

**Purpose:** To report a rare case of postoperative retinal toxicity following an intracameral use of a standard dose of cefuroxime during phacoemulsification and vitrectomy combined surgery.

## Case presentation

A 50-year-old man with

- ocular history of laser photocoagulation due to retinal tear (OD) 1 month ago
- unremarkable medical history
- a non-clearing fundus obscuring hemorrhage due to a PVD induced avulsed vessel (OD) underwent a combined phacoemulsification and vitrectomy surgery after 60 days of clinical monitoring.



Figure 1 and 2. Preoperative B-scan demonstrating vitreous hemorrhage without retinal detachment occurrence.

## Surgical Technique (1)

- Initially the co-existing nuclear cataract was removed and a one-piece IOL was inserted into the capsular bag, without any complications.



Figure 3. Suturing main port with a 10-0 Nylon after IOL placement. Absence of Red-reflex due to vitreous hemorrhage.

- Then an uneventful 25G pars plana vitrectomy was performed, clearing the vitreous cavity and removing any tractions.

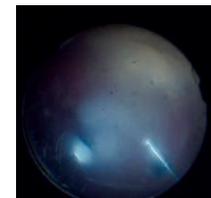


Figure 4 and 5. Core vitrectomy and vitreous shaving.

- No additional retinal tears were identified, thus no endolaser photocoagulation and no oil/gas tamponade was performed.



Figure 6. The Photocoagulated retinal tear at mid periphery, temporal to the macula.

## Surgical Technique (2)

- At the end of the procedure, a standard dose of cefuroxime (1mg/0.1ml) was administered intracamerally for endophthalmitis prophylaxis and treatment with drops chloramphenicol/dexamethasone 0,5/0,1% every 2 hours was initiated.



Figure 7. Administration of Cefuroxime intracamerally.

## Follow up

- On the following day, BCVA was 1/20, IOP was 14mmHg, cornea was clear, 2+ AC reaction and IOL was well-centered in the bag.
- A posterior segment OCT was performed due to the unjustified poor post-op visual acuity.

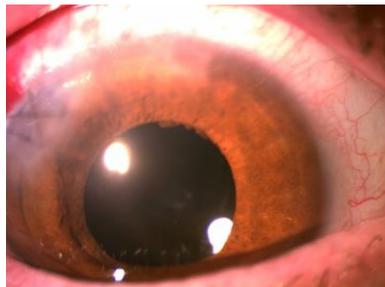
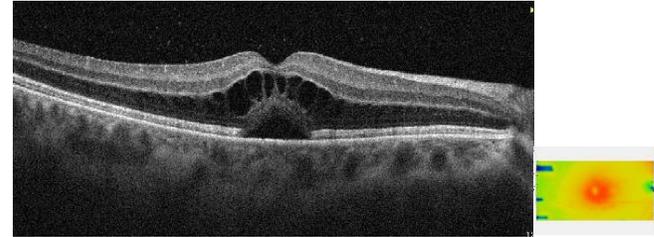
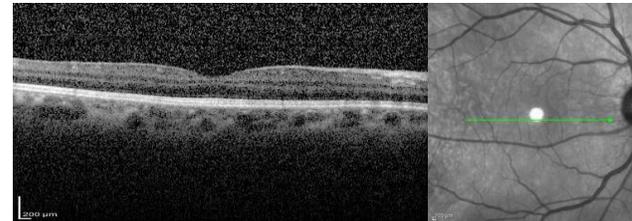


Figure 8. First day post-op without any significant clinical finding from the S/L examination



- ❑ First day post-op OCT demonstrating maculopathy with schisis-like appearance of the outer nuclear layer and subretinal effusion of the macular fovea. No additional treatment was administered.



- ❑ 7 days post-op BCVA was improved to 8/10 while OCT revealed spontaneous recession of the maculopathy, resolution of intraretinal and subretinal fluid and a normal retina configuration.

## Discussion

Intracameral injection of cefuroxime at the end of the surgery was found to reduce the risk of postoperative endophthalmitis (1). Although Intracameral cefuroxime 1mg/0,1ml is widely used as the standard dosage and appears to be safe and well tolerated, multiple case reports of retinal toxicity of varying severity have been described in the literature, from transient maculopathy to severe hemorrhagic retinal infarction and optic atrophy (2). Dilution or dosage errors, subconjunctival injections, sclerotomy leak and accidental penetration of the sclera have been reported as possible causes of cefuroxime toxicity during vitrectomy surgery. Transient self-limiting maculopathy with schisis-like appearance of the outer retina layers and subretinal fluid after uncomplicated surgery is reported to be one of the most common ocular manifestations of cefuroxime toxicity.

## References

1. Endophthalmitis Study Group, European Society of Cataract & Refractive Surgeons. Prophylaxis of postoperative endophthalmitis following cataract surgery: results of the ESCRS multicenter study and identification of risk factors. J Cataract Refract Surg. 2007 Jun;33(6):978-88. doi: 10.1016/j.jcrs.2007.02.032. PMID: 17531690.
2. Raharja A, Neffendorf JE, Williamson TH. Retinal toxicity secondary to subconjunctival cefuroxime following pars plana vitrectomy: A case report and literature review. Am J Ophthalmol Case Rep. 2022 May 2;26:101557. doi: 10.1016/j.ajoc.2022.101557. PMID: 35572614; PMCID: PMC9092187