Figure 3 (a) Fundus photograph of the right eye showing persistence of resolved periphlebitis. (b) Fundus fluorescein angiogram of the right eye showing a regressed neovascularization in the inferonasal quadrant.

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Sir,

Acute postoperative *Morganella morganii* panophthalmitis

Endophthalmitis is an uncommon but serious complication of intraocular surgery, often resulting in severe visual loss.¹ The endophthalmitis may progress to panophthalmitis if medical or surgical therapy cannot control the infection.

Strains of the *Morganella* genus are a rare cause of panophthalmitis following trauma and cataract surgery.² We describe a patient who developed fulminant *Morganella morganii* panophthalmitis following vitrectomy with resultant loss of vision. To our knowledge, this is the first reported case of *M. morganii* panophthalmitis.

Case report

A 46-year-old Taiwanese male had sudden loss of vision in right eye for a day due to vitreous haemorrhage. On day 1 after pars plana vitrectomy, the fundus was visible and the retina was well attached. Unfortunately, his visual acuity decreased to no light perception, and severe ocular pain with eyelid swelling developed rapidly within 2 days after the operation. He was transferred to our hospital on day 4. On presentation, the patient eyelid appeared to be severely swollen and haemorrhagic chemosis was noted. Mucopurulent pus exuded from the right eye. Acute postoperative panophthalmitis was diagnosed. Haemogram revealed leukocytosis (16700/ μ l) with neutrophils predominant by 80.9%. Pars plana vitrectomy with anterior chamber irrigation and

intravitreal delivery of vancomycin and ceftazidime was performed on day 5. Profuse pus was noted during the operation. Vitreous specimens were obtained for smear and culture. Intravitreal injections of vancomycin (1 mg/0.1 ml) and ceftazidime (2 mg/0.1 ml) and subconjunctival injections of vancomycin (50 mg/0.5 cm³) and ceftazidime (125 mg/0.5 cm³) were given at the end of the operation. Diffuse retinal whitening and hyperemic disc were noted intraoperatively.

The patient's postoperative treatment regimen consisted of: (1) subconjunctival vancomycin (50 mg/0.5 cm³) and ceftazidime (125 mg/0.5 cm³) every other day (2) intravenous cefazolin (1 g every 8 h) and gentamicin (80 mg every 12 h) and (3) topical fortified vancomycin (50 mg/cm³) and ceftazidime (50 mg/cm³) every 1 h.

However, his eye became more inflamed with mucopurulent discharge, and the ophthalmic examination was difficult to perform due to severe periorbital swelling (Figure 1). Gram stain of vitreous specimens revealed numerous Gram negative rods (Figure 2), and culture of the anterior chamber aspirates and vitreous specimens grew many *Morganella morganii* colonies that were resistant to ampicillin and cefazolin using the disk diffusion method. The extraocular extension was noted by computed tomography. The systemic antibiotic was then shifted to intravenous ceftriaxone (2 g every 12 h) 1 week after operation. Periorbital swelling with mucopurulent discharge decreased dramatically after intravenous ceftriaxone use. His eye appeared quiet after a 2-week course of systemic and topical antibiotics with third-generation cephalosporin. Unfortunately, the patient did not regain any vision despite this aggressive treatment.

Figure 1 The external eye of the patient. The conjunctiva was haemorrhagic and necrotic with mucopurulent greenish pus discharge. The cornea was oedematous and opacified.

Figure 2 The Gram stain of vitreous specimens shows numerous Gram negative bacilli.

Comment

M. morganii is a Gram negative bacillus that belongs to the Enterobacteriaceae family. Within the Enterobacteriaceae, the genus *Morganella* is one member of the tribe Proteaeae, which includes also the genera *Proteus* and *Providencia*.³ *M. morganii* is highly resistant bacillus susceptible only to β -lactamase inhibitors. Strains are often resistant to first-generation cephalosporins.³ *M. morganii* is a rare but usually devastating cause of postoperative endophthalmitis.^{4,5}

In our patient, the clinical picture was fulminating. Even though the early intervention was performed, panophthalmitis with extraocular extension still developed rapidly. The inflammation did not subside even with aggressive treatment till the third-generation cephalosporin was given intravenously.

