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Sir, A fungal ball in the irrigating solution during phacoemulsification

The irrigating solutions used for intraocular surgeries such as phacoemulsification are prepared with aseptic manufacturing technique. We report a unique case in which a mass of green fungus was found in an Alcon 500 ml balanced salt solution (BSS) bottle during phacoemulsification. The discovery of a visible organic material in the bottle during phacoemulsification is a rare occurrence and to our knowledge, has not been documented in the literature.

Case report

A 74-year-old lady underwent a routine phacoemulsification with intraocular lens implant. During aspiration of the soft lens matter, a theatre staff noticed a green fur-like material floating in the irrigating bottle. Approximately 150 ml of the 500 ml of BSS had been used. The bottle, irrigating tubes, and hand-piece were replaced. The eye was thoroughly irrigated with a fresh bottle of BSS before the operation was completed. At the end of the procedure, subconjunctival Cefuroxime 62.5 mg injection was given. The foreign body and the bottle of BSS was sent to the microbiology laboratory for investigation (Figures 1 and 2).

Microbiological analysis revealed the material to be a 1.5 cm diameter tangle of fungal element. The fungus was grown and sent to the Mycology Reference Laboratory in Bristol for further identification. No bacteria were isolated after 48 h, and all the culture plates were overgrown by this fungus. Further report identified this species of fungus as *Alternaria alternata*. Incidentally, the base of the bottle was noticed to have a hairline crack measuring about 6.5 cm in circumference from which there was no apparent leakage of fluid. The supplier was notified and all the bottles of BSS from the same batch were recalled. None of the previous patients who were operated using the same batch of BSS reported any adverse events.

On the first day after the operation, the eye was comfortable. There was slight corneal oedema and +2 cells in the anterior chamber. The vitreous was quiet. The patient was treated prophylactically with guttate Econazole hourly for 2 days and Maxitrol qds. On day-3 postop, +1 cells were seen in the anterior chamber and the vitreous remained unremarkable. The visual acuity was 6/36 in that eye. Our patient had moderate age-related macular degeneration, and the preoperative visual acuity was hand movement. The following day, the frequency of treatment was reduced to four times

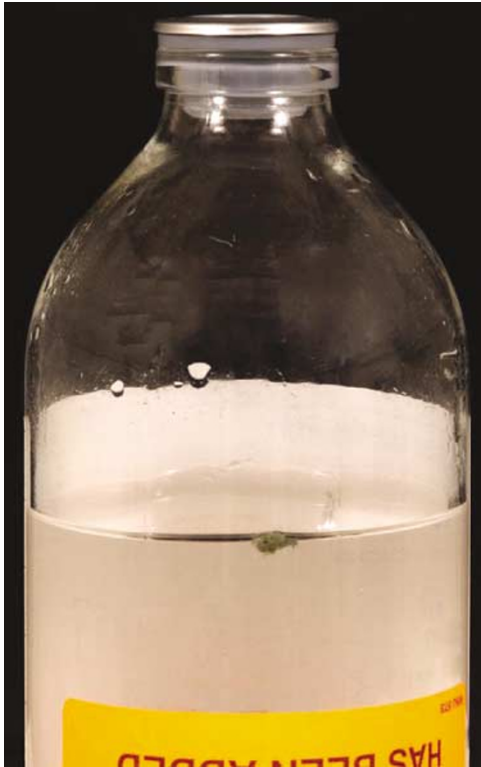


Figure 1 A floating foreign body in the bottle of BSS.

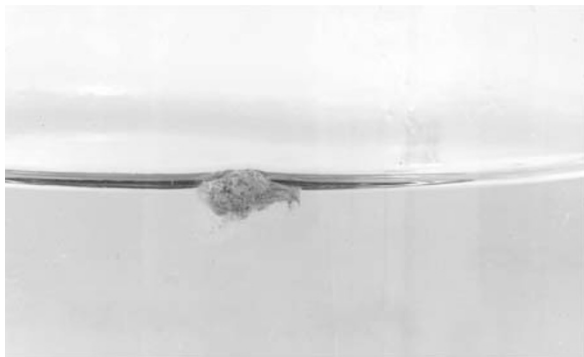


Figure 2 A fungal mass of *Alternaria alternata*.

daily because of ocular irritation on instillation of the antifungal agent. At 1 week postop, the eye appeared to be settling normally and Econazole was discontinued. The patient was followed up for the subsequent few months, and the eye remained unremarkable. At 18 months after the operation the vitreous remained quiet and the visual acuity in that eye was 6/18.

