

Treatment of a corneal ulcer using honeydew honey



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Background

Bacterial keratitis is a leading cause of visual morbidity and is a significant health problem. The current treatment regimen includes the frequent administration of topical antibacterial agents. In complicated cases where the conventional treatment of eye diseases has failed, an alternative approach including honey therapy can be used. Honey has become an interesting topical antibacterial agent with no risk of developing bacterial resistance to it.

There is some evidence that honey has successfully been used in the treatment of dry eye syndrome, bullous keratopathy and in the treatment of opacities of the cornea after herpetic keratitis. Furthermore, it has been shown that honey reduces redness, swelling and time to eradication of ocular bacterial infections of the conjunctiva. In our very recent study (Cernak et al, 2012), honeydew honey may act as a prophylactic agent of endophthalmitis. In addition, honeydew honey is rich source of polyphenolic compounds including flavonoids that can improve eye health.

Aim

We report a patient with ulcer corneae in whom conventional therapy failed and who underwent therapy with honeydew honey.

Case Report

A 32 year old male was referred to a Department of Ophthalmology on August 8, 2010 with severe pain in left eye. His visual acuity was 0.9 in the right eye and he could see hand movement with the left eye. The ocular tension was normal in both eyes. He reported regular wear of soft contact lenses over recent years. He had no previous history of bacterial keratitis.

Slit-lamp examination of the left eye revealed a central corneal ulcer, keratoneuritis, multifocal stromal infiltrates and diffuse corneal oedema. The left eye was swabbed for microbiological examination (bacteriology and mycology). Treatment of the corneal ulcer was initiated immediately; the treatment included systemic antibiotic therapy with gentamycin (80 mg/8 h for 6 days) and cefotaxime (1 g/12 h for 6 days) and local antibiotic therapy with 0.3% ofloxacin for 25 days. No bacterial or fungal infections, including *Acanthamoeba* infection, were diagnosed.

After 30 days, the patient was re-admitted with severe pain and itching in the left eye. At this time, cultures from the cornea and conjunctival sac of the left eye were positive for ciprofloxacin-sensitive *Pseudomonas aeruginosa* and coagulase-negative *Staphylococcus*. Subsequently, we initiated the alternative treatment for bacterial keratitis of the left eye with local γ -irradiated honeydew honey possessing strong antibacterial activity and healing properties. The procedures were performed in accordance with the revised Helsinki Declaration for clinical research involving humans. The subject signed an informed consent form for the publication of this case report and accompanying images.

Honey was applied as a sterile 25% (w/v) solution directly to the affected eye. The honey eyedrops were administered 5 times a day for 30 days. By the 4-week follow-up visit, the patient reported no itching and pain in the left eye (Figure 1). In addition, microbiological examination did not reveal the presence of bacterial or fungal infections in the patient's left eye.

