Passenger side airbag ocular injury while wearing sunglasses

EDITOR,—There is overwhelming evidence that airbags save lives and reduce morbidity in front and front angle motor vehicle collisions.¹ All previously published reports describe driver's side airbag ocular and periocular morbidity.² This report documents the first case of passenger side airbag deployment with ocular injury despite glass sunglasses and three point lap-shoulder seatbelt use.

CASE REPORT

A 20-year-old man with a three point lap-shoulder seatbelt in position was wearing plano glass sunglasses when he was a passenger in a 1993 Mazda MX6 travelling at 56 km/h (35 mph) which was involved in a right front angle accident. The car he was in hit the right rear of the other vehicle which was travelling at 16 km/h (10 mph). The passenger side airbag deployed, and the sunglasses were flattened on his face but did not break. The driver of the Mazda had a three point lap-shoulder seatbelt in position. The driver's side airbag deployed uneventfully, and he was uninjured, as was the other car's driver.

The passenger was treated for skin abrasions and bilateral corneal abrasions in the emergency room. It was felt that the injuries were the result of powder from the deployed airbag, and the eyes were copiously irrigated, although there is no report of the pH in the emergency room records.

When seen the following day, visual acuity uncorrected was 20/60 on the right and 20/40 on the left. There was no change in the visual acuity with the use of the pinhole on the right. Visual acuity improved on the left with the pinhole to 20/25. There was frontal, right lower lid, tip of nose, cheeks, and chin abrasions (Fig 1). There was right upper lid ecchymoses with a left subconjunctival haemorrhage (Fig 1). The corneal examination revealed a wedge of minimal epithelial oedema and moderate stromal oedema

extending from the 2–4 o'clock limbus to the visual axis in both eyes, worse on the right than the left. There were no corneal epithelial defects. The rest of the examination was within normal limits bilaterally. All injuries resolved without residua.

COMMENT

Airbag related ocular injuries with driver's side, and now passenger side use, with three point lap-shoulder seat restraints are related to a combination of the airbag design, speed of activation, as well as the physical relation of the passenger to the deployed bag. This patient describes his seat as being all the way back to accommodate his large (6'2") (188 cm) frame. The corneal oedema may have been due to the direct effect of the alkali emitted by the deployment of the bag, but the emergency room report does not document a tear pH to confirm this. A more likely explanation of the facial abrasions is direct airbag excoriation, with the corneal oedema being due to the shock wave of the bag hitting the sunglasses on partially closed eyelids in the 10 milliseconds it takes to inflate the bag. Corneal endothelial cell loss has been correlated with the inflating power of the airbag when impact studies were done with five different types of airbags on whole pig eyes fixed in a crash test dummy.³

Protective eyewear has been recommended to prevent or minimise ocular morbidity related to driver's side airbag activation.⁴ Polycarbonate glasses are indicated to protect the eye and orbit from deployed airbags.

The 1995 model year Saturn car incorporates a 'black box' in front of the centre console on the passenger side to monitor the operation of its airbags in a collision. This airbag black box is not the same as that used in commercial aircraft. Through its electronics, speed of the car before and at impact, as well as faulty airbag activation, and deployment can be determined.

Airbag sensors are being developed which inflate the bag according to the size, weight, and seating position of the driver and passenger. They could determine if the passenger is close to the dashboard or reclining all the way back, and inflate accordingly. TRW, Delco Electronics, Bosch, Siemens Automotive, and others are developing airbags which use seat cushion and dashboard sensors to determine how much nitrogen gas should inflate an airbag upon impact and how much tension should be placed on the seatbelt. Airbags may also be supplied with transmitters to send radio signals to emergency personnel as soon as the airbag is deployed.

With information such as this, further refinements in airbag activation, deployment, and design should be possible to prevent ocular morbidity with both driver's side and passenger side airbags used in conjunction with three point lap-shoulder restraints.

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Accepted for publication 5 December 1994

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Symmetrical lymphomatoid papulosis masquerading as pyoderma chancriformis of the eyelids

EDITOR,—Lymphomatoid papulosis is a rare skin condition characterised by crops of papulonodular or papulonecrotic lesions. By contrast, pyoderma chancriformis is typified by lesions on the eyelid, also featuring necrotic ulcers. We report a 19-year-old woman with an unusual presentation of lymphomatoid papulosis, which led to an erroneous initial diagnosis of pyoderma chancriformis.

CASE REPORT

A 19-year-old white female presented with painless ulcers of the eyelids. Five weeks before presentation, she developed papular lesions in the left preauricular region and on the inner aspect of the left upper arm, which subsequently became necrotic. For the 10 days before presentation, these were treated with flucloxacillin 250 mg four times a day. On the same day an erythematous papulonecrotic lesion appeared on the left medial canthus; a similar lesion appeared 2 days later on the right medial canthus. There was no subsequent improvement, and she was referred.

Examination revealed bilateral, indurated, non-tender, shallow ulcers of the medial canthi (Fig 1), a lesion in the left preauricular region (Fig 2), and four similar lesions on the arm. No regional lymphadenopathy was detected.

Figure 1 Patient with bilateral papulonecrotic ulcers of both medial canthi, each of 5 mm diameter. The edges were smooth and raised, and the bases covered with serous exudate and necrotic slough. Minimal surrounding erythema was noted.

Figure 2 Crusting papular lesion of 10 mm diameter in preauricular region.

