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Diffuse Intraocular Melanocytic Tumor in an Arabian Horse

An intraocular melanocytic tumor was described in the eye of a 6-year-old, gray coat Arabian horse. Clinical, microscopical and macroscopical examination revealed that the tumor showed invasion to all of the ocular compartments as well as to nasal and dorsal regions. Microscopically; the tumor was poorly delineated and consisted of round, polygonal and spindle cells with having a different amount of melanin content. Secondary ocular changes including corneal ulceration, fibrinous plug, keratinization, vascularization, neutrophilic keratitis and pre-iridial fibrovascular membrane were also detected. There was no evidence of recurrence, metastasis or dermal melanoma development within one year after the operation.

Overall, the present report showed that diffuse equine intraocular tumor with extrascleral invasion could be successfully treated surgically with complete enucleation and exenteration of the orbit.

Key Words: Horse, intraocular, melanocytic tumor, enucleation and exenteration

Bir Arap Atında Diffuz İntraoküler Melanositik Tümör

Altı yaşında, kır donlu bir Arap atında saptanan intraoküler melanositik tümör olgusuna ilgili morfolojik bulgular tanımlandı. Klinik, makroskopik ve mikroskopik muayenede tümörün tüm göz kompartimanlarına yayılmış olduğu ve gözün nazal ve dorsal alanlarında ise ekstra-skleral yayılım gösterdiği ortaya kondu. Mikroskopik olarak tümöral kitlenin sınırlarının tam olarak belirgin olmadığı, yuvarlak, poligon ve mekik şekilli hücrelerden oluştuğu ve değişen derecelerde melanin pigmenti içerdiği tespit edildi. Kornea'da ülser, keratinizasyon, vaskülarizasyon ve nötrofilik keratitis ve pre-iridial fibrovasküler zar oluşumu gibi sekonder lezyonlara da rastlandı. Operasyonu takiben 12 ay içerisinde nüks, metastaz veya dermal melanom bulgularına rastlanmadı.

Kır donlu bir Arap atında diffuz intraoküler melanositik tümör morfolojik bulguları ile ortaya konulmuş, ekstraskleral invazyona rağmen enükleasyon ve ekzenterasyonla başarılı bir şekilde tedavi edilebildiği sonucuna varılmıştır.

Anahtar Kelimeler: At, intraoküler, melanositik tümör, enükleasyon ve ekzenterasyon

Introduction

Equine ocular tumors consist of approximately 10% of all the equine tumors. Based on the anatomic location in the orbit, these tumors are sub-classified as adnexal/palpebral, conjunctival, corneal, scleral, and intraocular types (1). Although primary intraocular tumors are rare in horses, equine intraocular melanocytic tumor (EIMT) is the most common intraocular tumor reported and it affects iris, ciliary body or the whole globe (1-3). Similar to equine dermal melanomas, horses with gray coat are predisposed to intraocular melanocytic tumors (2, 3). Equine dermal melanomas affecting 80% of gray horses are located in the skin, commissure of lips and ventral to the anus. Metastasis to visceral organs rarely occurs, however, equine dermal melanomas are generally fatal (2).

There have been 21 reported cases of intraocular melanocytic tumor published in veterinary medical literature up to now (2, 4-6). As 47.62% of all the dermal melanomas Show also a course with intraocular melanocytic tumor (10 out of 21 cases), it was suspected the dermal melanomas are multicentric or metastatic (2, 4-6).

The aim of this report was to present the morphological characteristics of intraocular melanocytic tumor in a gray Arabian horse.

Case Report

A 6-year-old, male, gray Arabian horse was referred to Veterinary Teaching Hospital, Veterinary Medical School of Fırat University. Anamnesis indicated that the horse had a visual deficit at the left eye and have been blind approximately for the past 10 weeks. There were central corneal ulceration and fibrinous plaque covering the corneal surface (Figure 1A). The intraocular examination could not be performed as the anterior chamber was filled with the melanocytic mass and hemorrhage. With general (10% chloral hydrate, intravenously, at the dose of 8 g/100 kg) and, local infiltration

anesthesia (Lidokain HCl, L-Anestin, Alke, 20 mg/ml), complete enucleation and exenteration were performed following the method as described earlier (7-9). Briefly, the two elliptical incisions were combined in lateral and medial angles of the eye and blunt dissections through conjunctiva were made. And, musculus retractor bulbi and optic nerve were incised and bulbus oculi and adnexal tissue were totally removed. After local and systemic antibiotic treatment for 7 days, the recovery was achieved uneventfully.

