Spontaneous resolution of Descemet's membrane detachment following bleb needling in a patient with iridocorneal endothelial syndrome: A case report

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Key words: Bleb needling, Descemet's membrane detachment, iridocorneal endothelial syndrome, spontaneous resolution

Descemet's membrane detachment (DMD) can occur as a complication of intraocular surgery or trauma. Cases of spontaneous reattachment have been rarely reported, especially in localized detachments.[1] DMDs may be treated conservatively or surgically. Early intervention is preferred by many surgeons, especially in large detachments.[2] Herewith, we report a case of spontaneous resolution of DMD in a patient with iridocorneal endothelial (ICE) syndrome following bleb needling.

A 43-year-old female patient reported to us, a year back with defective vision in the left eye. Her best-corrected visual acuity (BCVA) in the right eye was 20/20 and the left eye was 20/80. Intraocular pressure (IOP) by Goldmann Applanation tonometry was 36 mm Hg. Slit-lamp examination revealed corneal guttae, iris nodules, and immature cataract in the left eye. The right eye was within normal limits. Fundus examination showed a cup disc ratio of 0.9 in the left eye and 0.3 in the right eye. Field evaluation by Humphreys field analyzer (HFA, Carl Zeiss, Germany) of the left eye showed biarcuate scotoma approaching fixation. Clinical features were consistent with ICE syndrome, and she was started on maximal medical therapy. She underwent left eye phacotrabeculectomy for the same. A year later, she presented to us with an IOP of 26 mm Hg. Her BCVA was 20/30 in the left eye and 20/20 in the right eye. Slit-lamp examination revealed low vascularized bleb, with corneal guttae, iris nodules, patent surgical iridectomy, and posterior chamber intraocular lens (PCIOL). In view of these features, the left eye was diagnosed as failed bleb, post phacotrabeculectomy. She underwent bleb needling for the same. On postoperative day 1, the patient had a BCVA of 20/32 and an IOP of 8 mm Hg in the left eye, with a diffuse bleb. One week postoperatively, the patient presented with sudden diminution of vision in the left eye. The BCVA in the left eye was 20/500. Her IOP was 4 mm Hg. Slit-lamp examination revealed a diffuse bleb, with corneal edema and Descemet's membrane folds, well-formed anterior chamber, PCIOL [Fig. 1]. Anterior segment optical coherence tomography (Visante, AS-OCT) [Fig. 2] revealed a DMD in the left eye. The patient was planned for left eye descemetopexy in a week. On follow-up, the BCVA in the left eye had improved to 20/120. Her IOP was 10 mm Hg. Slit-lamp examination revealed a diffuse bleb, with minimal corneal epithelial edema and resolution of Descemet membrane folds. AS-OCT [Fig. 3] showed complete reattachment of the Descemet's membrane, thereby avoiding the need for surgical intervention. On subsequent follow-ups, her BCVA improved to 20/30 in the left eye with complete resolution of corneal edema [Fig. 4] and her IOP was 12 mm Hg.

Discussion

DMD occurs when the endothelium–Descemet membrane complex separates from the posterior corneal stroma. This potentially serious sight-threatening complication can occur following intraocular surgery or trauma.[3] DMD has been reported most commonly after cataract surgery[4] but follow other procedures like trabeculectomy, iridectomy, holmium laser sclerostomy, penetrating keratoplasty, full-thickness lamellar keratoplasty,[5] pars plana vitrectomy, and viscocanalostomy.[6] To the best of our knowledge, ours is the first case to report spontaneous resolution of DMD after bleb needling.

The natural history of DMD is an area of controversy, and the appropriate timing of intervention is not clear.[7] Weak adhesions between the stroma and the descemet's membrane, due to genetic disorder/endothelial disease,[5] may lead to DMD. Occurrence of bilateral DMDs has been reported during or after otherwise uneventful surgery, which suggests a predisposition to DMD in certain eyes.[8] Hirano *et al*.[5] reported a case of a triple anterior chamber following lamellar keratoplasty in a patient with lattice corneal dystrophy, indicating the weak adhesion of the stroma and the Descemet's membrane. They concluded that dysfunction of the TGFBI protein caused by the mutation of the TGFBI gene may be responsible for the occurrence of DMD. This DMD spontaneously resolved in a week without any intervention, which is similar to our

