

## Case Report

# Rhegmatogenous retinal detachment due to full-thickness macular hole secondary to uveitis: a case report

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**Abstract:** Macular holes (MH) are a rare vision-threatening condition secondary to uveitis. This study reports a 67 year-old Chinese female diagnosed with rhegmatogenous retinal detachment (RRD) after formation of a macular hole secondary to uveitis. With systemic and topical administration of corticosteroids for 10 days, the ocular inflammation was well controlled. The patient received pars plana vitrectomy (PPV), lensectomy, and epiretinal membrane (ERM) peeling. After flattening the retina, the vitreous cavity was completely filled with silicone oil. After 3 months, the silicone oil was removed and an intraocular lens (IOL) was implanted. As of the last clinical visit, the visual acuity of this patient had recovered. The macular hole had closed and the retina had reattached. In conclusion, vitrectomy may be a safe and efficient approach for macular holes secondary to uveitis.

**Keywords:** Uveitis, macular hole, rhegmatogenous retinal detachment, pars plana vitrectomy

### Introduction

Uveitis is a vision-threatening disease consisting of two major types: noninfectious uveitis and infectious uveitis. Patients with macular disorders, including cystoid macular edema, epiretinal membrane, and macular holes (MH), may have vision loss [1]. Macular holes are a rare condition secondary to uveitis [2]. They were first described by Nussenblatt three decades ago [3]. Currently, about 2.60% of uveitis patients develop macular holes [4]. However, its pathogenesis remains unclear. The present study reported an exceptional Chinese female uveitis patient that developed retinal detachment after formation of a macular hole. Fortunately, she achieved visual acuity recovery after vitrectomy and intraocular lens implantation.

### Case presentation

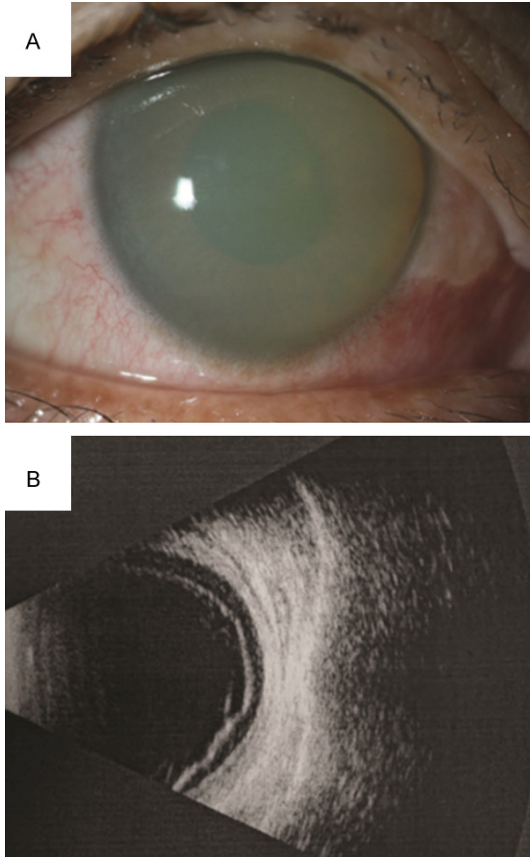
This study was approved by the Institutional Review Board for Protection of Human Subjects of Jiaying Traditional Chinese Medicine Hospital and adhered to tenets of the Declaration of

Helsinki. Informed consent was obtained from the patient before ocular examinations and surgeries were performed.

A Chinese female (age: 67 years-old, weight: 53 kg, height: 165 cm) visited the clinic on November 18, 2015. She complained of painless reduction of visual acuity (VA) in her right eye for the previous 6 months. She did not take any medication before onset of VA reduction. Her left eye was normal. No history of ocular disorders existed in her family.

Extensive ophthalmic examinations were conducted. The best corrected visual acuity (BCVA) on her right eye was light perception (LP) and intraocular pressure (IOP) was 5.5 mmHg. Slit-lamp microscopy revealed that the anterior chamber of her right eye was filled with inflammatory exudates (**Figure 1A**). Pupil diameter was about 5 mm with posterior synechia to the lens. B-scan indicated a retinal detachment on her right eye (**Figure 1B**).

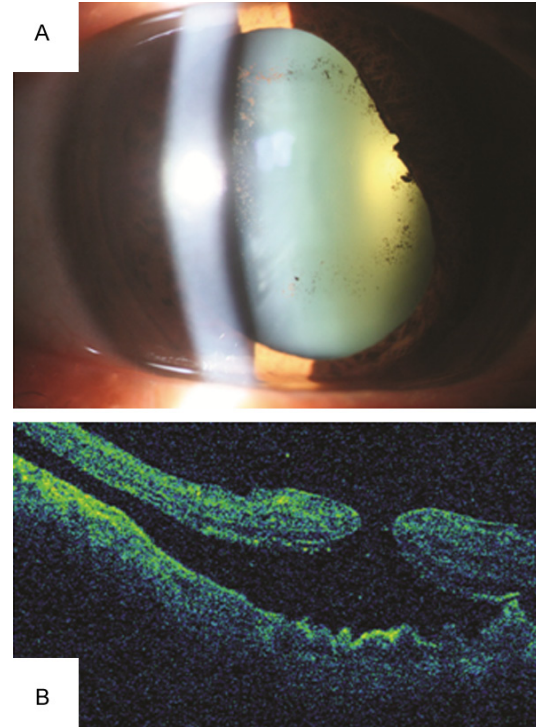
The patient received dexamethasone 10 mg intravenously daily for 5 days. This was then



