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# Sir,

# 'Hyperacute' unilateral anterior uveitis and secondary glaucoma following streptokinase infusion

Streptokinase is a thrombolytic agent that has been used since 1970 in the United Kingdom in acute myocardial infarction. It is used usually only once in an individual patient due to the risk of anergy. Uveitis is a rare complication of its use. We report the following case of non-granulomatous uveitis and secondary glaucoma 12 h after streptokinase infusion.

### Case report

A 72-year-old man was admitted with central chest pain associated with nausea and vomiting. His electrocardiogram suggested a myocardial infarction. He therefore received an infusion of 1 500 000 units of streptokinase. Twelve hours later he developed a painful left eye associated with severely reduced vision.

Initial examination was carried out with a direct ophthalmoscope at the bedside. Intraocular pressure was measured with a Tonopen. On examination, his visual acuity with reading spectacles was N5 with the right and counting fingers at 30 cm with the left eye. His right eye was unremarkable and his left eye showed marked conjunctival injection and corneal oedema. Intraocular pressure was 16 mmHg in the right eye and 49 mmHg in the left. There was a vague red reflex but no detailed fundal examination was possible. A presumptive diagnosis of acute angle closure glaucoma was made and he was prescribed oral acetazolamide (250 mg q.d.s.) and prednisolone 0.5% q.d.s. to the left eye.

He was reviewed 24 h later with a slit lamp. The intraocular pressure was 39 mmHg in the left eye. He had a severe non-granulomatous anterior uveitis with a 1 mm hypopyon (Fig. 1). Dilated fundoscopy showed no significant posterior segment pathology. Intensive topical prednisolone 1% and cyclopentolate 1% q.d.s. were commenced. By the next day his vision had improved and the intraocular pressure was 12 mmHg. Due to posterior synechiae formation, a subconjunctival injection of 4 mg of beclomethasone and one dose of Mydricaine No. 2 were administered.

There was no significant past medical history apart from an episode of pneumonia in childhood for which he had been hospitalised. Other possible causes of anterior uveitis were investigated (serum angiotensin converting enzyme, chest radiograph and full blood count were normal). Anti-streptolysin titre was in the normal range at < 200 IU/ml. Three months later, his left visual acuity was 6/9 unaided.



Fig. 1. Affected eye with hypopyon.

#### Comment

Drug-induced acute anterior uveitis is uncommon.<sup>1</sup> The pathogenesis is speculative in most cases.<sup>2</sup> There have been published cases in the literature of bilateral uveitis associated with streptokinase.<sup>3–5</sup> The Committee on Safety of Medicines database revealed 6 reported cases of iritis/uveitis (communication: 1/7/63-10/5/00).

Hypopyon formation is an indicator of severity and is most commonly associated with Behçet's or infectious endophthalmitis. Raised intraocular pressure is usually a late feature in uveitis, the mechanism of which is either related to steroid use or due to damage to the trabecular meshwork.

This case is unusual for several reasons. The patient had unilateral severe uveitis and secondary glaucoma within 12 h of streptokinase administration. The mechanism of anterior uveitis associated with streptokinase has been postulated to be an immune cross-reactivity similar to that described with serum sickness, which typically happens 1-2 weeks after administration of the agent.<sup>5</sup> In contrast to one case report,<sup>5</sup> the patient had no signs of vasculitis and the onset of signs and symptoms was very rapid. Acute anterior uveitis has been described also with trimethoprim-sulphamethoxazole administration, where anterior uveitis recurred within 24 h of reinstitution of therapy.<sup>6</sup> One possible explanation for the rapidity and severity of onset of uveitis in the current case is previous exposure to streptococcal antigen. No other possible cause was uncovered and our patient has no further problems.

We would therefore suggest that, although uncommon, a streptokinase-associated uveitis should be considered by the ophthalmologist in a patient with a recent history of a treated myocardial infarct and a red eye.

#### References

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#### Sir,

Severe ocular injury associated with airbag inflation The introduction of airbags in the wider market during the previous decade was followed by a series of publications of ocular injuries associated with their inflation. The commonest type of trauma reported is injury to the anterior segment of the eye, which usually resolves without sequelae.<sup>1–3</sup> Vision-threatening injuries are relatively rare and include corneoscleral laceration, retinal detachment, retinal dialysis and lens dislocation.<sup>4–6</sup> We report a patient who sustained a severe ocular injury, including choroidal rupture, associated with the inflation of an airbag during a car accident.

## Case report

A 77-year-old woman front-seat passenger was involved in a front near-side collision at about 25 mph. She was restrained by a three-point shoulder-lap seat belt when the passenger-side airbag inflated. The patient presented with blurred vision in the left eye. Examination revealed visual acuity of 6/24 in the right eye and perception of light in the left eye. There was no evidence of ocular injury in the right eye. Visual acuity was reduced to 6/24 due to senile cortical cataract.

Examination of the left eye showed periorbital oedema and a partial-thickness lid laceration parallel to the lid margin. There was conjunctival chemosis, corneal oedema, hyphaema and multiple iris sphincter tears. Cortical lens opacities, similar to those seen in the right eye, were also noted. A dense vitreous haemorrhage precluded fundal examination. An ultrasound scan revealed an intact global and flat retina. The lid laceration was sutured and the patient was treated with topical steroids and mydriatics.

Over the ensuing 6 weeks the hyphaema and the vitreous haemorrhage in the left eye cleared and the visual acuity improved to 6/18 (Fig. 1). However, the intraocular pressure rose to 32 mmHg and a hypotensive agent was added to the treatment. Gonioscopy did not show any angle recession. Fundus examination showed a choroidal rupture surrounded by retinal haemorrhage in the inferior temporal periphery. Three months later the vision in the left eye deteriorated to hand movements due to rapid progression of cataract.



**Fig. 1.** Posterior synechiae, iris sphincter tears and cataract associated with airbag injury.

#### Comment

Airbags, together with seatbelts, have proved to be effective in reducing mortality and morbidity associated with road traffic accidents.<sup>7</sup> Airbags were introduced as a method of reducing the consequences of frontal and front angle collision, which account for more than 50% of motor vehicle accidents involving serious injuries and fatalities. Airbags work like cushions, preventing violent whiplash motion of the head in a frontal crash and resulting in a more controlled deceleration of the brain. They also attenuate wrenching forces exerted on the cervical spine and protect car occupants from contact with sharp surfaces inside the car such as the windscreen, steering wheel, instrument panel and mirrors.

Factors influencing the type of ocular injury associated with inflation of airbags include the orientation of the occupant's head at the time of impact, its height and the degree of the explosive force of the inflating airbag, which ranges from 113 to 254 mph.<sup>7,8</sup> Wearing of spectacles is another risk factor for serious ocular injury leading to permanent visual loss.<sup>9</sup>

Our case demonstrates that severe ocular injury can occur during a low-speed front-angle car crash in the presence of a fastened three-point shoulder-lap belt and deployed airbag. A complete ophthalmological examination is indicated in all patients who present with airbag-associated ocular trauma because the injury may be more serious than it initially appears. It is important that airbag-associated ocular injuries are monitored and reported. Car manufacturers should continue research on design and deployment of airbags so that the risk of ocular injury is minimised without compromising their life-saving features.

#### References

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