

On examination, the right eye was injected, the cornea oedematous with loss of central epithelium and a marked anterior chamber reaction was present with cells (++) and fibrin (Figs. 2–4). Intraocular pressure was reduced to 10 mmHg compared with 16 mmHg in the fellow eye. There was bilateral mild posterior subcapsular lenticular opacification but no abnormality of either posterior segment.

The patient was treated with chloramphenicol ointment twice daily, betamethasone 0.1% drops four times daily, and cyclopentolate 1% twice daily to this eye. The next day, corneal oedema had increased with marked folding of Descemet's membrane, but a reduction in the anterior chamber inflammation. By day 6, corneal oedema was subsiding with only fine punctate fluorescein staining of the epithelium. Intraocular pressure had normalised and the anterior chamber examination showed cells (+) and mild flare. When next reviewed 2 weeks after the incident, the eye was quiet and vision returned to its previous level after cessation of topical treatment.

Discussion

The Spurge family (Euphorbiaceae) is one of the largest and most diverse families of flowering plants, comprising some 300 genera and over 7000 species, distributed over much of the globe. Toxicity has evolved as a means of deterring attack by vertebrate or invertebrate herbivores and many species have irritant properties on the human gut, skin and eye.

The sap of the Euphorbiaceae is a viscous latex with contact irritant properties mainly due to the presence of polycyclic diterpene esters.¹ Toxicity is variable between and within genera; the genus *Euphorbia*, which includes Petty Spurge (*E. peplus*), has some species with no apparent ill-effects on the eye,² while the sap of others may cause conjunctivitis, keratoconjunctivitis and uveitis.^{3–8} Cases of ocular toxicity from other Euphorbiaceae were described in the older literature and include iridocyclitis with hypopyon, ulceration and blindness; these have been reviewed by Duke-Elder.⁹

Despite the widespread distribution of Petty Spurge, and its traditional use as a wart cure, documented since ancient Greek times,^{10,11} case reports of ocular toxicity from Petty Spurge sap are rare. Self-limiting cases of Petty Spurge sap keratoconjunctivitis have been described in the German literature,^{5,12} but little attention has been paid to the condition recently in English language journals. A similar case to that reported here was described by Biedner and co-workers.¹³ Topical application of Petty Spurge sap to warts on both eyelids resulted in a similar clinical picture with marked corneal oedema and fibrinous uveitis. Vision recovered from counting fingers to 6/6 after a 4 day course of atropine and chloramphenicol.

It thus appears that ocular irritation from the sap of the Petty Spurge, though severe and potentially sight-threatening, can generally be managed on an outpatient basis with simple topical therapy.

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Sir,

Euphorbia lathyris Latex Keratoconjunctivitis

The genus *Euphorbia* contains a large number of species world wide, many with a highly irritant white latex. Twenty-one are found in the United Kingdom;¹ these include some common weeds, ornamental house plants and rock garden perennials. Extracts from several members of the genus have been used for medicinal purposes since antiquity, but because of the caustic nature of these chemicals they also represent a serious potential hazard. There are several reports in the literature over hundreds of years of such toxic reactions. We report on 3 cases involving *Euphorbia lathyris* (Caper Spurge) that led to a severe keratoconjunctivitis (not previously reported in the English literature). We wish to highlight the potential diagnosis to ophthalmologists and warn unwary gardeners of the dangers.

Case Reports

Case 1. An 83-year-old man cut down a large weed (later identified as Caper Spurge) growing next to his house. Within 3 hours both eyes began weeping copiously. He woke up early the next morning with a severe retro-orbital headache, painful eyes worse on movement, photophobia,

lacrimination, sticky discharge and severely decreased vision in both eyes. At presentation his visual acuity was hand movements bilaterally (having been counting fingers right and 6/9 left 1 year previously, following successful left cataract extraction). He had mild bilateral lid oedema and both conjunctivae were very chemotic and hyperaemic with subconjunctival haemorrhages, and a tenacious mucopurulent discharge. He had extensive corneal oedema, with folds in Descemet's membrane (Fig. 1). The anterior chambers were deep and the intraocular pressures were within normal limits (18 mmHg). He was admitted and commenced on topical steroids and antibiotics after topical irrigation with saline. The next day, the vision had improved to counting fingers right and left, the corneas were slightly clearer and a small hypopyon was visible in the left eye. Both eyes responded quite rapidly to intensive topical steroids and 3 days later he was discharged with visual acuity of counting fingers right and 6/18 left. At his first outpatient visit his left vision had improved to 6/12, and it returned to 6/9 within 3 months (the right remained counting fingers).

Case 2. A 74-year-old woman presented to the eye casualty at 0200 hours having been woken by pain and grittiness in both eyes. The previous day she had been pulling up weeds in her garden and had then rubbed her eyes. These plants were later identified as Caper Spurge. Her visual acuity on presentation was 6/12 right and 6/18 left. (She had had bilateral trabeculectomies for advanced open angle glaucoma in 1991 and had attended a glaucoma clinic at intervals since then. Five months previous to this incident her visual acuities had been recorded as 6/9 right and left). She had marked bilateral generalised episcleral injection, both corneas had widespread punctate epitheliopathy and the right cornea had a central epithelial slip which developed into an abrasion. The anterior chambers showed mild cellular activity and the intraocular pressures were 18 mmHg bilaterally. Her eyes were irrigated with normal saline and she was treated with topical prednisolone and cyclopentolate eye drops in a reducing dose. After 1 month her visual acuity had improved to 6/12 bilaterally.

