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SHORT COMMUNICATION

Sympathetic ophthalmia after successful retinal reattachment surgery with vitrectomy

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PURPOSE. *To report a case of sympathetic ophthalmia (SO) following one successful pars plana vitrectomy (PPV) for rhegmatogenous retinal detachment.*
METHODS. *Case report.*
RESULTS. *A 50-year-old man developed SO 5 weeks after successful repair of rhegmatogenous retinal detachment with PPV and intraocular gas tamponade. The patient presented with bilateral multifocal exudative retinal detachments and inflamed optic nerve with characteristic changes of SO detected by fluorescein angiography, indocyanine green angiography, and optical coherence tomography. Prompt use of systemic steroids and cyclosporin A resulted in control of the uveitis with significant visual improvement.*
CONCLUSIONS. *PPV should be viewed as a major risk factor for development of SO. (Eur J Ophthalmol 2006; 16: 891-4)*

KEY WORDS. *Immunosuppressive therapy, Pars plana vitrectomy, Sympathetic ophthalmia, Uveitis*

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INTRODUCTION

Sympathetic ophthalmia (SO) is a rare bilateral granulomatous panuveitis that occurs as a complication of a penetrating injury that involves the uvea of one eye. This type of injury is produced by either accidental trauma or surgery. The injured eye is referred to as the exciting eye and the fellow eye as the sympathizing eye. In a 5-year survey of eye pathology laboratories, Gass (1) found that 55% of SO cases resulted from penetrating ocular wounds, with the remaining 45% occurring after surgery. A prospective population-based study found that ocular surgery, particularly retinal surgery, was the sole cause of SO in 56% of cases (2). The incidence of postvitrectomy SO as reported in a survey of 34 surgeons who performed pars plana vitrectomy (PPV) was 0.06% of 14,195 eyes (10,000 of which were estimated to have been done in eyes with no other penetrating wound). In one of these, the only operative procedure and penetrating wound was vitrectomy (an incidence of 0.01%) (1). More recently, a SO risk of 1 in 799 vitrectomies was calculated by Kilmartin et al (3).

The present report describes an unusual occurrence of SO in a patient following successful repair of rhegmatogenous retinal detachment with one primary PPV and intraocular gas tamponade without antecedent ocular injury.

Case report

A 50-year-old man with a refractive correction of –1.5 diopters in the right eye and –14 diopters in the left eye presented to the emergency room of King Abdulaziz University Hospital with a rhegmatogenous retinal detachment in his left amblyopic eye. There was no relevant past ocular history. Examination revealed visual acuity of 20/20 in the right eye and hand motions in the left eye. Intraocular pressure was 12 mm Hg in right eye and 6 mm Hg in left eye. Slit-lamp biomicroscopy was normal in both

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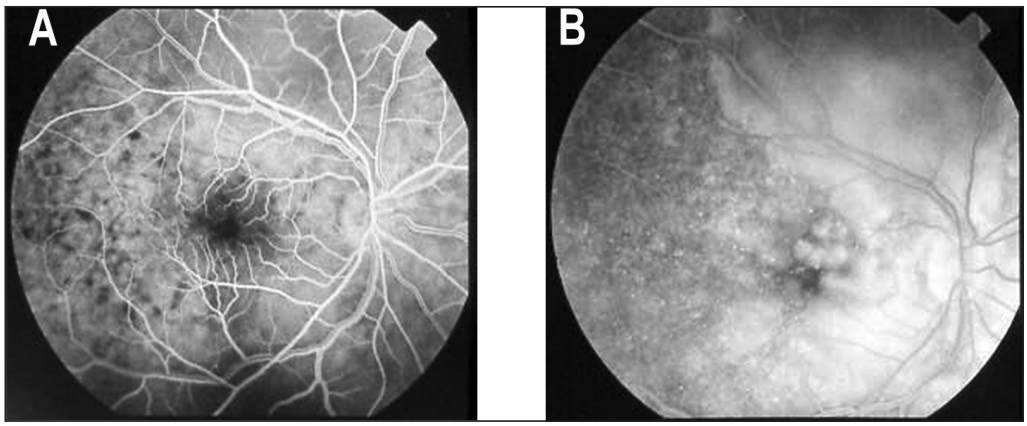

Fig. 1 - *Right eye. Fluorescein angiogram, early venous phase, shows multiple hypofluorescent areas, multiple pinpoint leaks, and optic nerve head leakage* (**A**)*. The late phase shows dye pooling in subretinal fluid, and staining of the optic nerve head* (**B**)*.*

