

Surgical treatment for neovascularized retinal pigment epithelial detachment in age-related macular degeneration

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Dear Sir,

I am Dr. Hui Li, from the Department of Ophthalmology of Shanghai Tenth People's Hospital Affiliated to Tongji University in Shanghai, China. I write to report a case of neovascularized pigment epithelial detachment (PED) successfully treated with vitrectomy.

PED associated occult choroidal neovascular membrane, so called vascularized PED^[1], is a special subtype of neovascular age-related macular degeneration with poor visual prognosis. The current therapies for vascularized PED including photodynamic therapy (PDT), transpupillary thermotherapy (TTT), intravitreal triamcinolone and/or anti-VEGF agents showed various effectiveness based on some retrospective studies^[2,3]. Vascular endothelial growth factor (VEGF) has emerged as a key target of treatment, but the high incidence of retinal pigment epithelium (RPE) tears after anti-VEGF therapy further hampers the treatment effect^[4]. In addition, the recurrent rate of PED is high, for which frequent and multiple therapeutic strategies are required. For a large subfoveal PED, whether or not a surgical approach is feasible has been explored in this case.

A 60 years old female complained sudden vision loss of right eye for 2 months. There was no history of high myopia or trauma. Best corrected visual acuity was 20/400 in the right eye. Fundus examination showed there was an eight disc diameter dome-shape yellowish elevation with clear margin in the posterior pole of right eye (Figure 1A). Optical coherence tomography (OCT) showed a large bullous PED at

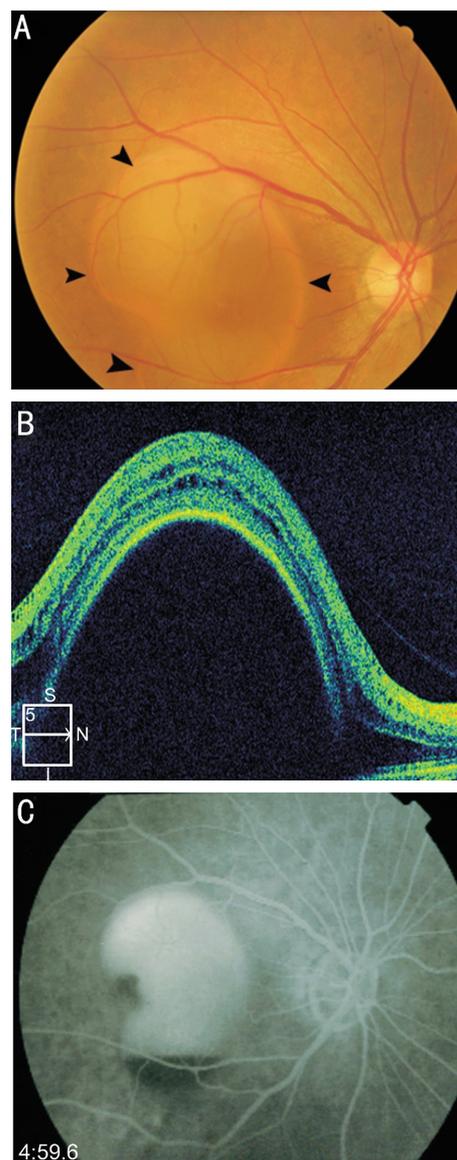


Figure 1 A: Fundus color photograph of right eye; B: Optical coherence tomography showed a large bullous pigment epithelial detachment; C: Late phase fluorescein angiography. Arrowheads: dome-shape yellowish elevation.

macula (Figure 1B). Fluorescein angiography demonstrated a "kidney" shape hyperfluorescent area without significant leaking until late phase. Inferior to this hyperfluorescent area, a "boat-shape" blockage was noted (Figure 1C). A standard 20G with triamcinolone acetamide-assisted pars plana vitrectomy was performed. A small incision was made

