Discussion

The Caper Spurge (*Euphorbia lathyris*) is a glabrous biennial garden plant (Fig. 2). It is prevalent in shady places in southern England but occurs throughout Europe, North America and Australia.[1]

The family Euphorbiaceae has over 2000 members, 21 of which are found quite commonly in the United Kingdom.[1] The family is named after Euphorbus, who was the physician to King Juba II of Mauritania in AD 18 and who discovered the therapeutic properties of a species growing in the Atlas mountains.[2] The latex of many members of the Spurge family is known to be highly irritant, the active constituents being diterpene esters.[3]

Caper Spurge is one of this family whose latex and seed are known to contain skin irritant and cocarcinogenic factors. These are believed to be ingenol derivatives (a tetracyclic ester from the diterpene group).[4] Interestingly, latex extract from 2-year-old specimens has been found to be 5 times as active as that from first-year vegetation.[5] Geidel[6] reported a case of *Euphorbia lathyris* latex exposure leading to superficial keratitis, and proceeded by animal experiments to show that rabbits were not affected but guinea-pigs were.

Treatment remains largely empirical. The importance lies in making the initial diagnosis – achieved in all three cases described here by accurate history taking. Topical irrigation as with any chemical injury is felt to be of benefit even though very small quantities of irritant are likely to be present, followed by topical steroids to reduce the inflammatory response.

Figure 2 is reproduced with permission from *Drawings of British Plants* by Stella Ross Craig published by Bell and Hyman (an imprint of Harper Collins Publishers Limited). With thanks for their assistance to The Royal Horticultural Society, particularly Mr P. G. Barnes, Botanist.

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Sir,

A Severe, Antineutrophil Cytoplasmic Antibody Associated, Anterior Segment Vasculitis

A depressed 63-year-old woman was referred, on 31 August 1990, from another hospital, with a severe destructive anterior segment condition. This had gradually developed over the preceding 2 months. She reported that it had started after some fragments of plaster had hit her right eye while decorating. Initially small areas of corneal epithelial loss were noted and treated with chloramphenicol drops. They settled but after 2 weeks two small, mid-peripheral corneal ulcers developed. Methicillin and gentamicin drops were administered. A corneal scrape revealed no growth. The ulcers did not resolve and were thought possibly to be herpetic in origin and so acyclovir was added. Later extensive areas of conjunctival and corneal epithelial loss developed and the peripheral cornea thinned and perforated (Fig. 1). At this point the rest of the cornea was hazy with early deep vessel formation and there was symblepharon formation in the medial canthus. The patient was transferred to the Eye Hospital.

The initial impression was of a chemical injury complicated by toxicity from multiple therapies. The differential diagnosis included: a vasculitic process, mucous membrane pemphigoid, an infective process and artefacta. Investigations found the erythrocyte sedimentation rate (ESR) to be 40 mm/h and Gram-negative bacilli were isolated but not grown from a repeat corneal scrape. Histological investigation of a conjunctival biopsy did not reveal a specific diagnosis – only some epithelial hypertrophy. Results of serological tests, and immunological tests including antineutrophil cytoplasmic antibody (ANCA) were negative.

The perforation was sealed with glue. Preservative-free gentamicin and cefuroxime drops used and vitamin C added in view of the possibility of a previous alkali burn.

The epithelial defects initially healed rapidly but a corneal graft was required for the perforation. In November 1990 a large corneal epithelial defect developed, together with a corneal abscess and a hypopyon. Despite intensive topical antibiotics, steroids and 60 mg oral prednisolone regrafting was required. Eventually (20 December 1990) the eye had to be enucleated because of intractable pain and blindness. Histological investigation of the enucleated eye showed only non-specific inflammatory changes.

In March 1991 the previously uninvolved left eye began to develop recurrent areas of epithelial loss and eventually complete corneal epithelial loss and later peripheral thinning (Fig. 2). *Staphylococcus aureus* was cultured from a corneal scrape, from a small opacity, but appropriate antibiotic therapy did not improve the condition.

The peripheral thinning was suggestive of an anterior segment vasculitis,[1] and although systemic investigations failed to reveal a definitive diagnosis high-dose 'pulsed' immunosuppression was started using methylprednisolone (10 mg/kg) and cyclophosphamide (15 mg/kg) (Fig. 3). The eye improved considerably, leaving a small area of peripheral vascularised corneal thinning (Fig. 4). The course of treatment finished in November 1992.

