A 10-year-old spayed female domestic shorthair cat was referred to The Animal Medical Center for evaluation and treatment of blepharospasm of the right eye of 4 days’ duration. Before referral, a 3-day course of treatment for blepharospasm of the right eye was initiated by the referring veterinarian, which included triple antibiotic ophthalmic ointment (1/4” ribbon, q 8 h), enrofloxacin (2.5 mg/kg [1.1 mg/lb] of body weight, PO, q 12 h) and dexamethasone (0.016 mg/kg [0.007 mg/lb], PO, q 24 h). Response to treatment was not noticed before referral.

Medical history of the cat was unremarkable. The owner had adopted the cat 2 years previously, at which time the cat appeared healthy. Results of ELISA for FeLV antigen were negative at the time of adoption. The cat lived indoors with a dog; history of trauma or previous ocular disease was not reported.

Physical examination revealed obesity (body weight, 7.8 kg [17.2 lb]), oligodontia, and abnormalities of the right eye. The right eye had positive results for a menace response test and normal pupillary light reflexes. The blink reflex was incomplete, resulting in lagophthalmos and keratitis with central corneal edema as a result of chronic dryness and exposure. The globe was substantially resistant to retropulsion. Forced duction of the globe revealed substantial mechanical restriction of movement in all directions. Examination of the fundus of the right eye was compromised by central corneal edema; however, limited examination of the fundus of the right eye did not reveal retinal lesions. The fundus of the left eye appeared healthy. Ocular lubrication precluded measurement of tear production. Intraocular pressures were 18 mm Hg in the right eye and 21 mm Hg in the left eye (reference range, 15 to 25 mm Hg).1

Four months later the cat was returned to the referring veterinarian because of signs of discomfort in the left eye. Ophthalmic examination revealed lagophthalmos, central corneal ulceration, and restricted movement of the globe in the orbit. Treatment with triple antibiotic ophthalmic ointment and systemically administered antibiotics and cyclophosphamide was begun. Two weeks later the cornea perforated at the site of ulceration; the left orbit was exenterated at that time.

Histologic examination of the right and left orbital conjunctival and subconjunctival tissues was performed for comparison (Fig 1). Biopsy specimens were taken from the conjunctival and subconjunctival tissues near the lateral equator of the right globe, a procedure for which screening computed tomography or ocular ultrasound is not needed. A partial tarsorrhaphy was performed to protect the cornea from exposure. The owner was instructed to apply triple antibiotic ophthalmic ointment (1/4” ribbon, q 4 h), keep an Elizabethan collar in place at all times, and return for reevaluation in 2 weeks.

Histologic examination of the biopsy specimen did not provide a definitive diagnosis. Mild lymphocytic and mast cell infiltration of the conjunctival and subconjunctival tissues was detected. A deeper orbital biopsy of the right orbit and a therapeutic trial of systemic administration of a corticosteroid and an antibiotic were recommended but declined; the owner decided to only treat the cat’s eye with triple antibiotic ophthalmic ointment. Improvement was not detected at reexamination 11 and 21 days later. At 21 days, the owner decided to discontinue all treatment and have the right orbit exenterated at the referring veterinary practice.

Histologic examination of the right and left orbital and periorbital tissues revealed diffuse episcleral and scleral proliferative growth of mildly pleomorphic spindle cells resembling fibroblasts, interspersed with numerous immature vessels (Fig 2). These histopathologic findings were consistent with bilateral idiopathic nonspecific inflammatory disease of the orbit. Ulcerative keratitis, corneal perforation, iridocyclitis, and retinal folds were additional findings. Ulcerative keratitis was likely secondary to incomplete lid closure, which caused chronic exposure of the central cornea and led to corneal perforation.

Retrobulbar pseudotumor of the orbit in a cat

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be caused by infectious agents (eg, FeLV, FIV, feline coronavirus, Toxoplasma sp, and Cryptococcus sp), neoplasia, or immune-mediated causes, or may be idiopathic. Retinal folds in the cat have been associated with prenatal panleukopenia, FeLV infection, feline infectious peritonitis, injury, retinal detachment with reattachment, and chronic glomerulonephritis. In the cat described in this report, retinal folds were most likely an incidental finding.

The etiologies of fibrotic episcleral and scleral diseases have not been described in the cat. In humans, these diseases may be idiopathic or associated with systemic disease; neoplasia; infectious, immune-mediated, or endocrine diseases; chronic abscess; or foreign body. Systemic diseases that cause diffuse orbital changes in humans and possibly in cats are systemic lupus erythematosus, polyarteritis nodosa, and lipidosis. Reported systemic causes of diffuse changes of the orbit in cats have been limited to neoplasia and infectious diseases, the cat reported here did not have clinical or laboratory signs of systemic disease, although the bilateral nature of the ocular lesions caused suspicion of a systemic cause. Neoplasia was considered unlikely, because histologic evaluation of ocular tissues did not reveal any evidence to support that diagnosis.

