

## Case Report

# *Clostridium septicum* endophthalmitis associated with colon adenocarcinoma

Jacob L. Eisenrich, BS, Angela M. Herro, MD, Mason Schmutz, MD, and Kundandeeep S. Nagi, MD

Author affiliations: Department of Ophthalmology, University of Texas Health Science Center, San Antonio, Texas

## Summary

Endogenous *Clostridium septicum* endophthalmitis is a rare, devastating infection that has been shown to be associated with colonic and hematologic malignancies. We present a case of clostridial endophthalmitis that resulted in expedient identification of colon adenocarcinoma.

## Introduction

*Clostridium* endophthalmitis is a rare but serious infection.<sup>1</sup> It usually occurs following a penetrating injury of the globe and is most often caused by *Clostridium perfringens*.<sup>2,3</sup> Endogenous causes also pose a serious threat to vision and can herald other serious illnesses. Endogenous endophthalmitis caused by clostridial species appear to have a predilection for enteric sources.<sup>4</sup> *Clostridium septicum* is the primary pathogen associated with endogenous clostridial endophthalmitis. Koransky et al report that 71% of *Clostridium septicum* bacteremia cases are associated with malignancies.<sup>5</sup> Only 7 cases have been reported in the English language literature, the first in 1985.<sup>3,6</sup>

## Case Report

A 56-year-old man with poorly controlled diabetes, hypertension, asthma, and hepatitis B presented to the Emergency Department at University of Texas Health Science Center, San Antonio, with 1 week of left-eye pain, bleeding, and discharge of viscous, dark fluid. Examination of the left eye revealed a deflated globe with conjunctival injection, mucopurulent discharge, and an opacified, indented cornea with a central perforation expressing a brown liquid (Figure 1). Visual acuity testing revealed no light perception and examination of the fundus was not possible. Examination of the right eye was normal.

On further questioning, the patient indicated that he had self-treated a recent flare-up of asthma with oral predni-



**Figure 1.** The patient's left eye at presentation to the emergency department showing a deflated eye. The cornea is opacified and perforated (black arrow).

sone and that he had experienced diffuse, dull, right upper quadrant abdominal pain. Additionally, approximately 1 week prior to presenting, he was treated at an outpatient clinic with fortified topical vancomycin and tobramycin eyedrops for a corneal infiltrate in the left eye. He subsequently developed a purulent discharge and was treated with intramuscular ceftriaxone for suspected gonorrheal keratoconjunctivitis. His condition continued to decline in the following days and intravitreal vancomycin and ceftazidime were administered

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Correspondence: Kundandeeep S. Nagi, MD, Mail Code 6230, 7703 Floyd Curl Drive, San Antonio, TX 78229-3900 (email: nagi@uthscsa.edu).

approximately 2 days prior to his presentation at the Emergency Department.

The patient immediately underwent primary repair of the perforation. Intraoperatively the cornea was found to be completely necrotic, with a central perforation. Due to lack of viable tissue the decision was made to remove the cornea. This allowed visualization of the posterior pole; however, the contents were unidentifiable. The lens was identified in the posterior pole and removed. Liquefied vitreous was sampled and sent for evaluation. The eye was irrigated with antibiotic and closed, limbus to limbus with 8-0 nylon. Tenons and conjunctiva were subsequently closed with 8-0 polyglactin 910 suture. Moxifloxacin drops and intravenous vancomycin and piperacillin-tazobactam were initiated. Histopathological analysis revealed the presence of moderate Gram-positive and rare Gram-negative rods. Subsequent testing led to the discovery of iron-deficiency anemia and guaiac-positive stool. A computed tomography (CT) scan of the abdomen revealed a localized abnormality near the splenic flexure of the colon and a normal aorta. The patient was scheduled for a colonoscopy following discharge.

One week after initial repair, he was found to have a small segment of wound dehiscence and uveal prolapse with a mild, purulent discharge. At this point, the left eye was eviscerated. Tissue cultures from the initial repair and the uveal sample grew *Clostridium septicum*.

The colonoscopy revealed adenocarcinoma, and the patient underwent partial colon resection followed by 6 months of chemotherapy. At last follow-up, 6 months after completion of chemotherapy, there was no evidence of disease.

## Discussion

Signs and symptoms of endophthalmitis from the histotoxic species (*C. perfringens*, *C. septicum*) include chemosis, swelling of the eyelids, hypopyon, ring-abscess of the cornea, coffee-colored discharge, gas bubbles in the anterior chamber, and loss of the fundus reflex.<sup>1,7,8</sup> Our patient exhibited a profound corneal abscess, loss of the fundus reflex, and coffee-colored discharge.

A seminal study of *Clostridium septicum* bacteremia showed that 71% of the cases were associated with

malignancies, equally divided between solid tumors and hematologic malignancies; of those with solid tumors, 67% had colon cancer.<sup>5</sup> The distal ileum or cecum has been identified as the likely location of entry into the blood stream in these cases.<sup>5</sup> Bacteremia without a clear portal of entry may indicate the presence of an occult tumor.<sup>1</sup> Consistent with other studies, our patient had diabetes mellitus type II, hypertension, and may have been immunosuppressed as a consequence of the prednisone he had been taking for asthma.<sup>2</sup> His ocular infection ultimately led to the discovery of adenocarcinoma of the colon, a potentially fatal, systemic illness.

Patients with clostridial infections may deteriorate quickly.<sup>9</sup> Our patient's tumor was caught relatively early and removed before lymphatic spread.

## Literature Search

PubMed was searched for English-language articles on December 15, 2012, using the following terms: *Clostridium endophthalmitis*, *clostridial bacteremia*, *endogenous clostridium*, *clostridium septicum*, and *bacterial endophthalmitis*. Sources in retrieved articles were cross-referenced.

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