

Grand Rounds

A 64-year-old man with an unusual conjunctival cyst

Seanna Grob, MD, MAS,^{a,c,d} Daniel R. Lefebvre, MD,^{a,c,d,e} Nora Laver, MD,^f and Mary K. Daly, MD^{a,b,c}

Author affiliations: ^aDepartment of Ophthalmology, Veterans Affairs Boston Healthcare System, Jamaica Plain, Massachusetts;

^bDepartment of Ophthalmology, Boston University School of Medicine, Boston, Massachusetts;

^cDepartment of Ophthalmology, Harvard Medical School, Boston, Massachusetts;

^dDepartment of Ophthalmology, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts;

^eOphthalmic Plastic Surgery, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts;

^fOphthalmic Pathology, Department of Ophthalmology, Tufts Medical Center and Tufts University School of Medicine, Boston, Massachusetts

History

A 64-year-old man was referred for evaluation of a cataract in the left eye. His past medical history included prior cataract surgery in the right eye many years prior and chronic obstructive pulmonary disease. He denied any other ocular symptoms or concerns.

Examination

His visual acuities were 20/20 in the right eye and 20/100 pinholing to 20/30 in the left eye. Anterior examination was significant for a cystic lesion over the medial canthus in the left eye and a moderate cataract (Figure 1A). The cystic lesion was clear and transilluminated with a slit beam (Figure 1B). Within the cyst were numerous small, freely mobile, yellow-white particles (Figure 1C). Optical coherence tomography was performed and demonstrated these particles in cross section (Figure 1D). Multiple other smaller, but similarly appearing cysts, were present in the inferior fornices bilaterally.

Ancillary Testing

Cataract surgery was deferred, and the patient underwent excision of the medial canthus conjunctival cyst for diagnostic purposes.

Histopathological Analysis

Paraffin-embedded, formalin-fixed tissue slides showed a chronically inflamed conjunctival cyst. (Figure 2).

Cross-sections of the cyst revealed a degenerating nematode (Figure 2A–C). Sections through the degenerating nematode showed smooth, refractile cuticles, internal lateral ridges, and a suggestion of degenerated internal organs (Figure 2). Pathology images were sent to the Center of Disease Control (CDC), which confirmed the specimen was a nematode but was unable to prove any further classification.

Treatment

Considering the degenerated state of the worm, the CDC did not recommend any further treatment. While awaiting the response from the CDC, the patient was evaluated by an infectious disease specialist. Further questioning revealed that the patient had a cat, but he denied contact with dogs. He regularly fed wildlife by hand, such as raccoons, and had previously resided in southern Florida, near the Everglades. A chest x-ray was negative, and laboratory tests, including complete blood count with differential, erythrocyte sedimentation rate, and C-reactive protein, were remarkable for an elevated eosinophil count of 15.8%. The patient was followed closely in the ophthalmology clinic to ensure that there were no changes in his clinical examination.

Differential Diagnosis

Conjunctival epithelial inclusion cysts are quite common and are often associated with a site of prior accidental or surgical trauma. Clinically, these lesions are transparent with a cystic elevation on the ocular surface. Histopatho-

Published March 8, 2017.

Copyright ©2017. All rights reserved. Reproduction in whole or in part in any form or medium without expressed written permission of the Digital Journal of Ophthalmology is prohibited.

doi:10.5693/djo.03.2016.04.001

Correspondence: Mary Daly, MD, Chief of Ophthalmology, Veterans Administration Boston Healthcare System, Jamaica Plain, Boston, MA (email: Mary.Daly2@va.gov).

