, but fairly common in caucasians.[1] The reason for these differences is still unknown. Obviously then, we can not apply our knowledge of domestic-animal oncology directly to tumors in wildlife without a proper follow-up study. Thus, the clinician must consider any tumor as potentially malignant and perform radical (block) resection.

Acknowledgement

The author thanks Dr. Ciriaco Tista for the submission of the case.

LITERATURE CITED

1. ANDRADE, R., S.L. GUMPORT, G.L. POPKIN and T.D. REES. 1976. *Cancer of the Skin*. W.B. Saunders Co., Philadelphia, London, Toronto.
2. BALLS, M. and R.H. CLOTHIER. 1974. Spontaneous tumours in amphibia. Oncology 29: 501-519.
3. CRAMLET, S.H., J.D. TOFT and N.W. OLSEN. 1974. Malignant melanoma in a black gerbil *(Meriones unguiculatus)*. Lab. Anim. Sci. 24: 545-547.
4. DUTTA, S.K., E.J. GORGACS, T.F. ALBERT and A.L. INGLING. 1977. Isolation of a herpes virus from the cell culture of a malignant melanoma of a ground squirrel *(Spermophilus tridecemlineatus)*. Am. J. Vet. Res. 38: 591-595.
5. FINKELSTEIN, E.A. 1949. Tumor growth in invertebrates and lower vertebrates. Uspekhi Sovremennoi Biol. 17: 320-348.
6. GARMA-AVIÑA, A., V.E. VALLI and J.H. LUMSDEN. 1981. Cutaneous melanomas in domestic animals. J. Cutaneous Path. 8: 3-24.
7. LEONE, V.G. and T. ZAVANELLA. 1969. Some morphological and biochemical characteristics of a tumor in the newt, *Triturus cristatus*. pp 184-194. In: *Biology of Amphibian Tumors*. M. Mizell, Ed. Springer, New York.
8. ROSE, S.M. 1974. Personal communication to the Registry of Tumors in the Lower Animals at the Smithsonian Institution, Washington. As quoted by Balls and Clothier, 1974.
9. ROSTAND, J. 1958. Anomalies des amphibiens anoures. SEDES, Paris. As quoted by Balls and Clothier, 1974.
10. SCHLUMBERGER, H.G. 1957. Tumors characteristic for certain animal species. Cancer Res. 17: 823-832.
11. SING, K.P., N.S. PARIHAR and M.C. PRASAD. 1975. Malignant melanoma in indian buffaloes *(Bubalis bubalis)*. Indian Vet. J. 52: 74-75.
12. VIELKIND, J., V. VIELKIND and F. ANDERS. 1971. Melanotic and amelanotic melanomas in xiphophorin fish. Cancer Res. 31: 868-875.

Received for publication 8 October 1980