

4. Gray MY, Lazarus JH. Iritis after treatment with streptokinase. *BMJ* 1994;309:97.
5. Proctor BD, Murray PG, Joondeph BC. Bilateral anterior uveitis: a feature of streptokinase-induced serum sickness. *N Engl J Med* 1994;330:576-7.
6. Tilden ME, Rosenbaum JT, Fraunfelder FT. Systemic sulfonamides as a cause of bilateral anterior uveitis. *Arch Ophthalmol* 1991;109:67-9.

Désirée Ah Kiné ✉
 Wendy Adams
 Department of Ophthalmology
 Royal Victoria Infirmary
 Queen Victoria Road
 Newcastle Upon Tyne NE1 4LP, UK

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.¹⁻³ Vision-threatening injuries are relatively rare and include corneoscleral laceration, retinal detachment, retinal dialysis and lens dislocation.⁴⁻⁶ 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.

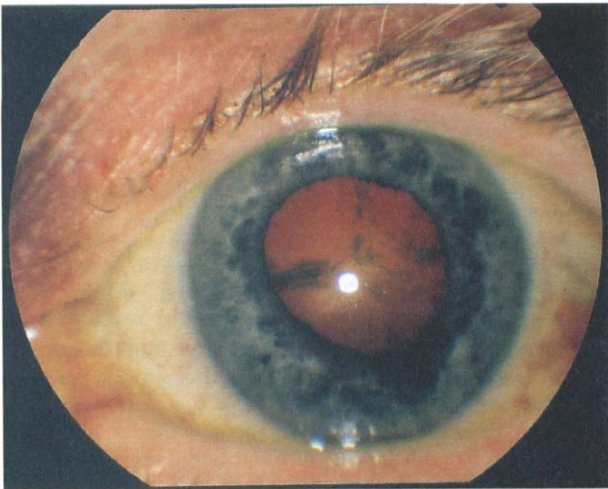


Fig. 1. Posterior synechiae, iris sphincter tears and cataract associated with airbag injury.

Comment

Airbags, together with seatbelts, have proved to be effective in reducing mortality and morbidity associated with road traffic accidents.⁷ 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.^{7,8} Wearing of spectacles is another risk factor for serious ocular injury leading to permanent visual loss.⁹

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


1. Ingraham HJ, Perry HD, Donnenfeld ED. Air-bag keratitis. *N Engl J Med* 1991;324:1599-600.
2. Lueder GT. Air bag-associated ocular trauma in children. *Ophthalmology* 2000;107:1472-5.

3. Leshner MP, Durrie DS, Stiles MC. Corneal edema, hyphema, and angle recession after airbag inflation. *Arch Ophthalmol* 1993;111:1320-2.
4. Baker RS, Flowers CW Jr, Singh P, Smith A, Casey R. Corneoscleral laceration caused by air-bag trauma. *Am J Ophthalmol* 1996;121:709-11.
5. Han DP. Retinal detachment caused by airbag injury. *Arch Ophthalmol* 1993;111:1317-8.
6. Ghafouri A, Burgess SK, Hrdlicka ZK, Zagelbaum BM. Air bag-related ocular trauma. *Am J Emerg Med* 1997;15:389-92.
7. Jagger J, Vernberg D, Jane JA. Airbags: reducing the toll of brain trauma. *Neurosurgery* 1987;20:815-7.
8. Schreck RM, Rouhana SW, Santrock J, D'Arcy JB, Wooley RG, Bender H, *et al.* Physical and chemical characterization of airbag effluents. *J Trauma* 1995;38:528-32.
9. Vichnin MC, Jaeger EA, Gault JA, Jeffers JB. Ocular injuries related to air bag inflation. *Ophthalmic Surg Lasers* 1995;26:542-8.

M.S. Lim

P. Stavrou

Birmingham & Midland Eye Centre
Birmingham, UK

Mrs P. Stavrou, FRCS Ed 

Birmingham & Midland Eye Centre
City Hospital NHS Trust
Birmingham B18 7QU, UK

Tel: +44 (0)121 554 3801

Fax: +44 (0)121 5076853

e-mail: panagiotastavrou@hotmail.com

Sir,

An interesting case of ligneous conjunctivitis

Ligneous conjunctivitis is a rare, idiopathic pseudomembranous conjunctivitis characterised by 'woody' tarsal lesions sometimes concurrent with corneal or mucosal involvement. Onset is usually in childhood with a chronic relapsing course. Different treatment modalities are available with variable outcome in terms of success and response. We present a case of ligneous conjunctivitis which seems to have resolved spontaneously.

Case report

A 20-year-old Asian man presented with sore eyes and painful ulceration of the lower lips. The onset was fairly sudden with no specific trigger. He also reported that his asthma had recently recurred. Ocular examination at presentation revealed firm pseudomembranous lesions bilaterally on the upper and lower tarsal conjunctiva with no corneal or other ocular involvement. He also had lower lip ulcerations with a clear buccal cavity and oropharynx (Fig. 1). There was no genital involvement.

Attempts to remove the lesions resulted in breakage and bleeding. He had been given chloramphenicol ointment and co-amoxiclav 375 mg t.d.s. by his general practitioner prior to presentation for up to a week with no effect.

He had no past ocular history, but in his past medical history he had childhood asthma and ear problems, having had bilateral otitis media and a right-sided glue ear where a polypoidal tympanic lesion was excised. The histological appearance of this polyp was of acutely

inflamed, oedematous inflammatory granulation tissue on a background of chronically inflamed infiltrate. These problems were present between the ages of 8 and 10 years and he had had no problems since that time.

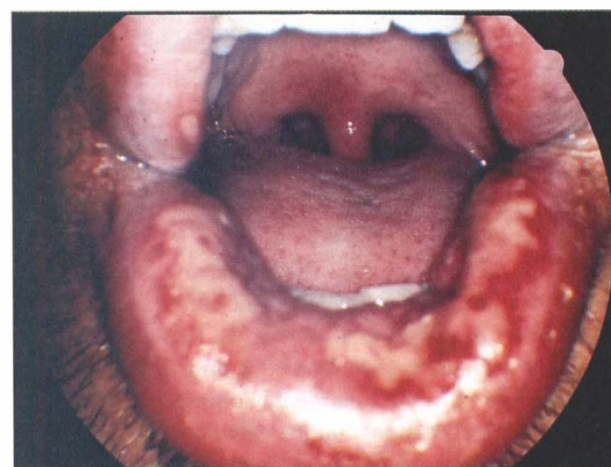
A conjunctival biopsy taken at the slit-lamp showed pseudomembranous pathology with a mainly inflammatory exudate of fibrin, acute inflammatory cells and enmeshed conjunctival epithelial cells. Occasional calcified bodies resembling psammoma bodies were present. Bacterial stains and cultures, viral cultures and chlamydial immunoassay were all negative. Blood tests, including his white cell count and plasminogen level/plasminogen activity assay, were normal.

A diagnosis of ligneous/pseudomembranous conjunctivitis was made based on the clinical and histological appearance. His planned management was for surgical excision of the pseudomembrane. This was to be followed by topical heparin (5000 units/ml) and preservative-free prednisolone 1% for up to a week and then tapered, to prevent reformation of the pseudomembrane.

In this case, before planned surgery was done (13 days following initial presentation), the lesions had almost fully resolved (Fig. 2). To date, he has not had a further relapse and the tarsal conjunctiva has healed with minimal residual scarring.



(a)



(b)

Fig. 1. Photographs showing (a) the pseudomembranous lesion in the upper tarsal plate and (b) the lower lip ulcerations.