CASE REPORT

Rare case of late presentation of acute hydrops in a 65-year-old patient with keratoconus

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We report a rare case of late unilateral presentation of acute corneal hydrops in a 65-year-old diabetic patient. The patient was diagnosed with advanced keratoconus in the right eye; the left eye was normal. He presented with acute corneal hydrops after 8 months. An intracameral perfluoropropane injection was given; penetrating keratoplasty was performed 3 months later. This rare late unilateral presentation of acute hydrops in a diabetic individual without predisposing factors questions the concept that progression of keratoconus stabilizes as age increases and also puts into question the protective effect of diabetes on the progression of keratoconus.

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A 65-year-old man presented to our outpatient department reporting gradually progressive blurring of vision in the right eye over 5 years. He was a known diabetic for 6 years and had hypothyroidism for 5 years. The corrected distance visual acuity (CDVA) was counting fingers at 2 m in the right eye and 6/6 with −0.50 @ 145 in the left eye. Slitlamp examination showed superior thinning of the right cornea and a Bowman layer scar. Corneal topography of the right eye was performed with a rotating Scheimpflug device (Pentacam, Oculus Optikgeräte GmbH) and showed a flat keratometry (K) value of 73.6 diopeters (D), a steep K value of 78.6 D, astigmatism of 5.1 D at 56.1 degrees, and a thinnest cornea pachymetry of 322 μm (Figure 1, a). Topography of the left eye was normal with a borderline corneal thickness of 478 μm, a flat K value of 45.9 D, and a steep K value of 46.7 D (Figure 1, b). The patient was diagnosed with advanced keratoconus with a Bowman layer scar in the right eye and was advised to have deep anterior lamellar keratoplasty (DALK).

The patient returned for follow-up after 8 months with a sudden drop in vision, redness, watering, pain, and photophobia. The CDVA in the right eye was counting fingers close to his face. Examination showed stromal and microcystic epithelial edema (Figure 2, a). Anterior segment optical coherence tomography showed a Descemet membrane tear with a large cleft (Figure 2, b), and a diagnosis of acute hydrops was made. The patient gave no history of trauma, frequent eye rubbing, or atopic conditions. An intracameral injection of 14% perfluoropropane gas was given, and the patient was prescribed topical steroids, antibiotics, hypertonic saline, and antiglaucoma medication. One day postoperatively, the gas bubble was in situ and the large Descemet tear was visible on slitlamp examination. The tear extended from 2.0 mm from the limbus at the 8 o’clock position to the 1 o’clock position, passing through the pupillary center (Figure 3, a). At the end of 2 months, the eye had paracentral scarring with extreme superior corneal thinning (Figure 3, b). Anterior segment optical coherence tomography showed a compact cornea resulting from reabsorption of intrastromal fluid and scar formation (Figure 3, c). The CDVA was counting fingers at 3 m.

The patient was offered penetrating keratoplasty (PKP) to improve his vision. The PKP surgery was suggested over DALK.
in view of the patient’s age and the large Descemet tear involving the visual axis, which could lead to a residual scar. The patient had PKP after 3 months. At 6 months, the CDVA was 6/12 with +1.00 – 3.00 x 165. Figure 4 shows a slitlamp image of right eye after PKP.

The presentation of hydrops in this patient is unusual because of the late unilateral presentation with no known predisposing factors. In addition, the patient had diabetes, which is known to have a stabilizing effect on the progression of keratoconus.
DISCUSSION

The first case of corneal hydrops in keratoconus was reported by Plaut (1900) and later confirmed by Axenfeld (1906).1,2

There are reports that the increase in crosslinking of collagen resulting from glycosylation in diabetic patients has a protective effect against keratoconus because the cornea is more pliable and the central corneal thicker.3 The greater pliability might improve corneal hysteresis compared with that in nondiabetic individuals in the same age group. Although diabetes has not been found to decrease the incidence of keratoconus, patients with the disease have less severe keratoconus and a lower incidence of acute hydrops.4

Keratoconus is much less common in patients older than 50 years.5 An inverse correlation exists between age and the severity of acute hydrops. A rare late presentation of keratoconus was reported by Tenkman et al.9 in a woman 51 years old who had corneal crosslinking. Most cases of keratoconus are bilateral; however, the changes can begin in 1 eye but not the other eye. Li et al.10 reported that 50% of the unaffected fellow eyes developed keratoconus within 16 years of onset in the affected eye.

Thus, this rare late unilateral presentation of acute hydrops in a diabetic individual with no predisposing factors puts into question the general concept that progression of keratoconus stabilizes or slows as age increases as well as the protective effect of diabetes on the progression of keratoconus.

REFERENCES


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