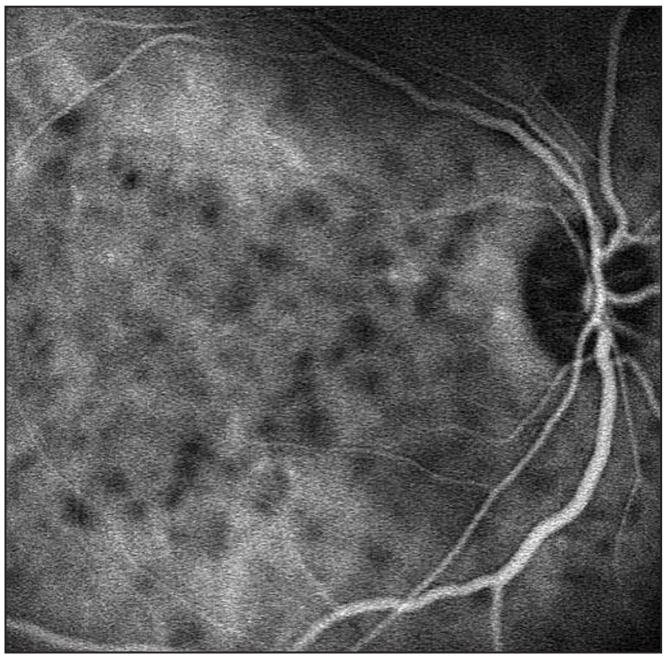

Fig. 2 - *Right eye. Indocyanine green angiogram, intermediate phase, shows numerous hypofluorescent spots in the posterior pole.*

eyes. Fundus examination showed normal findings in the right eye and a bullous macula off rhegmatogenous retinal detachment due to three flap tears. Three days after presentation, the patient underwent placement of a 2.5 mm wide solid silicone encircling band, PPV, injection of perfluorocarbon liquid, indirect ophthalmoscope laser photocoagulation, air-fluid exchange, and 25% sulfur hexafluoride vitreous flush. The patient was nursed in the face-down position after surgery. The postoperative course was routine and the retina was reattached and 3 weeks after surgery, his vision improved to 20/200. Five weeks after surgery, he presented to the emergency room complaining of a 3-day history of decreased vision in both eyes. Vision was 20/60 in the right eye and hand motions in the left eye. Both eyes had 1+ flare and cells in the anterior chamber. The vitreous was clear in the right eye and there was 2+ vitreous haze in the left eye. Retinal examination of both eyes showed hyperemic discs and multifocal exudative retinal detachments at the posterior pole. There were yellow-white lesions at the level of the retinal pigment epithelium at the posterior pole in the right eye.

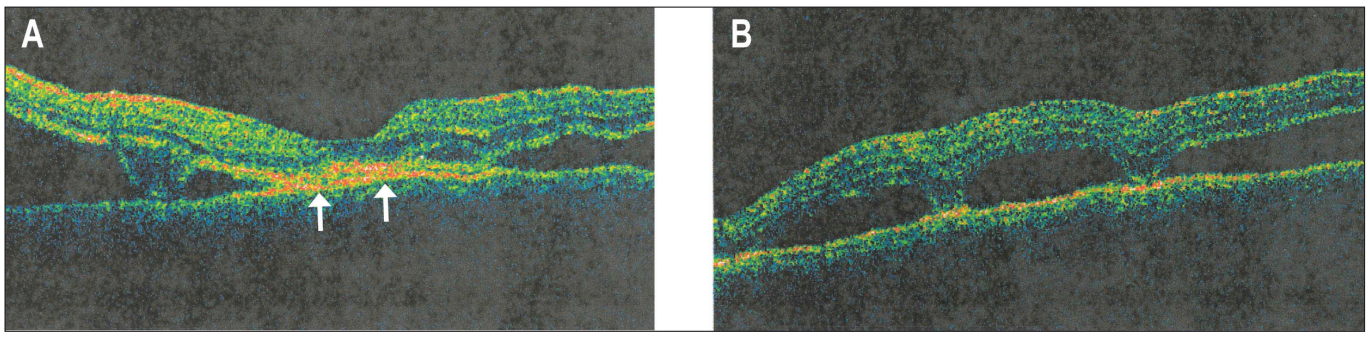

Fig. 3 - *Optical coherence tomography of the right eye* (**A**) *and left eye* (**B**) *shows the presence of multifocal exudative retinal detachments, and hyperreflective areas at the level of the retinal pigment epithelium (arrows).*

