
Be Serious: Posttraumatic Endophthalmitis

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CASE DESCRIPTION

An 82-year-old man with dementia presented to his primary care physician with a chief complaint of left eye swelling for 2 days. He was prescribed ciprofloxacin ophthalmic drops. A few days later, his symptoms had not improved, and he presented to the emergency department at an outside hospital with ongoing eye pain. He had loss of vision in his left eye. He noted that he may have fallen approximately 2 weeks earlier but did not seek medical care. Antimicrobial therapy with intravenous ceftriaxone and vancomycin was initiated. MRI demonstrated detachment of the left retina, significant inflammation of the circumference of the eye, and an irregular globe contour that was of concern for rupture. On the basis of these findings, he was transferred to our hospital for further management; an emergent ophthalmology consultation revealed fulminant endophthalmitis. The patient's antimicrobial therapy was changed to intravenous cefazolin.

An evisceration of his left eye was performed the following day without complication. An ocular swab was sent to the microbiology laboratory for aerobic culture and Gram stain, and the intraocular contents were sent to pathology. Pathology confirmed acute panophthalmitis, and bacilli were documented in the sample with Gomori methenamine silver stain. Gram stain of material from the swab showed abundant polymorphonuclear leukocytes but no organisms. The next day, rare β -hemolytic colonies were noted on 5% sheep's blood agar (Remel) and rare gray colonies were growing on chocolate agar plate (Remel). The organism was determined to be a catalase-positive, spore-forming, gram-positive *Bacillus*. The organism was identified as *Bacillus anthracis* by MALDI-TOF MS (MALDI Biotyper, Bruker Daltonics) with a confidence score value that would be acceptable for a species-level identification.

In accordance with laboratory protocols for identification of select agents (potential biothreat/bioterrorism agents), the case was brought to the attention of the medical director. The isolate was confirmed to be motile. Because the organism was β -hemolytic and motile, *B. anthracis* was rapidly ruled out, and the organism was presumed to be a member of the *B. cereus* group on the basis of morphologic and biochemical findings. Susceptibility testing was performed with a gradient diffusion method (Etest, bioMérieux), and the isolate was found to be susceptible to ciprofloxacin, clindamycin, and vancomycin and resistant to trimethoprim-sulfamethoxazole. The patient's antimicrobial therapy was streamlined to oral moxifloxacin and topical erythromycin ointment; he was discharged 6 days after his surgery to a skilled nursing facility and has continued to do well.

QUESTIONS TO CONSIDER
<ul style="list-style-type: none"> • What is the principle of MALDI-TOF MS for microorganism identification?
<ul style="list-style-type: none"> • What are the analytical performance characteristics of MALDI-TOF MS for microorganism identification? Which organisms can be challenging to accurately identify with MALDI-TOF MS, and why? How might rapid identification of microorganisms in culture contribute to optimization of antimicrobial therapy?
<ul style="list-style-type: none"> • What is the phylogenetic relationship between <i>Bacillus anthracis</i> and <i>B. cereus</i>?
<ul style="list-style-type: none"> • What is the role of a “sentinel laboratory” within the Laboratory Response Network?
<ul style="list-style-type: none"> • What is the clinical significance of recovering <i>Bacillus</i> spp. from an ocular sample?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the January 2016 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol62/issue1> and follow the link to the Clinical Case Study and Commentaries.

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