EQUINE PRACTICE — OPHTHALMOLOGY

Orbital tumors are rare in the equine species. Nothing concerning orbital tumors in donkeys was presented in the available literature. In this study orbital tumors in two donkeys were presented. The first case involved a retinoblastoma fibrosarcoma which invaded the optic nerve and caused severe exophthalmos. The second case, orbital osteosarcoma, was the first of this kind of bone tumor recorded for the equine orbit. The mass in the second case was excised through a new approach, transpalpebral orbitotomy, which proved to be a safe, noninvasive technique.

Orbital Tumors in Two Donkeys

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Case 1

CASE HISTORY

A 12-year-old male donkey was presented with a history of longstanding unilateral exophthalmos and muco-purulent ocular discharge of the left eye (OS).

Ophthalmic examination revealed that the left eye was extensively exophthalmic and the globe could not be repositioned into orbit (Fig. 1). The cornea (OS) was shrunken with diffuse yellowish-white homogenous infiltrates (corneal edema) and a dark brown dead corneal tissue (corneal sequestrum) at the limbus. The bulbar conjunctiva, scleral, and extraocular muscles were extremely inflamed and highly congested. There was extensive palpebral edema. The right eye (OD) was normal on ophthalmic examination, but no consensual pupillary light reflexes could be detected. Based upon the clinical examination, there was no hope to continue visual function or even to save the eye (OS).

SUGGESTION

The left globe and orbital content were exenterated by using the transpalpebral approach. The upper and lower eyelids were coaptated together as much as possible by simple interrupted suture. Skin incision was made 1 cm apart from the upper and lower eyelid margins around the palpebral fissure. Dissection was continued around the globe by scissors. The optic nerve and its blood vessels were clamped, ligated, and excised. A diffuse retrobulbar mass at the base of the orbit was completely excised. The skin was sutured by using simple interrupted non-absorbable No. 5 sutures.

The optic nerve was highly thickened and measured 3 cm in diameter. The excised globe was fixed in Boul’s solution and parasagittal sections of the globe, as well as sections of the retrobulbar mass, were submitted for histopathological examination. Recovery was uneventful and healing was primary.

Histopathology of the retrobulbar mass showed a wavy pattern of fibroblasts with hemosiderin, hyperchromatics, and activity of nuclear division (round and spindle cells). Macrophages, neutrophils, and a few lymphocytes were distributed. A focus of rhabdoid cells (chaos neuroblasts) was also found. The thickness of the optic nerve was caused by the presence of multiple neoplastic foci represented by varying aggregations of nuclear activity and (Continued)
orbital tumors in horses are uncommon. In a survey of 60 horses with ocular neoplasia, only three had orbital neoplasia.

The reported orbital tumors in the horse include adenocarcinoma, fibroma, hemangiosarcoma, and lymphosarcoma melanoma, metastatic melanoma, osteosarcoma, granulocytic leukemia, carcinoma, and neuro- ophthalmic tumors of the optic nerve.

Tumors with an apparent site of origin which is orbital bone are extremely rare in human patients and animals. 15, 16 Osteoma, osteosarcoma, and chondrosarcoma have been reported as orbital oti- tum tumors in dogs. 17 Orbital metasta- sis of choroidal melanoma (chondroma rodens) has been reported in a horse. 18 Giant cell tumor of bone (osteoclastoma) is extremely rare in animals and considered one of the destructive bone tumors in humans. 12 Of 43 primary bone tumors in dogs only one giant cell tumor could be identified. 16 The neoplastic cells of giant cell tumor arise from the primitive reticular element of the bone marrow and have the same enzyme histochemical reaction as osteoclasts which it is called osteoclastoma. 17 Giant cell tumor is de- scribed as a benign tumor, but locally aggres- sive primary and recurrent neoplasms have so- cially excision is recommended in such cases. 16 Orbital neoplasia should be differentiated from other causes of exophthalmia, which may be orbital cellulitis, abscesses, cysts, granulomas, or presence of tumor (idiopathic inflammation of the orbit- tal contents). In equids extrinsic muscle degenera- tion may also lead to exophthalmia. 18

Upon the clinical examination of the first case differential diagnosis included traumatic proptosis, panophthalmitis, and orbital and musculoskeletal problems. Traumatic proptosis (anterior displacement of the globe) was ex- cluded as it is uncommon in equids because of the deep, orbital bone and complete bony orbital rim. Neither was there any history of trauma. Therefore the diagnosis was panophthalmitis and/or retrol- bulbar mass. The regime of treatment in such cases was exenteration of the globe since there was no hope to save the vision. Exposure keratitis and the subsequent corneal ulcers and corneal ab- scesses were expected as sequelae to severe, long- term exophthalmos. Two months postoperatively there was no recurrence of the tumor, although long-term remission is expected. 16

The anatomical conformation of equine orbit gives an excellent access. Orbitotomy is an open- ing made into the orbital cavity and used for biopsy, evisceration damage, and tumor mass and foreign body removal. In dogs the transconjunctival approach, transsection of orbital ligament or exoph- thalmia, were described and recom- mended according to the plane of management of the orbital lesion. 1 A bone flap from the zygomatic process of the frontal bone in equids could be created to explore the zygomatic orbit of the horse. 18 Orbitotomy is a potentially difficult and haz- ardous procedure, as it may cause cranial nerve damage, extensive hemorrhage, and/or alter globe position. 18 Upon ophthalmic examination and the presence of normal posterior eye wall in the second case, extension of the tumor to the zygomatic bone area was ruled out. Transzorbral orbitotomy was conducted to save the globe (Fig. 7). Resection of the zygomatic process of the frontal bone seems to be an invasive technique: however, it could be useful and should be applied in cases with cranial infiltrating orbital tumors.

The technique for orbitotomy described here seems to be a safe, minimally invasive, and valuable pro- cedure which gives good exposure and passage to the orbit, especially when the location and na- ture of the lesion is compatible to this site. Our results support the use of orbitotomy in equids with orbital mass, especially in the presence of a slighted eye.

REFERENCES