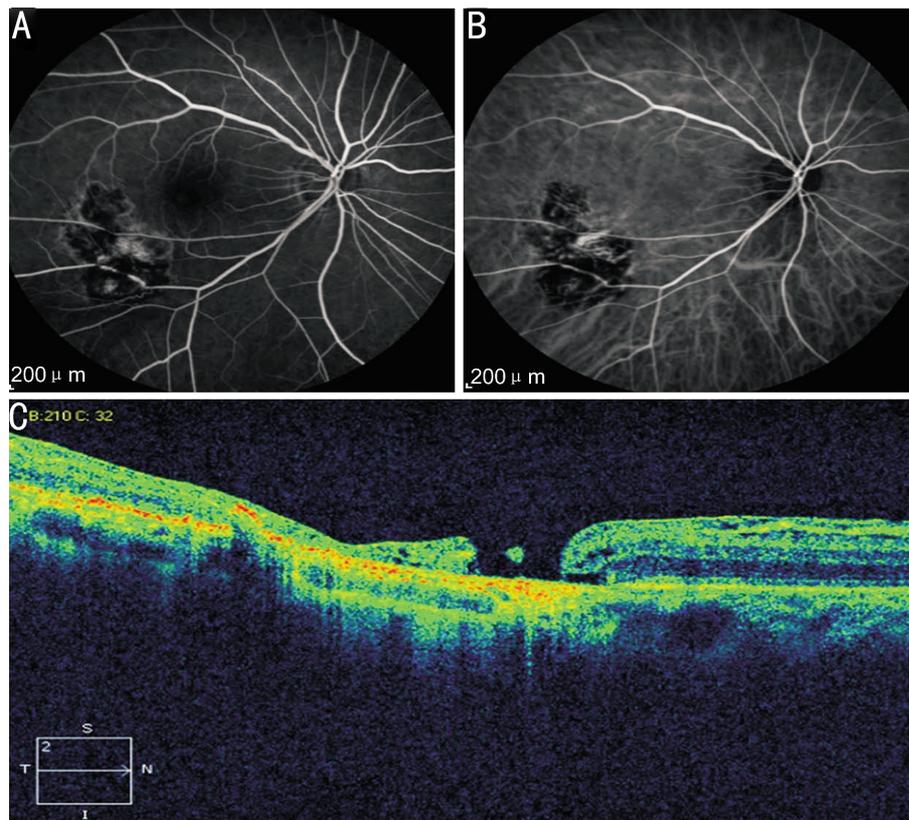


Figure 2 Fluorescein angiography (A) and indocyanine green angiography (B) of right eye ten months after surgery. (C) Postoperative optical coherence tomography showed normal fovea contour and attached retina.

inferior to the indentation of the kidney-shape PED. No spontaneous drainage of sub-retinal pigment epithelium fluid was found. And then perfluorocarbons was used without success. The re-attachment of the local retina and RPE was achieved mechanically by using a diamond brush. After localized photocoagulation, C₃F₈ (15%) was injected into the vitreous cavity for retinal tamponade. After surgery, the patient kept in a face-down position. Ten-month later, the visual acuity reached 20/40 in right eye. Both fluorescein angiography and indocyanine green angiography showed no abnormal leakage (Figure 2A, B). OCT showed normal fovea contour, no high reflection of neurosensory retina and RPE at previous detached area. A full-thickness retinal break was noted at the retinotomy site (Figure 2C).

The retinotomy that was chosen just below the indentation of the PED may have two advantages. First, after drainage of sub-RPE fluid the photocoagulation was immediately used to close the retinotomy site as well as to ablate the possible choroidal neovascular membrane at the indentation. Second, the inferior incision facilitates the drainage of sub-RPE fluid. There is an intrigue phenomenon that after retinotomy, the sub-RPE fluid did not drain out spontaneously nor under the pressure of air or the "steamroller" effect of perfluorocarbons. The retina was re-attached eventually by using mechanic pressure with a diamond brush. At the end of vitrectomy, fluid/gas exchange was performed for tamponade

of retina. Because the remaining intraocular fluid was minimal after fluid/gas exchange, the safe intraocular concentration of anti-VEGF agent in the liquid phase could not be easily determined, if intravitreal injection of anti-VEGF agent would have been used.

In summary, for this case of vascularized PED, the treatment by using vitrectomy that leads to a rapid vision recovery without recurrence is a successful experience.

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