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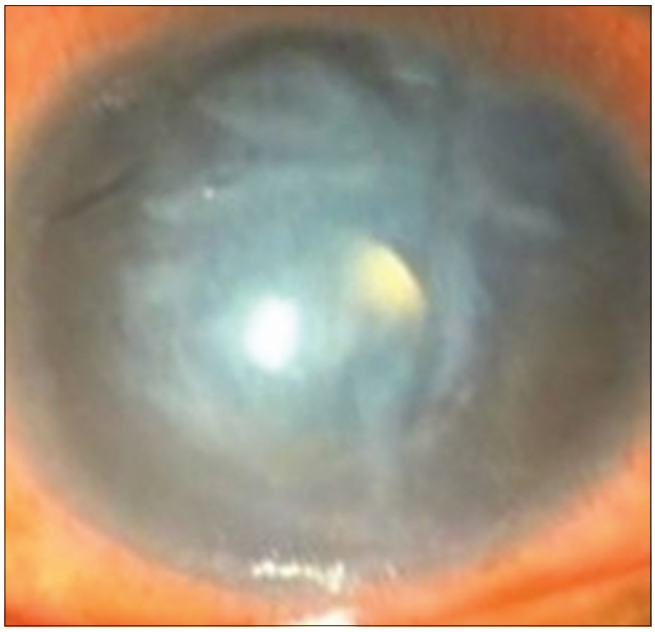

Figure 1: Slit-lamp image showing Descemet's membrane folds and corneal edema one week post bleb needling

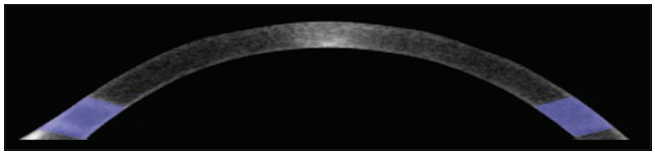

Figure 3: Anterior segment OCT of the left eye showing complete resolution of the Descemet's membrane detachment

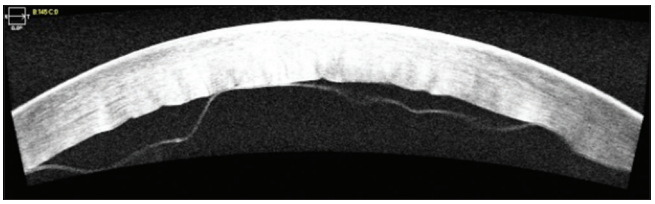

Figure 2: Anterior segment OCT of the left eye, 1-week postbleb needling revealing a large Descemet's membrane detachment

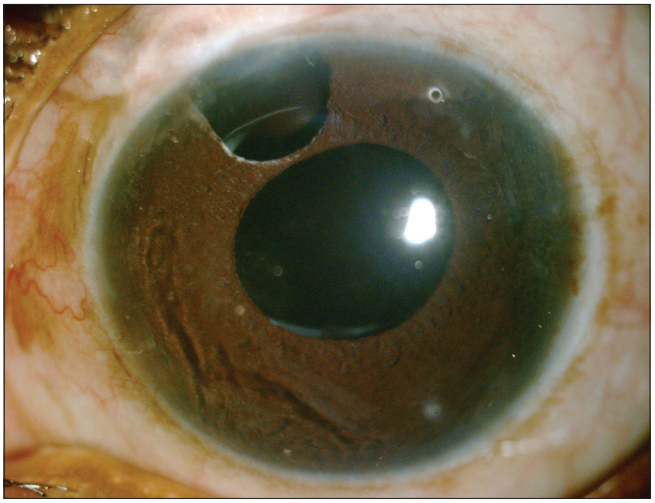

Figure 4: Slit-lamp image showing the complete resolution of corneal edema and Descemet membrane folds, on return of intraocular pressure to normal

case report. Ti *et al.*[9] reported endothelial disorders as the only significant preoperative risk factor, resulting in DMD after phacoemulsification. Our patient, diagnosed with ICE syndrome, might have been at a high risk for spontaneous DMD.

Treatments of DMD include descemetopexy (by injection of air, sulfur hexafluoride, or sodium hyaluronate), suturing, and penetrating keratoplasty. In a case series by Marcon *et al.*,[1] 8 out of 15 eyes with DMD resolved with medical treatment alone, with a mean time to resolution of 9.8 weeks. There are a few case reports of spontaneous resolution of DMD's following procedures such as deep anterior lamellar keratoplasty.[10] In our case, DMD resolved spontaneously within a week. Hypotony following bleb needling may have led to spontaneous DMD in our patient. The onset of the wound healing process and rise in IOP may have acted like a natural tamponade leading to reattachment, avoiding any need for surgical interventions. Another possible explanation may have been temporary endothelial shock, which might have briefly stopped the endothelial pumping activity. Postoperatively, return of normal pumping mechanism may have helped in reattachment.[10]

Knowledge of the cause, risk factors, and methods of diagnosis of DMD is of utmost importance in preventing this sight-threatening complication. Once developed, it is imperative to recognize and detect this condition early for timely management. This case highlights that spontaneous resolution of DMD is possible over a period of time. The DMDs can be managed conservatively and that the decision to intervene should be made on a case by case basis, the perils of additional intervention, and the need for expeditious rehabilitation of vision.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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