

Bilateral Acute Corneal Hydrops Case

Bilateral Akut Korneal Hidrops Olgusu

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Abstract

In this case report, it is aimed to present the clinical findings and treatment of a 9-year-old girl who developed bilateral acute corneal hydrops (ACH) at short intervals. Our patient first presented with ACH findings first the right eye and then 1 month later in her left eye. At first admission, both visual acuities were at very low levels and she had advanced stage keratoconus. The patient had a history of eye rubbing accompanied by mild to moderate allergic conjunctivitis. Corneal cross-linking treatment was planned for the left eye, but it could not be performed due to the rapid development of ACH in the left eye within 1 month. In cases of advanced keratoconus accompanied by eye rubbing in young children, caution should be exercised in case it progresses to bilateral ACH.

Keywords: acute corneal hydrops; keratoconus; eye rubbing; cornea; cross-linking

ÖZ

Bu vaka takdiminde kısa süre aralıklarla bilateral akut korneal hidrops (AKH) gelişen 9 yaşındaki kız çocuğunun klinik bulguları ve tedavisinin sunulması amaçlanmıştır. Hastamız ilk olarak sağ gözden ve takiben 1 ay sonra sol gözden AKH bulguları ile başvurdu. İlk başvuruda her iki görme keskinliği de çok düşük seviyelerdeydi ve ileri evre keratokonusu mevcuttu. Hastada hafif, orta şiddette alerjik konjoktivite eşlik eden göz kaşıma öyküsü mevcuttu. Sol göze korneal cross-linking tedavisi planlandı, ancak 1 ay içerisinde çok hızlı bir şekilde sol gözden de AKH gelişmesi üzerine yapılamadı. Küçük çocuklarda, göz kaşımanın eşlik ettiği ileri evre keratokonus vakalarında bilateral AKH'a ilerleme açısından dikkatli olunmalıdır.

Anahtar Kelimeler: akut korneal hidrops, keratokonus, göz kaşıma, kornea

Highlights

- Bilateral acute corneal hydrops (ACH) in keratoconus is a relatively rare condition
- In cases of keratoconus with advanced stage at a young age, and eye rubbing due to allergic conjunctivitis; Caution should be exercised in terms of rapid progression to bilateral ACH.

Introduction

Acute corneal hydrops (ACH) in keratoconus is a relatively rare condition (2.6-2.8 %). Bilateral ACH was detected in 0.84% (23 cases) of 2723 cases with keratoconus (1, 2). Studies have shown that the average age of patients who develop ACH is generally 25 years of age and it is more common in male gender. Additionally, during the diagnosis of keratoconus: Earlier age at diagnosis, steeper keratometry, and lower Snellen visual acuity were strongly associated with the development of ACH. ACH may also develop at a higher rate in eyes with severe allergic eyes. (1,3). In this case report, we investigated the effect of triggering mechanisms on spontaneously developing ACH under conditions of bilateral normal intraocular pressure and without mechanical trauma.

Case Report:

A nine-year-old girl presented to the clinic with complaints of lacrimation and severe photophobia in the right eye. Her history was negative for any systemic, congenital, genetic disorder (Down Syndrome) or atopy

(recurrent rhinitis and dermatitis), but she complained of chronic eye rubbing.

There was no history of topical or systemic medication and family history was negative for any corneal ectatic disease. Uncorrected distance visual acuity (UDVA) was counting fingers (CF@) at 3 ft in the right eye and CF@ 5 ft in the left eye. On initial examination with slit lamp biomicroscope, mild to moderate vernal conjunctivitis, and corneal edema compatible with ACH in the right eye (Figure-1) and transparent corneal appearance in the left eye were present. Corneal topography and anterior segment OCT could not be obtained from the right eye due to extreme pain and photophobia secondary to corneal edema. Scheimpflug image (Pentacam HR, Oculus; Wetzlar, Germany) consistent with advanced keratoconus in the left eye were acquired (Figure-2). In the corneal topography imaging performed in the left eye at the first examination, the anterior mean simulated keratometry (Km) value was measured as 61.2 diopter (D), while the thinnest corneal thickness was measured as 371 μm . Posterior elevation maps showed a thin, irregular cornea with a large ectasia. Intraocular pressure measured using an iCare tonometer (iCare IC100, iCare Finland, Oy, Finland) was 12 and 11 mmHg in the right and left eyes, respectively.