Infectious diseases such as disseminated bacterial, fungal, and parasitic diseases are reported causes of orbital infiltrates in dogs and cats but were considered unlikely, because these organisms were not detected in orbital tissues. In humans, herpes zoster is a reported cause of orbital myositis, whereas viral infections in cats, such as FeLV, prenatal panleukopenia, FIV, and feline coronavirus are not reported to cause diffuse granulomatous orbital reactions; although unlikely, these viruses cannot be excluded as potential causes of the disease in the cat reported here.

Immune-mediated and endocrine diseases were considered unlikely causes for the cat's ocular disease. Immune-mediated eosinophilic myositis of the muscles of mastication and extraocular polymyositis has been reported to cause exophthalmos in dogs and could develop in cats; exophthalmia caused by infiltration of the orbit by eosinophils has been reported in a cat, but eosinophilic infiltrates were not detected in the orbital tissues of the cat reported here. Although thyroiditis in humans is associated with ocular myositis, lesions were not detected in the periorbital muscles of the cat reported here.

Other differential diagnoses considered possible but unlikely on the basis of histologic evaluation of tissues included nodular fasciitis, vascular abnormalities such as an arteriovenous fistula, and foreign body reaction. Proptosis and periorbital edema have been

Figure 1—Computed tomographic scan of the brain and orbits of 2 cats. Left—A 10-year-old domestic shorthair cat with idiopathic nonspecific inflammatory disease (pseudotumor) of the orbit. Notice the bilateral diffuse thickening of the sclera and episcleral tissues; tissues of the right eye are substantially thicker than those of the left eye. Right—Computed tomographic scan of the brain and orbits of a clinically normal cat.

Figure 2—Photomicrograph of a biopsy specimen taken from the right eye of a cat with orbital pseudotumor. Notice the fibroblast proliferation (F) and foci of inflammation (I) adjacent to the sclera (S). H&E stain; bar = 100 µm.
reported in humans as an adverse reaction to diltiazem, and ocular inflammatory pseudotumor has been reported in humans in association with propranolol treatment. Diltiazem and propranolol are used commonly in treating cats and could cause periorbital changes, but the owner of the cat described here did not report trauma or exposure to these drugs.

Idiopathic, noninfectious, granulomatous ocular inflammation has not been reported in cats but has been reported in dogs, uncommonly in humans, and once in a lesser bushbaby. The lesion was first referred to by Birch-Hirschfeld as pseudotumor, a term used to describe any orbital inflammatory mass clinically mistaken for a neoplasm. In most reports, the term pseudotumor has been used to describe any idiopathic, nonspecific, orbital inflammation. In humans, the issue of histologic classification has been further confused by the inclusion of orbital lesions caused by neoplasia (eg, lymphoma), infectious diseases (eg, tuberculosis) and systemic diseases (eg, amyloidosis) in pseudotumor studies. Pseudotumors are usually observed clinically as orbital, space-occupying masses with inflammation or swelling. Histologically, pseudotumors are characterized by mixed inflammatory cell infiltration and fibrosis, and exclude lymphoid tumors or orbital reactive lymphoid hyperplasia (pseudolymphoma). Inconsistent histologic classification throughout the human medical literature makes it difficult to evaluate studies and assign prognosis to histologic features. Histologic classification does not correlate with clinical outcome, and response to treatment is not predictable.

Treatment for various histologic types of pseudotumors is the same; most human patients respond within days to systemically administered corticosteroids, but some may require combination therapy with other immunosuppressive drugs such as cyclophosphamide, cyclosporine, azathioprine, or methotrexate. A common course of treatment includes systemically administered corticosteroids followed by irradiation. If the lesion is surgically accessible, surgical debulking may be attempted, although this technique is not always successful. Exenteration may be necessary for refractory pseudotumors, which are extremely rare. Prognosis in humans is generally good; lesions in most patients resolve when treated with systemically administered corticosteroids.

The ocular pseudotumor of the cat reported here was unique; it differed from pseudotumors in humans in that it developed bilaterally, causing suspicion of an unidentified systemic cause. A reasonable, initial treatment for pseudotumor of the orbit of a cat is systemic administration of corticosteroids and topical treatment for secondary keratitis and corneal ulceration. Ocular pseudotumor in humans responds rapidly (within a few days) to immunosuppressive treatment, and response to treatment is considered supportive of a presumptive diagnosis of idiopathic ocular pseudotumor. If response to systemic corticosteroids is poor, treatment with other immunosuppressive medication should be initiated. Irradiation or debulking may be considered in certain patients, and refractory pseudotumors may require exenteration.

References