

by immunofluorescence (Table 1) revealed a significantly higher ($P < 0.005$) frequency of fibrin deposits in the reticular dermis, in a pattern that spared blood vessels of the upper dermal plexus. Fig. 1 illustrates one such reaction in an allergic contact dermatitis lesion. The reaction patterns in the 2 cases that gave positive fibrin reactions in the reticular dermis, in response to the 20% HCl irritation, differed from "true positive" reaction patterns in that smooth, linear fibrin deposits also appeared in the capillaries in the upper dermal plexus (Fig. 2).

Reviews of routine direct immunofluorescent findings in skin biopsies of 22 consecutive cases with questions of dermatitis herpetiformis (DH) in the differential diagnosis, revealed 2 with IgA deposits in the papillary dermis diagnostic of DH and 4 with fibrin deposits of the allergic contact dermatitis type. We feel these 4 cases merit patch tests.

Our preliminary studies lend support to the previous findings of an association between perivascular fibrin deposits and cell-mediated immune reactions such as allergic contact dermatitis (1-3). Coded further studies may reveal why 100% positives were found in experimentally-induced DNCB reactions (1), but only 58% to environmental antigens; we found only 45% "fibrin positives" in such cases.

Our data suggest that perivascular fibrin patterns, in cases with unidentified forms of dermatitis, may be a sign of allergic contact dermatitis, though negative findings may not rule it out and positive findings indicate patch testing.

References

1. Colvin R B, Johnson R A, Mihm M D, Dvorak H F. Role of the clotting system in cell-mediated hypersensitivity. *J Exp Med* 1973; 138: 686-698.
2. Umbert P, Winkelmann R K. Granuloma annulare: direct immunofluorescence study. *Br J Dermatol* 1976; 95: 487-492.
3. Nieboer C, Kalsbeek G L. Direct immunofluorescence studies in granuloma annulare, necrobiosis lipoidica and granulomatosis disciformis Miescher. *Dermatologica* 1979; 158: 427-432.
4. Beutner E H, Chorzelski T P, Kumar V (eds) *Immunopathology of the skin*, 3rd edition. New York: John Wiley and Sons, 1987.
5. Rudzki E, Grzywa T. The value of a mixture of cassia and citronella oils for detection of hypersensitivity to essential oils. *Dermatosen in Beruf und Umwelt* 1985; 33: 59-62.
6. Larsen W C. Perfume dermatitis, a study of 20 patients. *Arch Dermatol* 1977; 113: 623-626.

Contact and photocontact dermatitis from *Ruta chalepensis*

S. GONÇALO, C. CORREIA, J. S. COUTO AND M. GONÇALO

Clinica de Dermatologia e Venereologia, Hospitais da Universidade, 3000 Coimbra, Portugal

Key words: *Ruta chalepensis*; phytophotodermatitis; allergic contact dermatitis; plants; rue.

Ruta chalepensis L., an evergreen shrub of the Rutaceae (rue) family, is common in Central and Southern Europe and in the Mediterranean basin. Its strongly aromatic leaves are used in cooking, perfumery, traditional medicine, as a repellent to snakes and mice, and as a "defence against witches". In Portugal, *R. chalepensis* is cultivated to ward off mosquitoes and mice.

Phytophotodermatitis from *Ruta graveolens* (1-3) and *Ruta chalepensis* (4) has been described. These species of rue contain furocoumarins, especially 5- and 8-methoxypsoralen (5-MOP and 8-MOP), responsible for phototoxic reactions. They also contain rutin (a glycoside), a resin and an essential oil, that contains α -pinene, limonene and eucalyptol (5).

pruriginous, erythematous, vesico-bullous lesions, some in a linear pattern, on the backs of her hands, arms, forearms and upper third of the legs. They started 24 h after handling the *Ruta chalepensis* that she used to ward off mice. The lesions healed with potassium permanganate dressings and betamethasone valerate cream, without residual pigmentation.