Figure-1. Acute corneal hydrops in the right eye



Figure-3. Acute corneal hydrops in the left eye

As the patient was a refugee, she could not be reached for 1 month after the treatment of her right eye. Therefore, unfortunately, corneal crosslinking was not possible in the left eye. Biomicroscopic examination performed 1 month after treatment showed corneal scar in the right eye compatible with previous hydrops and corneal edema in the left eye compatible with ACH (Figure -3).

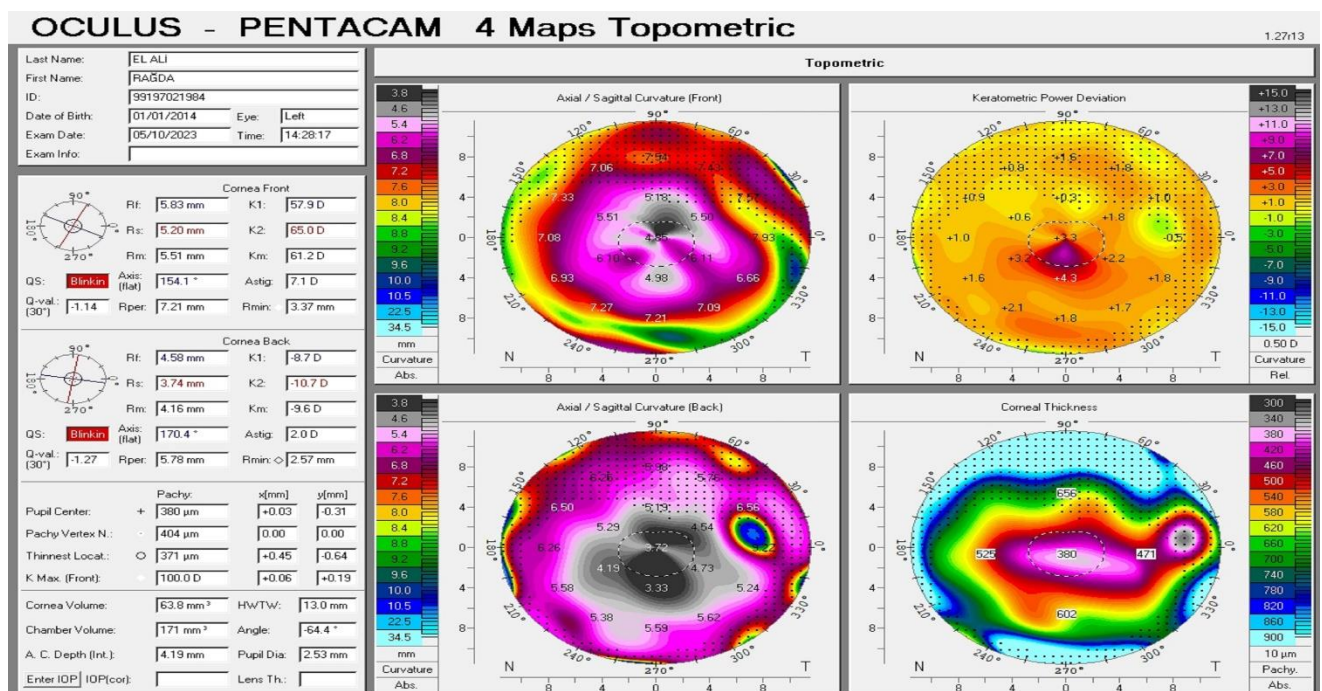


Figure-2. Topography image showing the sign of advanced stage keratoconus in the left eye at the initial examination

Fundoscopic examination was not possible due to corneal edema. A-Scan ultrasound showed normal retina and vitreous. While the central corneal thickness (CCT) obtained by anterior segment OCT (The SPECTRALIS SD-OCT (Heidelberg Engineering GmbH, Heidelberg, Germany) could not be measured in the right eye at the first examination, it was 379 μm in the left eye. At the last examination, it was 454 μm in the right eye (Figure-4), and 987 μm in the left eye (Figure-5).