Figure 1 Forehead, tip of nose, right lower lid, cheeks, and chin abrasions from passenger side airbag deployment. Left subconjunctival haemorrhage is also seen.

Figure 3 The biopsy shows the edge of a necrotic lesion with a moderately dense superficial and deep mononuclear infiltrate present interstitially and within pilosebaceous structures. (Haematoxylin and eosin, magnification $\times 10$.) Although present perivascularly the infiltrate is particularly targeted on pilosebaceous structures with involved follicles showing partial or complete destruction. Many of the cells invading the follicles are large, atypical, and contain hyperchromatic nuclei. Several of the partially disrupted follicles contain cystic spaces which stain positive for mucin.

Staphylococcus aureus was isolated from the preauricular lesion only. Mycobacterial and viral cultures, and syphilis serology were negative. A full blood count was normal, and random blood glucose was 3.6 mmol/l.

A diagnosis of pyoderma gangrenosum was made, and flucloxacillin continued for a further 2 weeks.

The lesions healed in 4 weeks, leaving flat, mildly atrophic scars. Six weeks after the initial presentation, four further papulonecrotic lesions appeared; in the left preauricular region, on the right side of the neck, and on both medial canthi. These were biopsied. At 4, 9, and 11 months after presentation, there were recurrences of self healing multiple necrotic papules. A further biopsy was performed at 4 months.

The histology at 6 weeks was not diagnostic of pyoderma gangrenosum; this biopsy was, however, performed on a healing lesion. From the second biopsy a diagnosis of lymphomatoid papulosis was made (Figs 3 and 4). High dose tetracycline, 1 g twice daily, seemed initially to reduce the number of recurrences and allow recurrent lesions to resolve more quickly. After 4 months, tetracycline lost any apparent effectiveness and low dose methotrexate, 2.5 mg weekly was introduced, with some benefit.

COMMENT

The ulcer of pyoderma gangrenosum is unusually shallow and solitary, non-tender, and resolves over 5–6 weeks to leave a small white scar. In Frain-Bell's review¹ 10 out of 21 cases involved the eyelids. Positive cultures for *Staphylococcus aureus* are usually obtained. All other investigations, including syphilis serology, are negative.

Lymphomatoid papulosis was first described by Macaulay as a chronic, recurrent, self healing, papulonodular or papulonecrotic eruption, 'histologically malignant but clinically benign'.² The lesions regress spontaneously over several weeks, but recur every few months. Investigations are essentially normal.³

Ten per cent of patients with lymphomatoid papulosis may develop a cutaneous or systemic lymphoma, including mycosis fungoides, Hodgkin's disease, lymphocytic lymphoma, large cell lymphoma, and lethal midline granuloma.⁴ There are no predictive markers for this progression. The presence of atypical cells against a setting of follicular mucinosis has until now been routinely associated with a cutaneous T cell lymphoma. So far the patient has exhibited self healing necrotic lesions only. Whether the presence of follicular mucinosis in this situation will turn out to be a poor prognostic sign remains to be seen.

The treatment of these patients is unsatisfactory. Steroids and antibiotics are ineffective. Complete, but often transient, remissions have been achieved with electron

beam therapy, combination chemotherapy, PUVA, and methotrexate.⁵ Long term follow up is mandatory.

Although four cases of follicular lymphomatoid papulosis have been reported,^{6,7} to our knowledge this is the first report of follicular mucinosis in lymphomatoid papulosis and the first report of bilateral symmetrical eyelid involvement as the presenting feature of this condition.

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Accepted for publication 5 December 1994

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Human papilloma virus DNA detected in case of inverted squamous papilloma of the lacrimal sac

EDITOR,—We present the first known report in which an inverted squamous papilloma of the lacrimal sac was associated with human papilloma virus (HPV). While squamous papillomas of the nasal cavity and paranasal sinuses are not uncommon, an inverted squamous papilloma that originates in the epithelium of the lacrimal sac is rare. Inverted papillomas of the lacrimal sac often reveal areas of invasive acanthosis of surface epithelium into the underlying stroma and show foci of carcinoma or foci that develop into carcinoma.¹ We present a young patient with inverted squamous papilloma of the lacrimal sac in whom we identified HPV antigen and DNA within the dysplastic lesion.

CASE REPORT

A 26-year-old Japanese woman who had noticed 15 months earlier a painless swelling of the left lower eyelid that gradually increased in size was admitted to our clinic. She presented with a medial canthal mass associated with epiphora and discharge. Magnetic resonance imaging (MRI) revealed a lobular tumour that totally filled the lumen of the left lacrimal sac (Fig 1). On 9 July 1993, the tumour was resected under general anaesthesia. The solid tumour found within the lacrimal sac appeared to be continuous with the nasal cavity, preventing its total removal from the bony tract of the nasolacrimal duct. Postoperative MRI examination 2 months later showed no residual tumour within the nasolacrimal duct. Macroscopically, the tumour showed a lobular pattern and was surrounded totally by the

Figure 4 A higher power view of one area of Figure 3 showing atypical mononuclear cells infiltrating both pilosebaceous appendages and mucinous change present in the right hand appendage. Typically in lymphomatoid papulosis the histology suggests a malignant lymphoma; a dense lymphocytic dermal infiltrate, featuring frequent abnormal mitoses. Binucleate cells resembling Reed-Sternberg cells are found in type A, while type B lesions are characterised by smaller atypical monocytes resembling those seen in mycosis fungoides, with fewer granulocytes. This case demonstrates the follicular variant of type B lymphomatoid papulosis.