

Epibulbar melanocytoma in a goat

Annahita REZAIE^{1*}, Hannaneh GOLSHAHI², Mohammad Rahim Haji HAJIKOLAIE³

¹Department of Pathobiology, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran

²Resident in Veterinary Pathology, Faculty of Veterinary Medicine, Tehran University, Tehran, Iran

³Department of Clinical Sciences, Faculty of Veterinary Medicine, Shahid Chamran University of Ahvaz, Ahvaz, Iran

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Abstract: Melanocytoma is a benign tumor arising from the melanocytes. A 2-year-old female crossbreed goat that was suffering from respiratory insufficiency, emaciation, depression diffuse corneal opacity, and anemia was euthanized. There was a mass on the dorsal interface of the cornea and sclera of the left eye. It was raised, dark, and 2 mm in diameter. The histopathologic evaluation revealed melanocytoma and immunolabeling for Melan-A was positive. According to gross and microscopic evaluations, epibulbar melanocytoma was diagnosed and the authors think that the present case is the first recorded case of epibulbar melanocytoma in a goat.

Key words: Epibulbar melanocytoma, goat, eye

1. Introduction

Epibulbar (limbal) melanocytomas originate from a neoplastic transformation of melanocytes, which are located near Descemet's membrane, close to the junction of the cornea and sclera, and are benign (1). Melanocytoma is probably the second most common tumor of the eyelid in dogs. It will also occasionally occur in cats and in gray horses (2,3) and it is rare in sheep and goats (4). Although malignant melanoma has been reported in goats in different studies (5–8), there is no report of epibulbar melanocytoma in a goat and the authors think that the present case is the first recorded case of epibulbar melanocytoma in a goat in the veterinary literature.

2. Case history

A 2-year-old female crossbreed goat that was suffering from respiratory insufficiency, emaciation, depression, diffuse corneal opacity, and anemia was referred to the necropsy department. The animal was euthanized upon the owner's request and its respiratory, gastrointestinal, urinary system, and eye balls were examined. In gross examination, a spherical, black mass approximately 3 mm in diameter was seen on the dorsal interface of the cornea and sclera of the left eye. For histopathologic and immunohistochemical studies, samples were obtained and referred to the department of pathology. The samples were fixed in 10% neutral-buffered formalin, dehydrated, and embedded in paraffin wax. Paraffin-

embedded sections were stained with hematoxylin and eosin. Serial sections of eye were also treated with 0.25% potassium permanganate and washed in 5% oxalic acid to bleach the melanin. For immunohistochemical testing, sections were de-waxed and rehydrated. Endogenous peroxidase activity was blocked and then slides were incubated with monoclonal mouse anti-human Melan-A (Clone A103 Dako, Denmark) (1:50) for 1.5 h. The slides were then incubated with polyclonal goat anti-mouse immunoglobulin (Dako, Denmark). Color was developed with a solution of 3,3'-diaminobenzidine and the sections were then counterstained with hematoxylin, dehydrated, and mounted.

3. Results

Histopathologic evaluation of the eye sections revealed a ball-shaped mass that was composed of mixture polygonal (epithelioid) and spindle melanocytes (Figures 1 and 2). Heavily pigmented neoplastic cells were arranged in clusters and there were nests of polygonal cells and solitary spindle cells within the fibrovascular stroma. The nuclei of melanocytes were obvious in bleached sections and they were spherical in polygonal and fusiform in spindle cells (Figure 3). There was diffuse collagenous stroma between the neoplastic cells. No mitoses were seen. Immunohistochemical results of Melan-A staining illustrated intense brown coloration in the cytoplasm of melanocytes (Figure 4).

* Correspondence: a.rezaie@scu.ac.ir

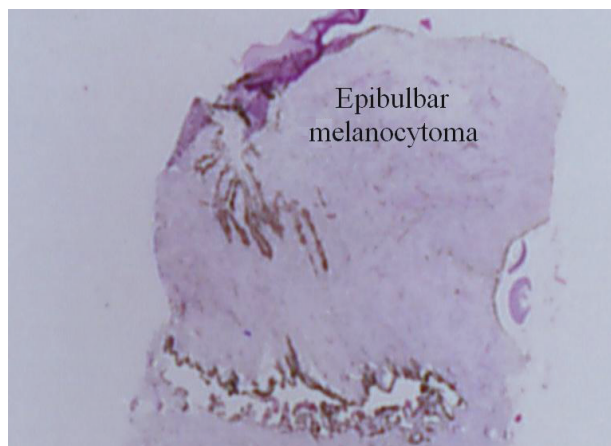


Figure 1. Epibulbar melanocytoma. Note the ball-shaped mass is located outside the uveal structure, e.g. ciliary process (H&E, scanned slide).

Macroscopic and microscopic inspections of other organs revealed chronic pleuropneumonia, hemochsosis of the abomasum, and diffuse cysticercosis of the liver, which were the main reason for the clinical disorders. Respiratory insufficiency was due to chronic pleuropneumonia. Moreover, emaciation and anemia resulted from parasitic infestation of the liver and abomasum, and diffuse corneal opacity was due to the existence of epibulbar melanocytoma.