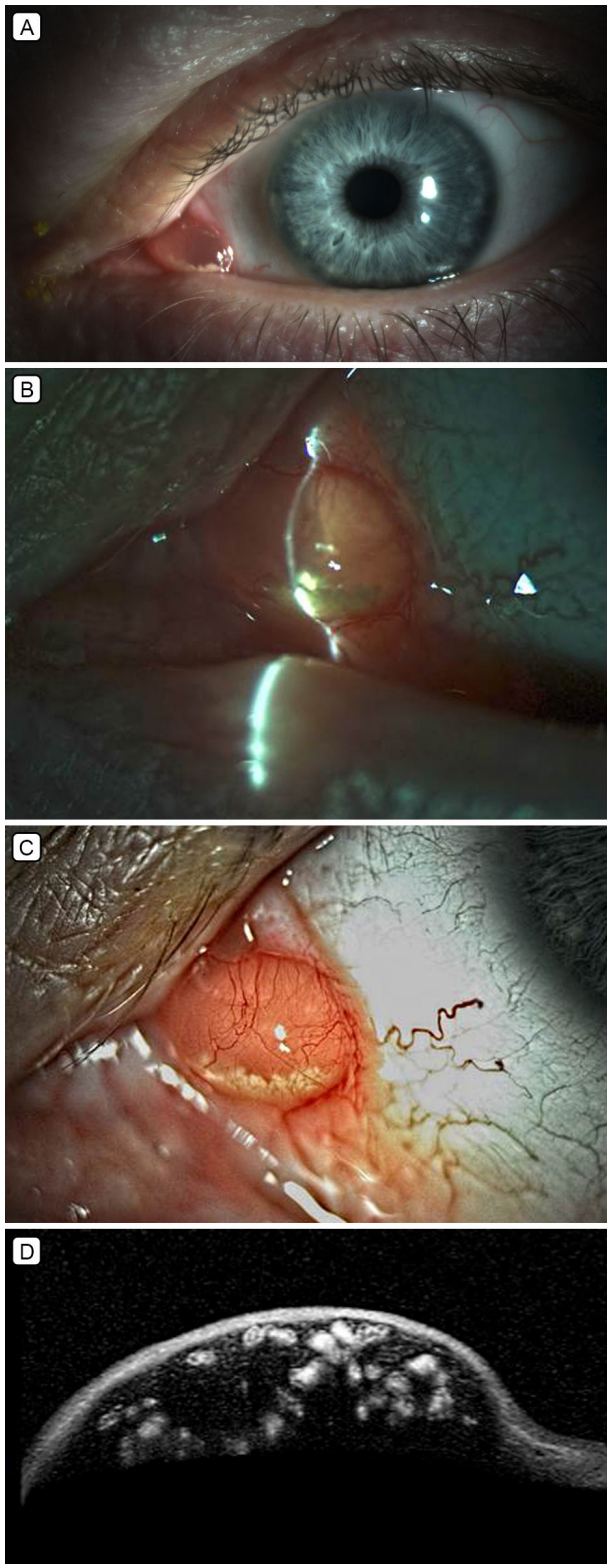


Figure 1. Clinical images. A, Left eye showing conjunctival cyst over the caruncle. B, Transillumination of the conjunctival cyst. C, Enlarged image of the conjunctival cyst. D, Ultrasound biomicroscopy through the inferior border of the conjunctival cyst and intracystic, hyperreflective particles.

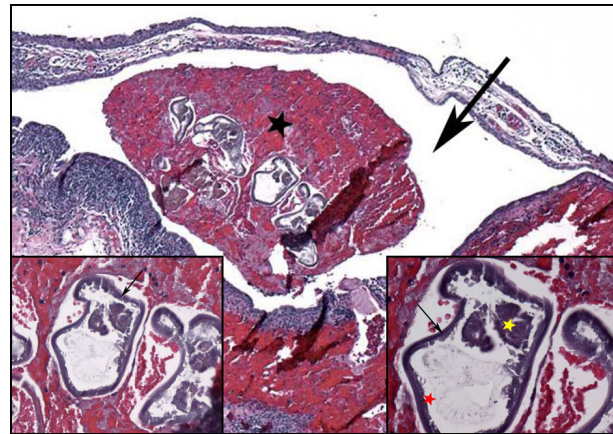


Figure 2. Histopathological analysis (hematoxylin and eosin, original magnification $\times 4$): subconjunctival cyst (black arrow), with degenerating nematode particles (black asterisk). Inset left, higher magnification of the degenerating nematode ($\times 20$). Inset right, higher magnification ($\times 40$) of the degenerating nematode, with smooth, refractile cuticles (black arrow), internal lateral ridges (red asterisk), and a suggestion of degenerated internal organs (yellow asterisk).

logical analysis shows these cysts to be lined by conjunctival epithelium. This is similar to our patient, but classically these cysts do not have foreign material within them; however, they can have proteinaceous material or cellular debris. Many of these cysts are just observed clinically, but because the appearance of the cyst in our patient was unusual, with multiple free-floating particles within, an excisional biopsy was recommended.

Sebaceous cysts of the caruncle are keratin-filled cysts and can have a yellow appearance, but the intracystic contents are not as mobile on clinical examination as in our patient. Conjunctival lymphangiectasia is another cause for a transparent, cystic-appearing lesion on the ocular surface. This often appears as multiple small bumps on the surface of the eye and occurs when the lymphatic channels in the conjunctiva become dilated and prominent.

Diagnosis and Discussion

The diagnosis was a subconjunctival cyst associated with a degenerated nematode, which has rarely been reported. Miller and Campbell reported a case of a subconjunctival cyst in a Simmental calf with 2 nematodes identified as *Thelazia gulosa*.¹ Ashton and Cook² described allergic granulomatous nodules of the conjunctiva and eyelid, of which over half were caused by unidentified fragments of nematodes. There are reports of live

subconjunctival nematodes in patients from other countries or with a recent history of travel.³

Our patient may have been at risk for such an infection due to his interactions with wild animals and possibly due to his time in southern Florida. *Dirofilaria tenuis* and *Dirofilaria immitis* are endemic to southern Florida. *D. tenuis* is also harbored in raccoons in North America.⁴ Fortunately, he had an isolated infection and never experienced symptoms or complications from the infection. Since the nematode was already dead, no other treatment was necessary. He was advised to avoid contact with wild animals and it was recommended that he obtain a rabies vaccination. Even if an isolated subconjunctival nematode is alive, surgical removal of the worm is often sufficient.⁵ Nematode infections should be considered in patients with unusual behaviors that

involve wildlife or if they have migrated from or traveled to endemic areas in the recent past. Thorough systemic evaluation is also recommended.

References

1. Miller PE, Campbell BG. Subconjunctival cyst associated with *Thelazia gulosa* in a calf. J Am Vet Med Assoc 1992;201:1058-60.
2. Ashton N, Cook C. Allergic granulomatous nodules of the eyelid and conjunctiva. the XXXV Edward Jackson Memorial Lecture. Am J Ophthalmol 1979;87:1-28.
3. Khoramnia R, Wegner A. Images in clinical medicine: subconjunctival *Dirofilaria repens*. N Engl J Med 2010;363:e37.
4. Isaza R, Courtney CH. Possible association between *Dirofilaria tenuis* infections in humans and its prevalence in raccoons in Florida. J Parasitol 1988;74:189-90.
5. Shen J, Gasser RB, Chu D, et al. Human thelaziosis—a neglected parasitic disease of the eye. J Parasitol 2006;92:872-5.