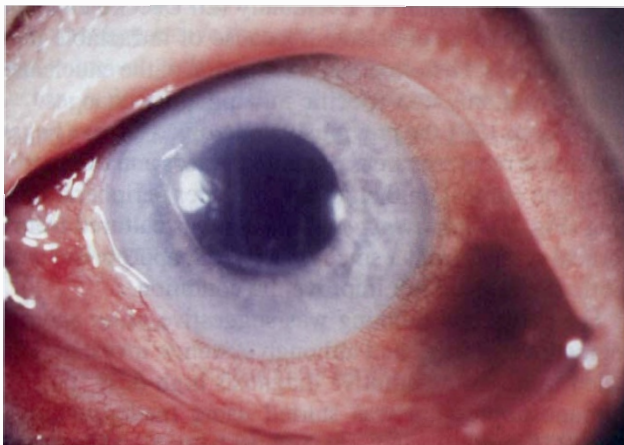


Fig. 1. Case 1. Anterior segment photograph of the left eye 3 days after presentation showing residual conjunctival hyperaemia and stromal oedema.

Case 3. A 71-year-old man presented to the eye casualty department. The previous day he had been removing some ivy from around the stem of two tall plants in his garden. These plants were later identified as Caper Spurge. Fifteen minutes after returning indoors he developed a foreign body sensation in his left eye. He was prescribed chloramphenicol ointment by his general practitioner. Overnight his discomfort increased and his vision deteriorated. On presentation his visual acuity was 6/5 right and 6/18 left. He had mild right episcleral injection. His left eyelids were swollen and he had marked conjunctival injection. His left cornea had a large central ulcer (c. 50%) with folds in Descemet's membrane. His left anterior chamber had moderate inflammatory cell activity and flare. His intraocular pressures were within normal limits (18 mmHg). He responded rapidly to intensive topical steroids and mydriatics and the ulcer was healed within 2 days. One week later his left visual acuity had improved to 6/9.

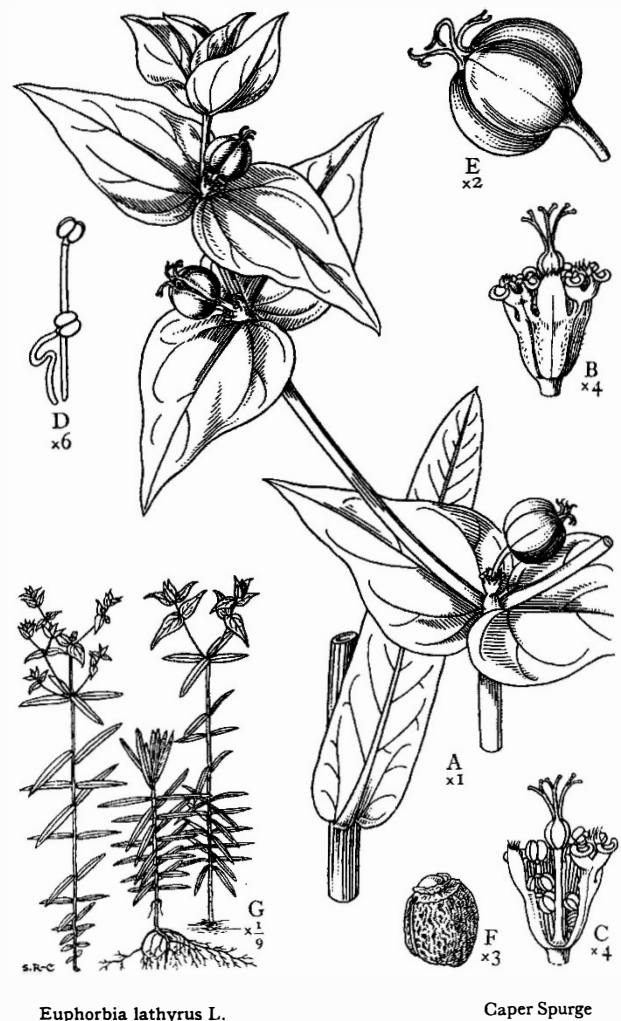


Fig. 2. (A) Part of a fruiting plant, and a leaf on lower part of stem; (B) cyathium; (C) cyathium-part of involucre and some of the male flowers cut away; (D) male flowers; (E) fruit; (F) seed; (G) plants in three stages of growth. The involucre is yellowish-green tinged with crimson, the anthers yellow. The fruit is green tinged with crimson. The leaves are dark green with a white midrib, pale beneath. The stem is very glaucous green, or green flushed with crimson.

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 Geidel⁶ 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 re-grafting 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.