4. Discussion

Melanocytoma of the globe can occur in several locations, but the most common is the anterior uveal tract, either in the iris or the ciliary body stroma. There is only one report of melanocytoma in goats, which is related to dermal melanocytoma in the hooves (9). The tumors originating

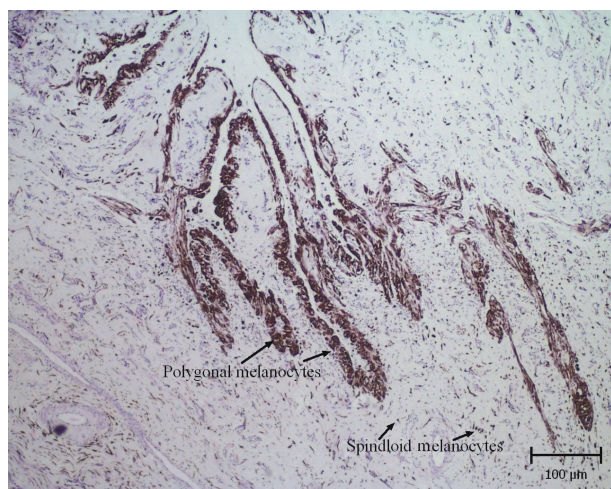


Figure 2. Epibulbar melanocytoma. Proliferated melanocytes in 2 shapes, polygonal and spindloid, are obvious (H&E, bar 100 µm).

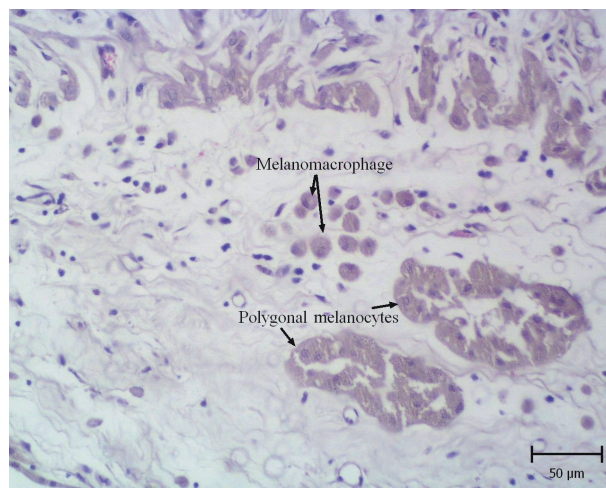


Figure 3. Epibulbar melanocytoma in bleached section. There are a nest of polygonal melanocytes and melanomacrophages (H&E, bar 50 µm).

from melanocytes are most often seen in female goats (7,8). In the present case also, the animal was female.

Differential diagnoses must be considered during the examination and according to macroscopic position. The differential diagnoses include palpebral conjunctival melanoma, uveal melanoma with episcleral extension, and staphyloma (10). The tumor had grown outwardly as a protruding spherical nodule with expansion into the peripheral cornea and no projection into the uvea and so epibulbar melanocytoma was suspected first.

Tumors originating from melanocytes in the limbal sclera (epibulbar melanoma and melanocytoma) are always benign. Epibulbar melanocytomas are always composed of heavily pigmented large round cells either alone or mixed with small numbers of heavily pigmented spindle

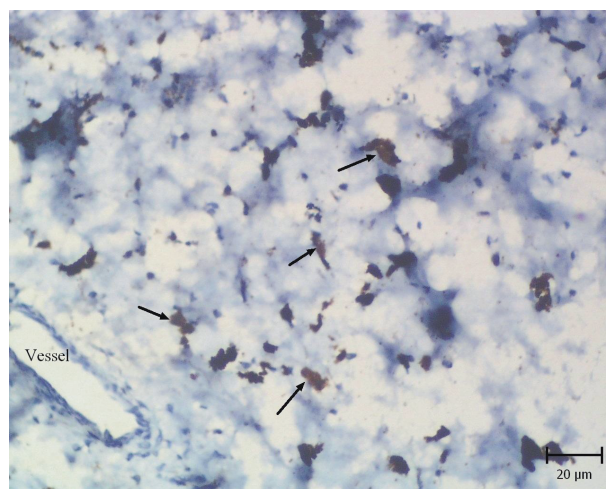


Figure 4. Epibulbar melanocytoma. Immunohistochemical labeling of Melan-A in cytoplasm of melanocytes characterized with brown cells (H&E, bar 20 µm).

cells (4). In this case, there were both cell types within the fibrovascular stroma with low cellular polymorphism and rare mitoses, which indicate a benign entity. The MART-1/melan-A antigen is specific for the melanocyte lineage and is found in normal skin, the retina, and melanocytes, but not in other normal tissues. It is used as a marker for melanocytic tumors. MART-1/Melan-A is a putative 18 kD transmembrane protein consisting of 118 amino acids. It has a single transmembrane domain (11,12). Although Melan-A was considered a good marker for canine melanomas (13), it has not been used in melanocytic

neoplasia in goats. In the present study, we used this antibody and positive immunolabeling was observed.

According to histopathologic and immunohistochemical testing, epibulbar melanocytoma was diagnosed and the authors think that the present case is the first recorded case of epibulbar melanocytoma in a goat.

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