Comment

A. alternata is an ubiquitous airborne hyphomycete usually isolated from the soil and decaying plant

material. Although not generally considered a human pathogen, this imperfect fungus possesses typical conidiospores, which has an asthmogenic potential in bronchial asthma, and may well flourish when introduced into the eye during a surgical procedure. It has also been reported to cause cutaneous and deep-seated infections in immunocompromised patients.¹⁻³

All bottles of BSS are checked on arrival from the pharmacy. Adrenaline is routinely added in an aseptic manner by a trained member of staff. The bottles are then shaken and visually checked by another member of staff.

Contamination of irrigating solutions may occur when a hole or crack develops in a container. In addition, the use of additives to the irrigating solution may represent a source of contamination. In this case, the presence of a distinctly visible mass of fungus suggests that the crack in the bottle had been present for some time prior to its use in the operating theatre. Previously, a series of 13 cases of fungal endophthalmitis were reported to be attributed to the use of contaminated BSS solutions.⁴ Eight of the 13 eyes required enucleation. Fortunately, our patient did not develop endophthalmitis. This may be due to the use of prophylactic antifungal agent postoperatively.

However, the presence of obvious fungal contamination in unopened 15 ml bottles of BSS has been reported in the past,⁵ which suggests that the contamination could have been introduced during the preparation of the solution.

Fungal endophthalmitis are rare, and we wonder whether previous unexplained incidents^{6,7} could have been due to unnoticed contamination in the BSS. In our case, we suspect the defect on the bottle acted as a source of entry for the fungus. However, careful visual inspection of all solution used in ophthalmic surgery is a simple important measure in preventing potential ocular infections. We also believe there may be a place for using filters in solutions going into the eye.

Acknowledgements

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Sir,
Metastatic choroidal abscess and choroidal neovascularization in a patient with *Staphylococcus aureus* renal abscess

Metastatic choroidal abscess is a rare subset of metastatic endophthalmitis. Septic emboli usually arise from focal pyogenic infection, spread through the blood-ocular barrier, and proliferate within the eye. Here, we describe a diabetic patient with *Staphylococcus aureus* kidney abscess who developed a metastatic choroidal abscess in the macula. Early ophthalmic evaluation and continued systemic antibiotic treatment resulted in a localized choroidal abscess without progression to fulminant endophthalmitis. However, late complication of choroidal neovascularization (CNV) led to vitreous haemorrhage and profound visual loss. To our knowledge, the occurrence of CNV secondary to metastatic choroidal abscess in a patient with *S. aureus* renal abscess has never been reported before.

Case report

A 48-year-old male with irregularly controlled diabetes mellitus was admitted via the Emergency Room due to persistent fever and chills for 3 days. Right renal abscess was diagnosed after abdominal sonography, computed tomography (CT) abdominal scan (Figure 1), and systemic evaluation. The fasting blood sugar level was 210 mg/dl. The patient was treated with tight diabetic blood sugar control, intravenous antibiotics, and ultrasonography-guided renal abscess aspiration. The cultures from blood and the pus of abscess showed *S. aureus*, which was sensitive to cefazolin. His medical condition became stable a few days after the intervention and systemic antibiotics; the follow-up CT scan showed gradual resolution of the renal abscess.

After 1 month, he complained of progressive blurring in his left eye. On examination, his best-corrected visual acuity was 20/30 in the right and 20/100 in the left. Both eyes had a quiet anterior segment and vitreous, while the fundus examination showed retinal haemorrhages, lipid exudates, and cotton-wool spots in both eyes, which were compatible with nonproliferative diabetic retinopathy. A well-demarcated, round, grey, and slightly elevated mass approximately 1 disc diameter (DD) in size was noted 1 DD temporal to the fovea in the left eye (Figure 2). Fluorescent angiography displayed a



Figure 1 Computed tomography abdominal scan showed several small low-attenuation lesions (size about 1–3 cm) with irregular shape and septa noted in right kidney (arrow), compatible with the formation of renal abscess. Simple renal cyst (arrowhead) was also noted in left kidney.