CASE REPORT

Intravascular papillary endothelial hyperplasia of the conjunctiva in a horse

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Abstract

Objective Vascular tumors of the conjunctiva in the horse are rare. We present a unique case of an intravascular papillary endothelial hyperplasia of the conjunctiva.

Animal studied Horse.

Procedures Case report. A 6-year-old-mare presented with a red mass in the conjunctiva of the left eye. After complete ophthalmologic examination the lesion was excised. The tissue was processed for light microscopy and studied histopathologically.

Results Pathologic examination revealed a nonencapsulated vascular lesion composed of confluent vascular spaces filled by multiple papillary structures composed of a central collagenous core lined by hyperplastic endothelial cells. There was neither atypical endothelial cell nor mitotic activity.

Conclusions Intravascular papillary endothelial hyperplasia is a benign proliferative lesion that should be differentiated from malignant vascular tumors.

Key Words: conjunctiva, horse, intravascular papillary endothelial hyperplasia, vascular tumor

INTRODUCTION

Ocular hemangioma and hemangiosarcoma are vascular endothelial tumors that occur rarely in horses.1–3 These tumors may develop in the eyelid, conjunctiva and cornea. Conjunctival angiookeratoma has been reported in dogs as vascular telangiectasias associated with epithelial hyperplasia.4 Tumor-like proliferations of endothelial cells within the lumen of blood vessels is an uncommon condition that is easily mistaken for primary vascular neoplasms or vasculitis.5–8 Intravascular papillary endothelial hyperplasia (IPEH) is a benign proliferation of endothelial cells within the lumen of blood vessels that may mimic angiosarcoma.9 To the best of our knowledge this lesion has not been reported in animals. We present the case of a horse that developed a vascular tumor of the conjunctiva; the histopathologic diagnosis was IPEH.

Case report

A 6-year-old female polo horse, weighing 450 kg, was examined because of a red mass in the left eye. The lesion was first observed 3 weeks prior to examination, and treated by the referring veterinarian with systemic and topical antibiotics, with no improvement. Physical examination revealed a lobulated red mass measuring 8 mm in diameter located in the area of the corneoscleral limbus at the three o’clock position (Fig. 1). No blepharospasm was observed but limited mucoid discharge was seen in the medial canthus. A complete ophthalmic examination was performed including hand-held slit-lamp biomicroscopy, applanation tonometry, and direct and indirect ophthalmoscopy. Menace response, and direct and consensual pupillary light responses were present and normal in both eyes. Intraocular pressure was 23 mmHg OD and 21 mmHg OS. The mass had a red, lobulated and brilliant surface, and it was movable over the sclera. Some dilated conjunctival vessels were observed in the conjunctiva adjacent to the lateral aspect of the mass. Examination of the cornea revealed a red infiltration of 2 mm adjacent to the conjunctival mass that did not stain with fluorescein. The remainder of the examination of both eyes was unremarkable.

The differential diagnoses included tumors such as squamous cell carcinoma, epibulbar amelanotic melanoma, vascular tumor and papilloma or non-neoplastic lesions such
as dermoid and inflammatory pseudotumors. Surgical excision of the mass for histopathologic examination was performed. The surgical procedure consisted of a superficial keratectomy and a conjunctival excision, which was made with no complications. The conjunctiva was sutured with 7–0 polygalactin 910 (Vicryl®, Johnson & Johnson, São Paulo, Brazil).

The postoperative treatment consisted of topical administration of 0.3% tobramycin and 0.1% dexamethasone (Tobradex®, Alcon Laboratories, Buenos Aires, Argentina) four times a day, and 1% atropine sulfate (Isoptoatropina®, Alcon Laboratories) three times a day, through a subpalpebral silicon tubing. The tissue obtained at surgery was fixed in 10% neutral-buffered formalin and processed for light microscopy and immunohistochemistry.

**Pathologic findings**
Histopathologic examination disclosed a thickened surface epithelium with pigmentation of basal and intermediate epithelial cells. In the substantia propria there was a nonencapsulated vascular lesion composed of spaces of variable size lined by endothelial cells. Most of the lesion was represented by confluent vascular spaces with connective tissue septae and intravascular thrombosis with signs of organization at the periphery (Fig. 2). Most of the lumen was filled by multiple papillary structures composed of a central collagenous core lined by a single layer of endothelial cells (Fig. 3). There was neither atypia nor mitosis. The endothelial cells were positive for anti-Vimentin antibody and focally positive with anti-CD34. The diagnosis was benign intravascular papillary endothelial hyperplasia arising from a conjunctival vascular malformation.

The postoperative course was uneventful until day 7, when a small red mass was seen over the conjunctival suture. The cornea was negative to fluorescein staining. Intravenous dexamethasone phosphate was added to the topical treatment at 250 mg every day for three days as the mass looked like an inflammatory reaction to the absorbable suture. The mass continued to grow and was excised. Histopathologic examination revealed an inflammatory granulomatous process of the conjunctiva. Two weeks after the second excision a new small rounded and red mass, 2 mm in diameter, was...
observed. Treatment with topical administration of 0.3% tobramycin and 0.1% dexamethasone six times a day was again initiated and the mass started to reduce after 20 days, leading to total remission by day 30. There was no evidence of recurrence 6 months following the second excision (Fig. 4).

**DISCUSSION**

Intravascular papillary endothelial hyperplasia (IPEH) is a benign exuberant proliferation of endothelial cells, histopathologically characterized by intravascular fibrous papillary fronds covered by pleomorphic endothelium. It was first described by Masson in 1923 as 'vegetant intravascular hemangioendothelioma'. This lesion has since been described as a reactive proliferation of endothelial cells to differentiate it from angiosarcoma.

Intravascular papillary endothelial hyperplasia occurs in humans at any age, and usually appears in the dermis of the head and extremities; it is found in women slightly more frequently than in men. In most of the cases in humans, IPEH arises within a pre-existing vascular lesion in which there has been stasis and thrombosis. In other cases, a previous trauma with laceration of the skin has been described.

Vascular endothelial cell tumors are classified as either benign hemangiomas or lymphangiomias, or malignant hemangiosarcomas and lymphangiosarcomas. Other benign vascular tumors such as conjunctival angiokeratoma have been reported in dogs as telangiectasias associated with epithelial hyperplasia. Their behavior is benign but an extensive epithelial change may develop a verrucous surface and may be confused with viral papilloma or squamous cell carcinoma. Histologic examination following surgical excision is the only reliable way of differentiating them from true neoplasms.

Intravascular papillary endothelial hyperplasia should be differentiated from angiosarcoma, a life threatening vascular tumor that has multiple recurrences and distant metastasis to the lung, liver and lymph nodes. Angiosarcoma rarely arises from a previous vascular lesion, and histologic examination revealed vascular spaces lined by plump, hyperchromatic endothelial cells that showed solid papillary proliferation of atypical endothelial cells with mitotic figures. Poorly differentiated angiosarcomas should be distinguished from carcinomas and sarcomas. Immunohistochemical techniques are useful in these cases by the demonstration of Factor VIII and other endothelial related markers such as vimentin, CD31, CD34 and von Willebrand factor, in the neoplastic cells. The recommended treatment for vascular tumors is complete surgical excision. Cryotherapy and radiotherapy could also be indicated and enucleation is recommended for hemangiosarcomas.

**REFERENCES**