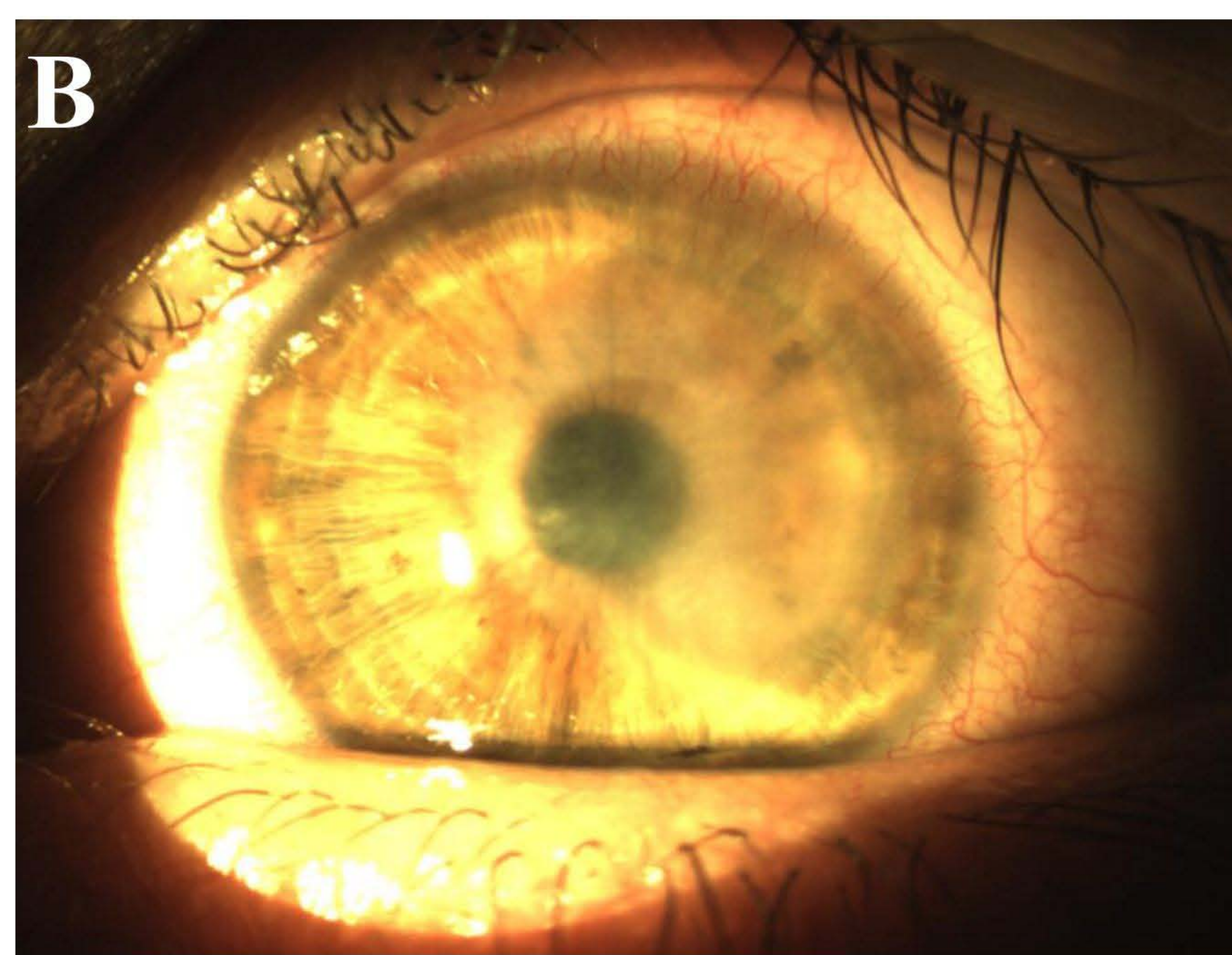
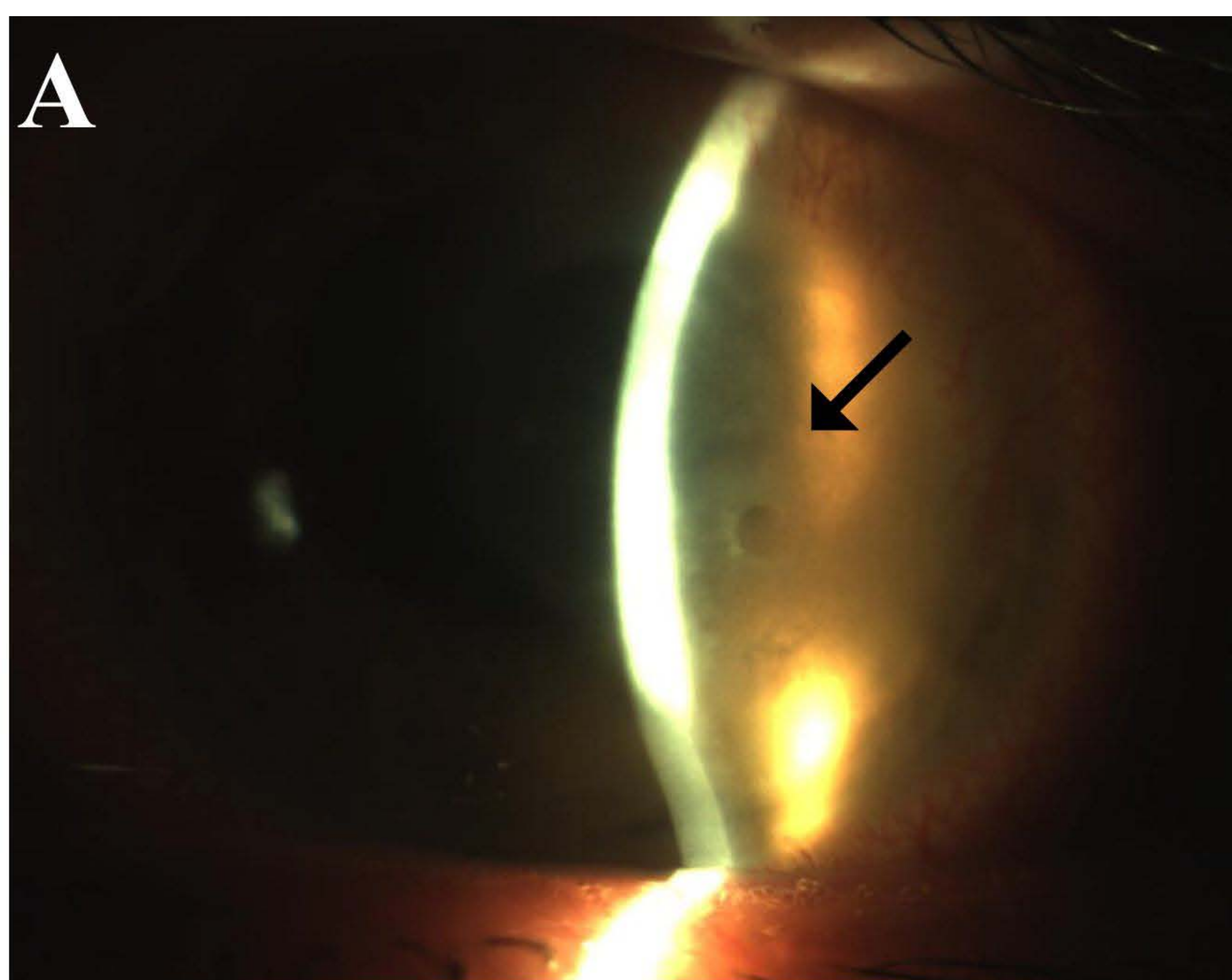


Figure 1. Treatment of corneal ulcer with honey. Patient reported severe pain in his left eye after regular wearing the soft contact lenses during the last years. Slit-lamp examination of the patient's left eye revealed central corneal ulcer and keratoneuritis (A). Culture of ulcer grew *Pseudomonas aeruginosa* and coagulase-negative *Staphylococcus* spp. The infection responded to therapy with 25% (w/v) honey eyedrops (B). The arrow indicates the presence of severe epithelial oedema with surface bullae.

Conclusion

The treatment of eye diseases is based either on medical or surgical therapy. In complicated cases where the conventional treatment of eye diseases has failed, an alternative approach can be used. Honey is a promising therapeutic agent possessing antibacterial, anti-cataract and anti-inflammatory properties. It may successfully be used for reducing the symptoms of dry eye disease and in the treatment of bullous keratopathy. However, the scientific evidence supporting these beneficial properties of honey is limited. We advocate randomised controlled trials to determine the efficacy and safety of honey in the treatment of various eye diseases.

Acknowledgements. This work had been funded by the Operational Program of Research and Development and co-financed with the European Fund for Regional Development (EFRD). Grant: ITMS 26240220030: Research and development of new biotherapeutic methods and its application in some illnesses treatment.