Fluorescein angiography revealed multiple hypofluorescent areas and multiple pinpoint leaks at the level of the retinal pigment epithelium during the early phases with late pooling of dye in subretinal fluid. The optic nerve heads showed leakage and stained in the later stages of angiography (Fig. 1). Indocyanine green angiography showed multiple hypofluorescent spots at the posterior pole in the early and intermediate phases (Fig. 2) that became isofluorescent in the late phases. Optical coherence tomography confirmed the presence of bilateral multifocal exudative retinal detachments in addition to the presence of multiple hyperreflective areas at the level of the retinal pigment epithelium (Fig. 3). The clinical diagnosis was SO following PPV. The patient was immediately treated with intravenous methylprednisolone 1 g daily for 3 days followed by oral prednisone 1 mg/Kg/day, and cyclosporin A 5 mg/Kg/day. Two weeks after the start of treatment, visual acuity improved to 20/30 in the right eye and 20/200 in the left eye. The exudative retinal detachments resolved in both eyes, confirmed using optical coherence tomography, and pigmentary changes were noted in the macula of both eyes. The patient had all medications tapered and 6 months after the start of treatment, visual acuity was 20/30 in the right eye and 20/100 in the left eye.

DISCUSSION

SO following vitrectomy has been reported previously (1, 4). However, all of the previously reported cases had vitrectomies following penetrating trauma, had prior ocular surgery, or had repeated vitreoretinal surgery. Gass (1) suggested that vitrectomy alone in the absence of other penetrating ocular wounds poses no greater risk of SO than other surgical operations. The risk of SO increases, however, when vitrectomy is used in eyes exposed to other penetrating accidental or surgical wounds. It is possible that the previous accidental trauma or surgical procedure was responsible for the initiation of SO in these cases. Therefore, SO could not be attributed unequivocally to vitrectomy in most of these cases. In the present case, there was no history of accidental or surgical trauma, the patient had one PPV procedure to repair rhegmatogenous retinal detachment, and there was no incarcerated uveal tissue in the surgical wound. Thus the present case showed that PPV alone may induce or initiate the development of SO. The immunogenic risks of PPV are likely to be due to increased retinal manipulation and breakdown of the blood-retinal barrier, with release of previously sequestered retinal antigens, and possibly subclinical uveal incarceration at wound site (3).

In the present case, SO was confined largely to the posterior uveal tract. The patient primarily exhibited posterior signs of SO including bilateral multifocal exudative retinal detachments, yellow-white lesions at the level of the retinal pigment epithelium, and hyperemia and edema of the optic disc. The anterior segment findings were minimal. The fluorescein angiogram showed multiple hypofluorescent areas during the early phases that stained during the late phases and early multiple pinpoint leaks at the level of retinal pigment epithelium with late pooling of dye in subretinal fluid. Indocyanine green angiography revealed multifocal hypofluorescent spots in the early and intermediate phases that became isofluorescent at the late phase. The hypofluorescence noted on fluorescein angiography and indocyanine green angiography might be caused by focal choroidal granulomas causing obliteration of the choriocapillaris. Optical coherence tomography confirmed the presence of multifocal exudative retinal detachments and additionally revealed the presence of multiple hyperreflective areas at the level of the retinal pigment epithelium. These hyperreflective lesions may indicate inflammatory tissue and inflammatory cells, as subretinal pigment epithelium collections of inflammatory cells (Dalen-Fuchs nodules) are characteristic histopathologic findings in SO (5, 6). In addition, focal hyperplasia and aggregation of retinal pigment epithelial cells were described in SO (6).

The present case demonstrates that not all exciting eyes are “lost eyes” as commonly believed. The retina was successfully reattached following PPV and intraocular gas tamponade, but SO developed and resulted in bilateral multifocal exudative retinal detachments. Prompt and effective management with systemic immunosuppressive agents permitted control of the disease and retention of good visual acuity in both eyes. The patient achieved visual acuity of 20/30 in the sympathizing eye and 20/100 in the exciting eye. Several studies reported that prompt and adequate systemic immunosuppressive therapy with systemic steroids and steroid-sparing agents such as cyclosporin A and azathioprine has improved the prognosis (2, 7, 8).

In conclusion, we present a patient who developed SO following successful repair of rhegmatogenous retinal detachment with one PPV without a history of trauma. This case report demonstrates that PPV should be viewed as a

possible inciting event for SO. Furthermore, successful vitrectomy does not preclude the development of SO. Uveitis following vitrectomy should alert the surgeon to the possibility of the development of SO.

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