

masks, and no problems occurred during shot blasting itself, despite the weather being dry, sunny and windy throughout.

Skin and eye signs were noted during subsequent dismantling of the contaminated scaffolding and cleaning up the dry dock. Dismantling was carried out by 9 men, some of whom were also involved in cleaning up. Of the remaining 19 men, 17 were solely involved in cleaning up and 2 also in the transfer of debris. The men all wore hard hats, overalls and gloves. Those cleaning up also wore face masks, though these conferred only partial protection.

All became aware of being covered in fine dust and some began to develop irritation and soreness on light- and dust-exposed skin within 3 h of commencing their shifts, others taking up to 8 h. Signs varied from erythema, through marked oedema, to vesiculation and exudation in 3 cases. 15 of the 28 men had ocular symptoms, in the main varying degrees of photophobia and conjunctival irritation, plus, in 4 cases, marked epiphora.

Both cutaneous and ocular symptoms resolved over 7–10 days, though in 4 cases, there was residual cutaneous photosensitivity, and in 2 of these, photophobia that went on for 2 to 3 weeks. 3 men also complained of sore throat lasting up to 48 h after exposure. Examination of the skin and eyes 3 to 4 months later showed

no permanent sequelae. 6 of the 28 men had a past or current history of asthma, eczema or hay fever. This atopic group had no more severe symptomatology than the other men.

Comment

The toxic effects of coal tar and its products were first well described by Lewin (1). Crow et al. (2) described a small outbreak of "smarts" due to photosensitivity in pitch workers, which, in 40% of whom, was accompanied by photophobia and epiphora. Bitumen is an impure mixture of hydrocarbons, several of which, including anthracene and phenanthrene, are potent photosensitizers. It is widely used in paints and coatings for steel and wood, and as a roofing material. This outbreak stresses the need for total skin, eye and respiratory tract protection when working in a bitumen-contaminated environment.

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Occupational allergic contact dermatitis from sunflower

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Key words: Compositae; sunflower; allergic contact dermatitis; occupational; agriculture; cattle fodder; *Helianthus annuus*. © Munksgaard, 1996.

The Compositae are a large group of plants frequently responsible for allergic contact dermatitis (1, 2). Sunflower is widely cultivated for oil production in Spain, but allergic contact dermatitis has rarely been reported (3, 4).

Case Report

A 62-year-old cowherd, with a previous history of hay fever, presented with forehead dermatitis of 2 months standing. He had frequently handled cattle fodder over the previous 6 months, and was also exposed to *Helianthus* plants while taking care of the livestock. Topical corticosteroids gave complete relief with rapid relapse when stopped.

He was patch tested with the European standard series, an additional Compositae plant series (lettuce, artichoke and endive), a cosmetics series, *Helianthus* pollen, the cattle fodder, and sunflower leaves. Only sunflower leaves and the cattle fodder gave positive results. The leaves were tested in 7 controls, with negative results. The patient showed positive prick tests to olea,

weeds and graminea pollen, but negative results with sunflower pollen. Specific Ig E for pollens was positive, whereas total Ig E was normal.

Discussion

One Compositae species may contain several sesquiterpene lactones (5, 6). Patch testing with the sesquiterpene lactone mix is considered by some (7) to be an unreliable indicator of Compositae allergy and was negative in our patient. The cattle fodder was composed of sunflower plants and the patient had daily contact with it in his work. Cross-sensitivity is frequent within the Compositae family (4, 8), though in our patient, patch tests with another Compositae were negative.

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Olive oil: suitability for use as a vehicle in the local lymph node assay

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Key words: olive oil; vehicle; local lymph node assay. © Munksgaard, 1996.

Many methods for the identification of skin sensitization potential have been described (1-3), none without its difficulties, including the choice of vehicle (4, 5). The local lymph node assay (LLNA) (6-8) has the advantage that it uses only topical application of test chemical, but this in turn makes the choice of vehicle particularly important (7). The vehicle of choice suggested has been acetone: olive oil, 4:1, v/v. However, the use of olive oil has been criticized on the basis that it may itself cause contact allergy (9) and may elicit proliferative responses in the LLNA (10). In this paper, we report our experience with olive oil in the LLNA.

Materials and Method

Materials

Olive oil was purchased from Sigma Chemical Co, Poole, Dorset, UK. It was aged by storage at ambient tempera-

ture, under normal laboratory lighting conditions, for 6 months. ³H-methyl thymidine (product code TRA.310, specific activity 2 Ci/mMol concentration 1 mCi/ml) was obtained from Amersham International, Amersham, Bucks, UK.

Local lymph node assay

Local lymph node assays were performed according to the standard protocol (7). CBA/Ca strain mice (6-8 weeks; Harlan Olac, Bicester, UK) were used throughout. 25 µl of the test material or the vehicle alone were applied to the dorsum of both ears of groups of 4 mice. Treatment was performed 1× daily for 3 days, 5 days following the initiation of exposure, all mice were injected via the tail vein with 250 µl of phosphate-buffered saline (PBS) containing 20 µCi of ³H-methyl thymidine (³HTdR). Mice were sacrificed 5 h later and the draining auricular lymph nodes excised and pooled for each experimental group. A single cell suspension of lymph node cells (LNC) was prepared by gentle mechanical disaggregation through 200-mesh stainless steel gauze. Pooled LNC were washed 2× with an excess of PBS and precipitated with 5% trichloroacetic acid (TCA) at 4°C for 18 h. Pellets were resuspended in 1 ml TCA and transferred to 10 ml of scintillation fluid (Optiphase MP;

Table 1. Sensitization potential of fresh and aged olive oil in the LLNA

Treatment regime	Fresh olive oil		Olive oil aged for 6 months	
	dpm/node ^{a)}	T/C ratio ^{b)}	dpm/node	T/C ratio
none	306	—	335	—
100% acetone	152	0.5	304	0.9
80:20 AOO	321	1.0	490	1.5
50:50 AOO	661	2.2	478	1.4
20:80 AOO	708	2.3	934	2.8
100% olive oil	966	3.2	1192	3.6

^{a)} Disintegrations per min per lymph node.

^{b)} Ratio of test to control dpm/node.

Table 2. Historic values for proliferation in untreated and AOO-treated draining lymph nodes

	Range, mean dpm/node ± standard deviation
untreated controls	306-576, 394 ± 107
AOO-treated controls	223-850, 504 ± 139

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