• Comment and Response •

# Comment on hydration with Cefuroxime-a method for sealing a small leaking corneal perforation

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**Dear Editor,**

In a recent interventional case report, Allon *et al*[1] hydrated corneal stroma with cefuroxime to seal a small traumatic leaky corneal perforation that was unresponsive to prior soft bandage contact lens application for 6d.

We would like to just remind the possible complications of intracameral cefuroxime in eyes with already compromised cornea. High doses of cefuroxime induced ocular anterior or posterior segment inflammation at short-term has been reported[2]. Macular edema and serous macular detachment have also been documented after intracameral injection of moderately elevated[3] as well as standard dose of cefuroxime[4]. Long-term clinical effects of the drug are not known in detail yet.

Cefuroxime is one of the most common free radical inducing intracameral surgical preparations together with phenylephrine during phacoemulsification[5]. Intracameral cefuroxime significantly altered oxidative stress parameters when compared to intracameral vancomycin in the corneal tissue during the anterior segment surgery[6].

It has been previously proposed that stromal hydration of cefuroxime may exacerbate edema and inflammation in the cornea that is already compromised by phacoemulsification. Corneal inflammation may generalize and this situation probably triggers retinal inflammation and edema[4].

Taking into account that traumatic corneal perforation is an inflammatory process, sealing of corneal stroma with cefuroxime would further traumatize the cornea if it was performed during the acute phase. Although they suggested earlier intervention with cefuroxime, it seems that Allon *et al*[1] actually did the best thing by waiting 6d during which the acute inflammation probably subsided. We think earlier stromal and intracameral cefuroxime delivery would have deteriorated the condition of already acutely inflamed and vulnerable cornea.

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**Author Reply to the Editor**

**Dear Editor,**

We thank Aslankurt *et al* for their thoughtful comment. Indeed, there are possible complications of intrastromal and intracameral injection of cefuroxime to eyes with compromised cornea. Possible complications include: inflammation[1], macular edema, serous macular detachment[2-3], changes in oxidative stress and corneal edema[4]. The long-term effect of the drug is also not fully known. Vancomycin might be somewhat safer, but more research is needed to determine this[5].

Despite the risks mentioned above, the intracameral injection of cefuroxime at the conclusion of cataract surgery is considered safe, complications are rare, and injection is associated with a

lower risk of post-operative endophthalmitis[6]. Furthermore, traumatic corneal perforation is much more likely to be infected and to lead to endophthalmitis than sterile cataract surgery, and hence the application of antibiotic is far more important in this case[7].

We agree that use of bandage contact lens with aqueous suppressant is safer for the cornea, yet does not protect against endophthalmitis. Very large perforations should be treated with methods like suturing or application of tissue adhesives, since hydration is unlikely to seal the leak.

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