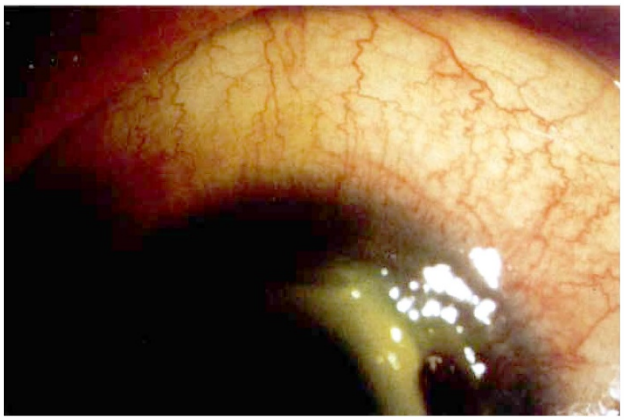

Fig. 1. *Right eye on presentation at the Eye Hospital, showing corneal and conjunctival epithelial loss, peripheral thinning, and perforation plugged by iris.*

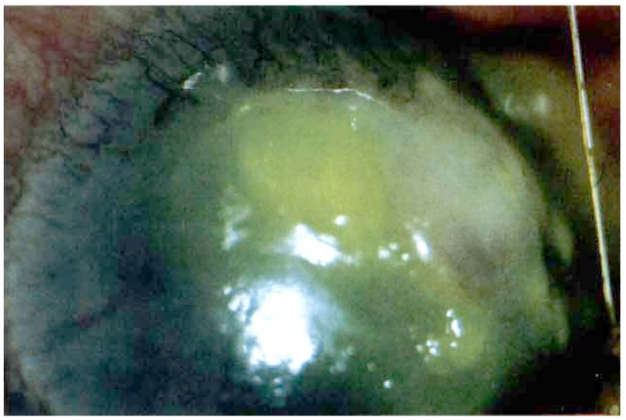

Fig. 2. *Left eye in April 1991, showing severe corneal epithelial loss, opacification, peripheral thinning and vascularisation.*

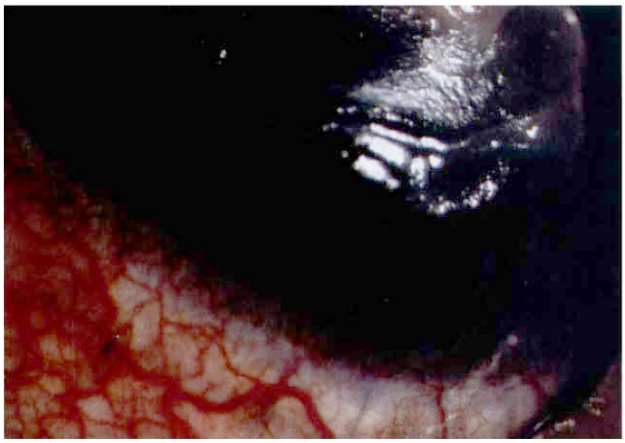

Fig. 3. *Left eye, showing peripheral thinning and vascularisation.*

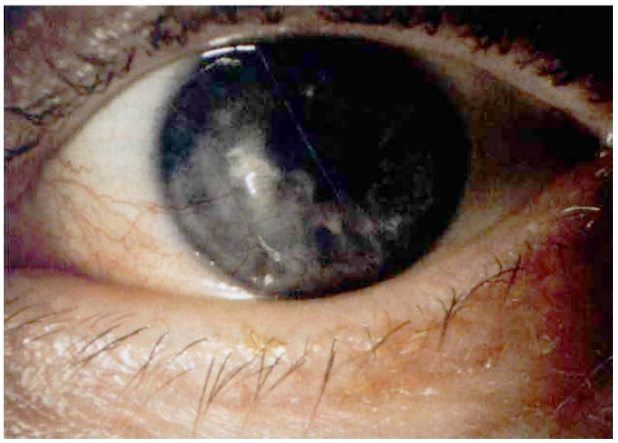

Fig. 4. *Left eye in 1993 after a course of 'pulsed' therapy.*

In June 1993 the patient had a further relapse and 'pulsed' immunosuppression was reintroduced. Micrococci were cultured from a corneal scrape. The condition has stabilised but has caused serious damage. The patient's vision is only counting fingers.

Investigations revealed a positive pANCA during 1992 when the disease was not active and the patient was still on immunosuppressive therapy. The only other positive findings were a slightly raised ESR and raised von Willebrand factor (vWF) (see Table I for immunological data). Systemic investigations, including chest and sinus radiographs, were always negative.

Comment

This patient has a severe destructive anterior segment condition which responded to immunosuppressive therapy. The underlying condition is uncertain.