Patch tests were performed with the standard series, plants and woods series (Hermal, Reinbek, West Germany), *Fruillania dilatata* as is, *Ruta chalepensis* as is and its ether extracts at 0.5 and 1% pet., and with 5-MOP and 8-MOP, each at 0.001, 0.01 and 0.1% pet. Photopatch tests were performed with the plant as is, its extracts and the furocoumarins, at the same concentrations.

Positive results are summarized in Table I.

Case Report

A 52-year-old woman presented in May 1988 with

Table 1. Positive patch and photopatch tests

	Patch	Photopatch
colophony 20% pet.	+	NT
turpentine peroxide 10% o.o.	+	NT
<i>R. chalepensis</i> (leaf)	+++	++++
<i>R. chalepensis</i> (flower)	+++	+++
<i>R. chalepensis</i> ether ext. 1% pet.*	+++	+++
<i>R. chalepensis</i> ether ext. 0.5% pet.*	+++	+++
α -pinene 15% pet.	+++	NT
abietic acid 5% pet.	+++	NT
lemon oil 2% pet.	+	NT
<i>Frullania dilatata</i> as is	+++	NT

* 20 negative controls.

Discussion

Among our patients, *Ruta chalepensis* is, after *Ficus carica*, the main cause of phytophotodermatitis. Patients react to the plant or its extracts only after UVA irradiation. In this case, the patient had positive patch and photopatch tests, with photoaggravation.

The clinical appearance of the lesions, their diffuse borders, severe pruritus, absence of residual pigmentation, and spread beyond exposed areas, suggest the possibility of an associated allergic contact dermatitis.

α -pinene, lemon oil (5) and even abietic acid may be responsible for the sensitization, and also explain positive patch tests to colophony, turpentine and *Frullania* (6).

Photoallergy to psoralens contained in plants has been reported by Fulton et al. (7) and Ljunggren (8),

but was not confirmed in our case, with no reactions to low concentrations of 5- and 8-MOP.

We believe our case represents an allergic contact dermatitis from *Ruta chalepensis*, probably due to α -pinene and lemon oil, and a phototoxic reaction to psoralen contained in the plant.

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References

- Klauder J V, Kimmich J M. Sensitization dermatitis to carrots. *Arch Derm* 1956; 74: 149-158.
- Gawkrodger D J, Savin J A. Phytophotodermatitis due to common rue (*Ruta graveolens*). *Contact Dermatitis* 1983; 9: 224-242.
- Heskel N S, Amon R B, Storrs F J, White C R. Phytophotodermatitis due to *Ruta graveolens*. *Contact Dermatitis* 1983; 9: 278-280.
- Brener S, Frildman J. Phytophotodermatitis induced by *Ruta chalepensis* L. *Contact Dermatitis* 1985; 12: 230-232.
- Benezra C, Ducombes G, Sell Y, Fousereau J. *Plant contact dermatitis*. Toronto: BC Decker, 1985: 220-221.
- Suire C, Ducombes G. Les dermites de contact aux *Frullania*. *Unilabo, Lavallois - Perret*, 1977: 1-23.
- Fulton J E, Willis I. Photoallergy to methoxalen. *Archives der Dermatology* 1968; 98: 445-450.
- Ljunggren B O. Psoralen photoallergy caused by plant contact. *Contact Dermatitis* 1977; 3: 85-90.

Occupational contact dermatitis from pyrocatechol

R. MORELLI, E. PIANCASTELLI, M. LANZARINI AND S. RESTANI

Clinica Dermatologica dell'Università, Via Massarenti 1, 40138-Bologna, Italy

Key words: pyrocatechol; photographic developer; allergic contact dermatitis; occupational.

Pyrocatechol (1,2-benzenediol; pyrocatechin; catechol) is a water-soluble phenol derivative, with the formula $C_6H_4(OH)_2$, with 2 ortho OH groups, first prepared in 1839 by Reinsch (1). Its meta and para isomers are resorcinol and hydroquinone, respectively.

Pyrocatechol occurs widely in nature as an important constituent of living and fossil plants. It is present in crude wood tar, crude beet sugar, and water from bituminous shale. Pyrocatechol and its derivatives occur in lignin, wood and other plant materials. It is also an important precursor of adrenalin, while

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