

A dangerous eye infection from tainted eye drops, months before the CDC's warning

May 11 2023



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In February 2023, the U.S. Centers for Disease Control and Prevention (CDC) warned people against using EzriCare eye drops because bottles of the product had been linked to drug-resistant bacterial infections

causing vision loss and even death. But tainted bottles had been causing problems long before then.

This week in *Antimicrobial Agents and Chemotherapy*, an interdisciplinary group of researchers and physicians in Cleveland, Ohio, describe a case from Nov. 2022. The patient, a 72-year-old female, was diagnosed with a corneal ulcer, caused by infection by the bacterium *Pseudomonas aeruginosa*. Eventually, infectious disease physicians and microbiologists identified her contaminated eye drops as the source of the infection.

P. aeruginosa is a pathogenic, gram-negative bacterium that's resistant to treatment with most antibiotics. It can cause swimmer's ear—a painful infection of the outer ear canal—and more serious conditions, especially in people with compromised immune systems. But according to Morgan Morelli, M.D., the study's first author and an infectious disease fellow at the hospital, the case in Cleveland was unusual.

"I've never recovered it from an eye," she said. Because *P. aeruginosa* isn't usually found in eye infections, Morelli added that finding the right diagnosis was a challenge. "It required a lot of thinking and digging to figure out what was going on," she said. "And we never thought it was related to a global manufacturing issue."

The patient initially reported to an outpatient eye clinic with blurry vision. From there, she was sent to the [emergency department](#) at the hospital, where she was evaluated by ophthalmologists. They cultured the infection, prescribed a combination of strong antibiotic eye drops and sent her home. But the next day, the eye was worse, and she visited a cornea specialist.

The patient had noticed a yellow discharge on her pillow, and she hadn't been swimming. "We wondered if she'd accidentally touched something,

or there was some freak accident," to explain the infection, Morelli said.

At that point, the case was referred to microbiologists and infectious disease experts at the hospital. Infectious Disease Specialist Scott Fulton, M.D., asked the patient's husband to bring in her eye drops for testing. A sample from the patient was sent to the lab of Robert Bonomo, M.D., an expert in gram-negative, drug-resistant bacteria at Case Western Reserve University School of Medicine.

That's when, Morelli said the pieces came together. Bonomo's lab identified a *P. aeruginosa* isolate that matched [genetic material](#) found in the EzriCare artificial tear eye drops she'd been using. Researchers connected the eye infection—and the ulcer it had caused—to the contaminated drops.

According to Morelli, treatment was tricky. The isolate was resistant to any antibiotics that could be administered by way of the patient's eye. She was treated instead with a strong antibiotic, cefiderocol, that has some activity against [gram-negative bacteria](#), as well as 2 other topical antibiotics. Morelli reported that the injury to the patient's eye improved, but it's unclear whether she will ever regain total vision.

Since issuing the warning in February, the CDC has identified infectious cases due to *P. aeruginosa* as early as spring 2022. "I think it took a while for this to be put together, in terms of what all these patients had in common," said Morelli. Although the contaminated product has been pulled from stores and can no longer be purchased, it may still pose a risk.

"People may still have it on their medicine cabinet shelves," Morelli explained. She also hopes that the ophthalmologists and optometrists who may be the first physicians to see future patients with this infection will know what to look for. "We don't always get this detailed of a

history or ask someone to bring in over-the-counter medicine they're using," she said. "We really wanted to raise awareness."

More information: Morgan K. Morelli et al, Investigating and Treating a Corneal Ulcer Due to Extensively Drug-Resistant *Pseudomonas aeruginosa*, *Antimicrobial Agents and Chemotherapy* (2023). [DOI: 10.1128/aac.00277-23](https://doi.org/10.1128/aac.00277-23)

Provided by American Society for Microbiology

Citation: A dangerous eye infection from tainted eye drops, months before the CDC's warning (2023, May 11) retrieved 11 May 2024 from <https://medicalxpress.com/news/2023-05-dangerous-eye-infection-tainted-months.html>

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