In the first treatment, the patient was hospitalized and followed up for one week including topical sodium chloride 5%, prednisolone acetate, moxifloxacin, brinzolamide+timolol combination, cyclopentolate and artificial tear eye drops treatment. At the 1-week follow-up visit, corneal edema in the right eye had decreased and progression to scarring was observed. After 1 month, the same treatment protocol was applied for the left ACH.

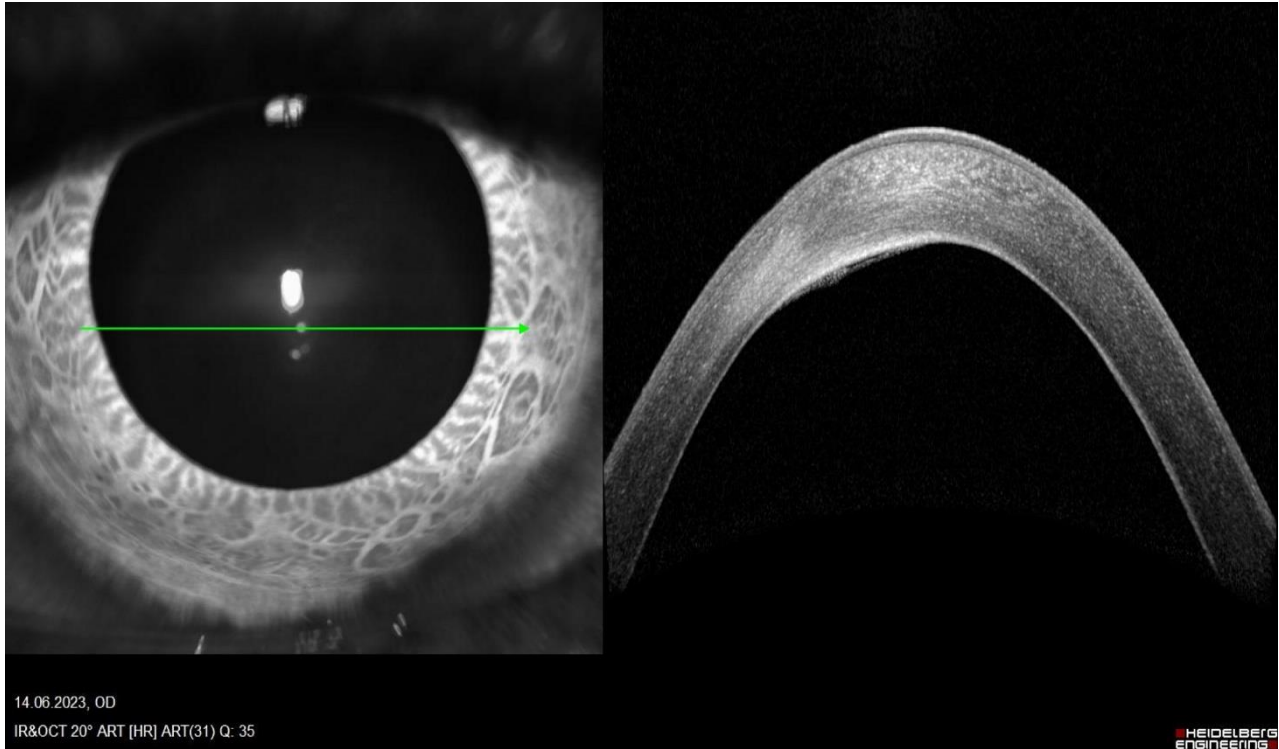


Figure-4. At the last examination, right eye anterior segment OCT image

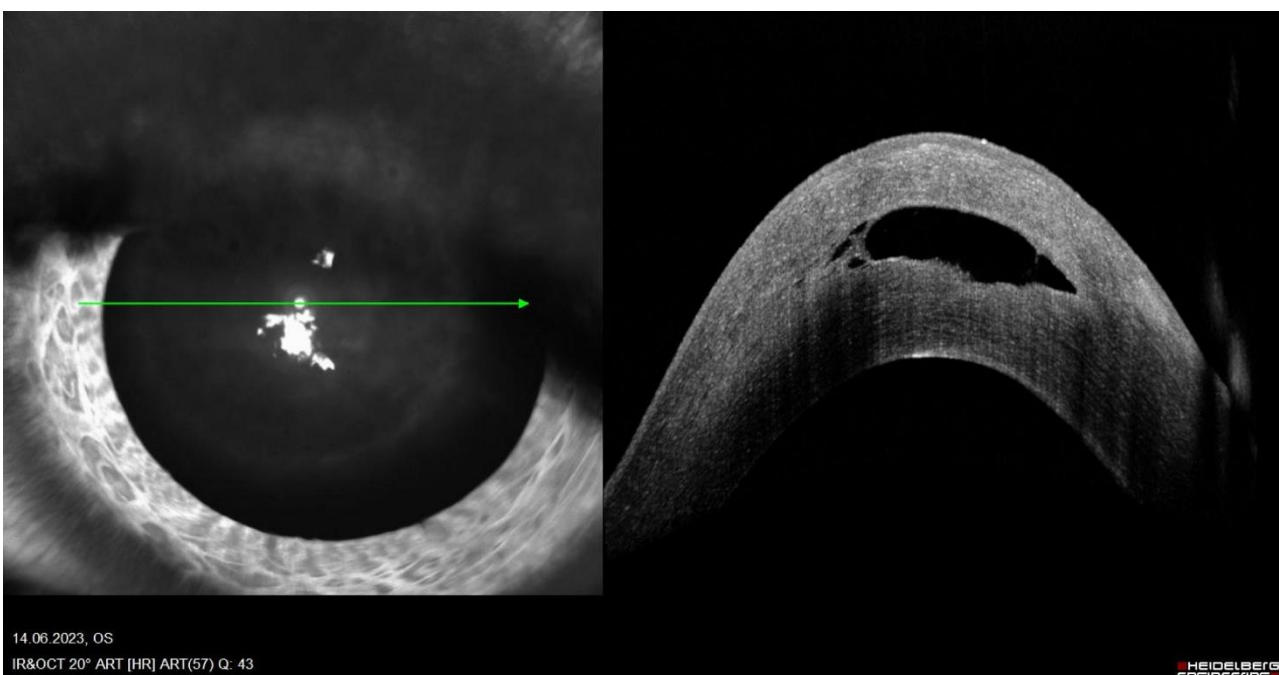


Figure-5. At the last examination, left eye anterior segment OCT image

Discussion

In this report, we present the clinical findings of a 9 years old girl who was followed and treated for bilateral ACH. Our patient had mild to moderate vernal conjunctivitis, eye rubbing, and a history of recent ACH in the right eye. In this case report, we wanted to examine the reasons that led our patient to a state of ACH in a short period of time. We had no data at the time of admission, except that our patient had advanced stage keratoconus in her left eye, was young, and had ACH in her right eye.

Bilateral ACH in keratoconus is a rare and serious condition (mean 0.84%) (1). There are few studies in the literature showing this rare condition. It is not easy to predict when some cases will progress to ACH. Atopy and a history of eye rubbing a high risk for hydrops in young patients with keratoconus (4). Eye rubbing seems to explain why most ACH are one-sided presentations. More likely to have bilateral ACH and abnormal chronic eye rubbing habits in Down syndrome (5). For this reason, it may be good to have corneal crosslinking treatment early, especially at young ages.

In cases of bilateral ACH, equal degrees of cone apex thinning and unprovoked intraocular pressure by eye rubbing (intraocular pressure within the normal range), in contrast to the asymmetric progression in keratoconus, would make susceptibility to descemet rupture unusual (6).

It seems likely that eyes with thinner and more advanced stage cones have less resistance to the forces that expand the IOP (7).

As a result, in cases of keratoconus with advanced stage at a young age, and eye rubbing due to allergic conjunctivitis; Caution should be exercised in terms of rapid progression to bilateral ACH.

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