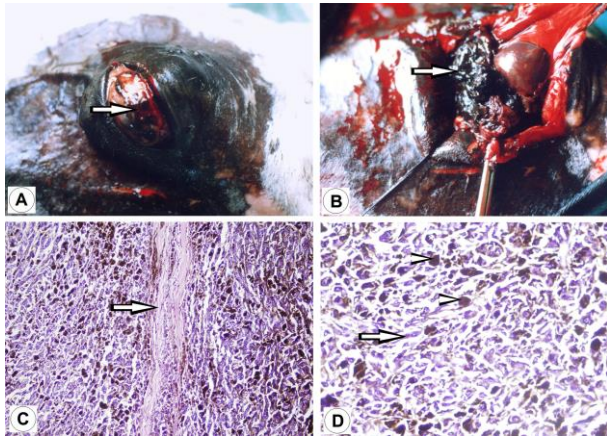


Figure 1. Images of the case. A. Diffuse keratitis characterized by central ulceration (arrow), fibrinous plaque, vascularization, B. Intra-operative appearance of extrascleral invasion of the tumor, C. Tumor cells extending through the sclera (arrow) into orbital space, HE. $\times 20$, D. Spindle plump (arrow), and round tumor cells (arrow heads), HE. $\times 40$.

The eye was routinely fixed in 10% formalin solution and dorsoventral excision was performed for the gross and histological examination. And the sample was processed in 4-mm paraffin embedded cassettes; 5 μ m cuts were obtained and stained with hematoxylin and eosin for histology.

Grossly and microscopically; there was an unencapsulated and poorly defined boundaries of the tumor with the extrascleral invasion in nasal and dorsal regions (Figure 1B). The whole globe including anterior chamber, posterior chamber, vitreous, iris and, dorsal

and ventral orbital tissue were filled with the tumoral mass. There was an apparent scleral and extra-scleral (orbital) invasion of tumor cells (Figure 1C) with the scleral rupture. The mass contained mixture of spindle and polygonal cell, and variable in cell size (Figure 1D). There was multifocal necrosis in neoplastic tissue and randomly distributed melano-macrophages. Some of the tumor cells contained densely laden melanin. No mitotic figure was detected in high magnification examination. Secondary ocular changes including corneal ulceration, fibrinous plug, keratinization, vascularization, neutrophilic keratitis and pre-iridial fibrovascular membrane were also detected.

Discussion

Ultraviolet radiation, chemical exposure, trauma or chronic irritation, co-existence of cutaneous and ocular melanomas, and genetic variables have been proposed as factors in the development of melanomas in humans and animals (10). In a retrospective analysis of 52 clinically diagnosed EIMT, Arabian horse (13 of 52 horses; corresponding 25%) and gray coat color (43 of 52 horses; 82.69%) are the most frequently affected horses (2). Consequently, the present report also highlights the predisposition of Arabian and gray color horses for EIMT.

The tumor was diagnosed as EIMT based on the presence of plump, heavily pigmented cells and polyhedral cells with round nuclei and prominent nucleoli and no sign of malignancy. Previous reports of ocular melanocytic tumor in horses described similar histological findings to that presented in this case report (1-6). In earlier reports (2, 4-6); EIMT was reported in iris (in 9/21 cases), iris and ciliary body (in 5/21 cases), iris, ciliary body and choroid (in 3/21 cases), iris, ciliary body, choroid, sclera and orbit (in 2/21 cases) and partial involvement of iris or ciliary body in 2/21 cases.

As a result, the present report showed that diffuse equine intraocular melanocytic tumor with extrascleral invasion was successfully treated surgically with complete enucleation and exenteration of the orbit with no evidence of recurrence and metastasis.

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