A positive ANCA developed which might suggest a diagnosis of Wegener's granulomatosis.[2] Indeed in scleritis associated with Wegener's granulomatosis a positive

Table I. Duration of disease activity and 'pulsed' therapy correlated with results of microbiological culture and serological investigations (1990–3)

	31 Aug. 1990	10 Nov. 1990	19 Apr. 1991	21 June 1991	12 Sept. 1991	13 Mar. 1992	21 Aug. 1992	18 Dec. 1992	25 June 1993
vWF IU/dl (normal <200)				330	335	165	345	370	68
ANCA titre	–ve	–ve	–ve	–ve	–ve	**pANCA** 1:25	**pANCA** 1:400	–ve	–ve
ANA titre			–ve	–ve	–ve	1:400	1:40	1:40	1:100
CRP mg/l (normal <15)			<5	11	8	8	11	11	5
ESR (mm/h)	40		18	14	17	22	35	54	23
Microbiological results from corneal scrapes	Gram-negative bacilli		*Staphylococcus aureus*						Micrococci
Disease activity	←Right eye→		←——Left eye——→						←→
'Pulsed' therapy				←——————→					←→

vWF, von Willebrand Factor, ANCA, antineutrophil cytoplasmic antibody, ANA, antinuclear antibody; ESR, erythrocyte sedimentation rate; CRP, C reactive protein.

ANCA has been reported as being both sensitive and specific.[3] However, histological investigation, including that of the enucleated eye, did not show granulomas or vasculitis – only evidence of chronic inflammation. Limited presentations of Wegener's granulomatosis occur in which no other system is involved. ANCA testing has been felt to be very helpful in such cases in making the diagnosis.[4] In this case a positive pANCA was found, but not initially. A moderately raised vWF and ESR were found, indicating endothelial damage and suggesting a vasculitic process (Table I). ANCA titres have been shown to vary with disease state but not always in step with the disease.[5]

Positive ANCA serology is found in a spectrum of vasculitic diseases including polyarteritis nodosa, microscopic polyarteritis and Wegener's granulomatosis. Two main types are recognised: cANCA, which has a high positive predictive value for Wegener's granulomatosis; and pANCA, which is less specific but does suggest a vasculitis, as occurred in this case.[5] This case is interesting as it is an ANCA-positive anterior segment vasculitis which does not appear to be Wegener's granulomatosis. The term Wegener's vasculitis has been used in pulmonary conditions in which granulomas are not found.[5] Perhaps this case could be labelled as limited Wegener's vasculitis. In such cases serial serological titres may help elucidate the diagnosis.

'Pulsed' immunosuppression has been shown to be effective in treating anterior segment disease.[6] A confident diagnosis of the underlying condition is preferred before the initiation of long-term immunosuppressive therapy but, as our case demonstrates, treatment may need to be started in its absence.[2] Relapses of Wegener's granulomatosis have been associated with infections.[7] In each relapse, in our case, an infective organism was found (Table I). This has not been previously documented in ophthalmic cases and suggests there may be a role for maintenance antibiotics.

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Sir,

Toxic Retinopathy Secondary to Repeat Intravitreal Amikacin and Vancomycin

Controversy exists concerning the indications and safety of single and repeat intravitreal antibiotic injections in the management of bacterial endophthalmitis. We report an unusual toxic reaction following repeat intravitreal injection of amikacin and vancomycin in a child with endophthalmitis following a penetrating eye injury.

Case Report

An 8-year-old white boy was injured in the right eye while playing darts. On presentation to the Accident & Emergency Department 1 hour later, he had a small nasal scleral perforation 2.5 mm from the limbus. There was minimal uveal and vitreous herniation but no injury to the lens or the retina. Visual acuity was 6/4 unaided. There was no relative afferent pupillary defect and the other eye was normal. Intravenous cephazolin and topical gentamicin and steroids were commenced. A few hours later, increased vitreous activity led to the diagnosis of early endophthalmitis. Primary wound repair under general anaesthesia was combined with sampling from the injury site for microbiological analysis and pars plana intravitreal injection of amikacin 0.4 mg (in 0.1 ml saline) and vancomycin 1.0 mg (in 0.1 ml saline) and subconjunctival injection of vancomycin 25 mg, ceftazidime 100 mg and 0.5 ml of Mydricaine No. 2.

Marked anterior chamber and vitreous activity 24 hours after primary repair signified deterioration. Endophthalmitis was clinically confirmed during examination under anaesthesia when a white opacity was observed at the vitreous base extending inferiorly from the injury site. Uncomplicated wide diagnostic core vitrectomy was performed 32 hours after the initial repair and a repeat intravitreal injection of amikacin 0 4 mg and vancomycin 1.0 mg and a subconjunctival injection of vancomycin 25 mg and ceftazidime 100 mg were given. The optic nerve head and macula were normal.

The child was distressed and photophobic 12 hours following vitrectomy. Examination was difficult and visual acuity unobtainable. Nevertheless, intraocular pressure was normal and anterior chamber and vitreal activity were