**Figure 1.** Ocular examinations on her initial visit. A. Biomicroscopic photograph of right anterior segment showed the anterior chamber was filled with inflammatory exudates. B. B-scan indicated a retinal detachment in right eye.

reduced to 5 mg for another 5 days. Additionally, topical corticosteroids (tobramycin/dexamethasone, Tobradex<sup>®</sup>) and 1% atropine eyedrops were administered four times and twice per day, respectively. She was closely followed up daily. Ten days later, the BCVA was recovered to finger counting (FC) and a dramatic reduction of anterior inflammation was observed. However, posterior synechia of the iris and cataracts were still presented (**Figure 2A**).

Optical coherence tomography (OCT) (November 28, 2015) showed a full-thickness macular hole on her right eye (**Figure 2B**). Rhegmatogenous retinal detachment, posterior synechia of the iris, and cataracts may have derived from uveitis. An experienced vitreoretinal surgeon (Dr. Yongwei Zhu) performed pars plana vitrectomy, ERM peeling, lensectomy, and air-fluid exchange with silicone oil tamponade on her right eye. To control postoperative



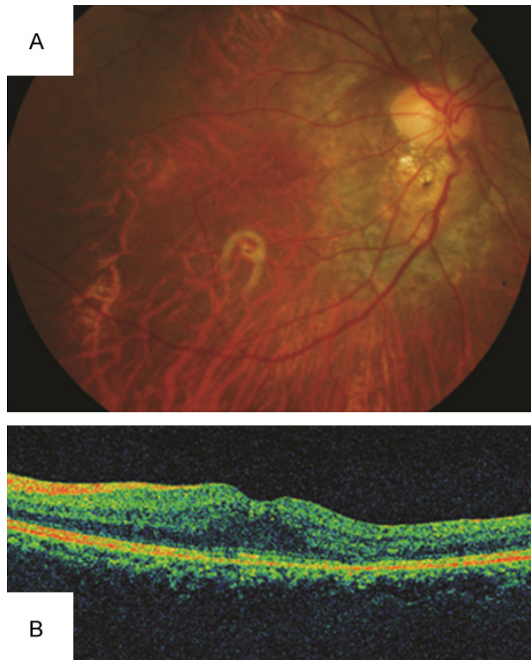
**Figure 2.** Ocular examinations after medical treatment. A. Biomicroscopic photograph of right anterior segment showed a complete absorption of inflammatory exudates in the anterior chamber. B. Posterior segment OCT indicated a full-thickness macular hole developed on her right eye.

inflammation, the patient received dexamethasone 5 mg daily for 5 days, a topical corticosteroid (tobramycin/dexamethasone, Tobradex<sup>®</sup>) four times a day, and 1% atropine eyedrops twice a day. After 3 months, the silicone oil was removed with an intraocular lens placement. During her last visit, the BCVA on her right eye reached to 0.90 (converted to LogMAR scale). The macular hole was completely closed (**Figure 3A**) and the retina was reattached (**Figure 3B**).

### Discussion

Macular holes are thought to be related to posterior vitreous detachment (PVD) [5]. Intraocular inflammation may damage collagen fibers, resulting in hyaluronic acid and collagen collapse, causing vitreous liquefaction and subsequent PVD. Retinal pigment epithelium (RPE) cells may contribute to formation of macular holes by adhering to the vitreous cortex and contracting. Macular holes can appear in infectious or noninfectious uveitis. In infectious uveitis, toxoplasmic retinochoroiditis [6-8], as well as syphi-

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**Figure 3.** The macular hole closed after vitrectomy at 3 months. Complete closure of the macular hole was revealed by color fundus photograph (A) and posterior segment OCT (B).

litic panuveitis [9], may lead to formation of macular holes at acute stages. Proper medical treatment with anti-pathogen drugs combined with corticosteroids will effectively control inflammation. However, closure of macular holes and improvements of BCVA may be achieved by vitrectomy instead of conservative therapies [8, 9].

In noninfectious uveitis, macular holes have been always reported in Behcet's disease [10-13] and Vogt-Koyanagi-Harada disease (VKH) [14, 15]. Behcet's disease is a well-known chronic inflammatory disorder characterized by ocular and systemic features. In Behcet's disease, about 2.60%-3.40% of patients developed macular holes based on two large-scale epidemiological studies [16, 17]. Strict control of inflammation with systemic corticosteroids may be beneficial in closing macular holes [10]. Surgical intervention with PPV may also be effective for macular hole closure [13]. However, patients did not get more BCVA improvement in comparison to non-operated eyes [12]. VKH is another systemic inflammatory disease that affects melanin-containing tissues, including the eyes. Macular holes are a rare condition at the early stages of this disease. Effective anti-

inflammatory treatment, followed by PPV, remains the conventional therapeutic strategy [2, 14, 15].

In this present study, the patient may have developed MH because of noninfectious uveitis, since systemic combination of topical corticosteroids for 10 days without any anti-pathogen drugs effectively controlled ocular inflammation. In addition, the BCVA on her right eye was restored after vitrectomy. However, since fundus fluorescein angiography was not performed, the inflammation of posterior segments on both eyes was unclear. This should be noted as a limitation of this present study.

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### Disclosure of conflict of interest

None.

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