To our knowledge, this is the first reported case of *M. morganii* panophthalmitis. *M. morganii* is a rare aetiological infectious agent. Very early intensive treatment including systemic antibiotic therapy with the third-generation cephalosporin is the most important factor in the possible success of avoiding an eye with *M. morganii* panophthalmitis from evisceration/enucleation.

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Sir,
Tadalafil-associated anterior ischaemic optic neuropathy

Tadalafil (Cialis) is a potent phosphodiesterase-type-5-inhibitor, which has been shown to be effective in the treatment of erectile dysfunction in men. It shares its mechanism of action with sildenafil (Viagra). In concurrence with recent reports of nonarteritic anterior ischaemic optic neuropathy (NAION) associated with the use of sildenafil, we describe a previously undocumented occurrence of NAION following the use of the more recently licensed and longer acting drug tadalafil, in the absence of any known systemic or local risk factors.

Case report

A healthy, nonsmoking 59-year-old man with no known vasculopathic risk factors was prescribed tadalafil for the treatment of erectile dysfunction following a radical prostatectomy for adenocarcinoma of the prostate. Within 7 days of ingesting 20 mg of tadalafil, he began to experience a generalised headache and blurring of vision associated with 'blue areas' and flashing lights in the visual field of the left eye. It is unknown whether or not an erection occurred or if he participated in sexual intercourse.

Ophthalmology examination 3 weeks later revealed snellen visual acuity of 6/6 and 6/9 in the right and left eye, respectively, with decreased left colour vision on Ishihara testing. There was a left relative afferent pupillary defect. Static perimetry revealed a global reduction in the left eye (Figure 1). Dilated fundoscopy showed a swollen left optic disc with an otherwise normal retina, consistent with ischaemic optic neuropathy (Figure 2). The right eye had a healthy retina and optic nerve head (ONH), with normal cup–disc ratio. The remainder of the ophthalmic examination was unremarkable. There were no symptoms or signs of temporal arteritis and an ESR was 7 mm. Fundus fluorescein angiography confirmed the diagnosis of left anterior ischaemic optic neuropathy (Figure 3). Blood pressure (BP) measured 122/70 mmHg, and in view of the absence of any vascular risk factors, further investigations such as 24-h BP monitoring were not performed.

Ophthalmic examination 4 months after presentation revealed pallor of the left ONH with persistent global reduction of sensitivity of the left visual field.

Comment

Six of the seven recent reports of sildenafil-associated anterior ischaemic optic neuropathy (AION) have occurred in patients with anatomically vulnerable optic discs with or without vasculopathic risk factors.^{1–3} Our patient had no underlying risk factors for AION, and is the first documented report of such a case associated with the use of tadalafil.

Penile erection during sexual stimulation involves the local release of nitric oxide (NO) in the corpus cavernosum, which stimulates the synthesis of cyclic guanosine monophosphate (cGMP), thus producing relaxation of smooth muscle in the corpus cavernosum and penile arteries, therefore increasing penile blood flow. Tadalafil enhances the effect of NO by inhibiting phosphodiesterase type 5 (PDE 5), which is responsible for the degradation of cGMP in the corpus cavernosum. The subsequent increased levels of cGMP results in enhanced erectile function. Both tadalafil and sildenafil exert their effects by this mechanism; however, the former has a significantly longer duration of action, effective for up to 36 h.⁴ When compared to sildenafil, tadalafil also exhibits a 70-fold greater selectivity for PDE5 than for PDE6 (responsible for retinal phototransduction), possibly accounting for its documented lower incidence of transient changes in perception of colour.^{5,6}

NAION is known to occur typically in patients with small vessel occlusive cerebrovascular disease, including hypertension, diabetes mellitus, raised cholesterol or