

Sheet Dermatitis

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A characteristic dermatitis with skin-coloured or erythematous papules localized to the helices and lobes of the ears and to the skin behind the ears was observed in 25 subjects who had been using new, unwashed sheets and pillow-cases containing permanent-pressing resin. *Key words: Ear dermatitis; Sheet; Permanently-pressed textiles; Fixapret CPNS; Dimethylol-dihydroxy-ethylene-urea.* (Received October 10, 1984.)

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Dermatitis from permanently-pressed coloured sheets and pillow-cases afflicting the present author was described in 1971 (1), and in 1971 and 1972 there was an explosive outbreak in Canada of dermatitis following exposure to certain brands of coloured, permanently-pressed sheets produced by a particular manufacturer (2, 3). The morphology and distribution of the rash was clinically unusual and strikingly specific: follicular papules on extremities and trunk, and, in approximately 75%, characteristically also on the helices and lobes of the ears. A couple of years later a similar dermatitis, "Canadian sheet dermatitis", was reported in England in 9 patients who had bought brightly coloured, cheap, Canadian bed sheets in street markets or from dealers (4).

Since the introduction of permanently-pressed coloured sheets on the Scandinavian market in the early seventies we have seen more than 25 patients with a similar and characteristic clinical picture. All had used new, unwashed, permanently-pressed sheets

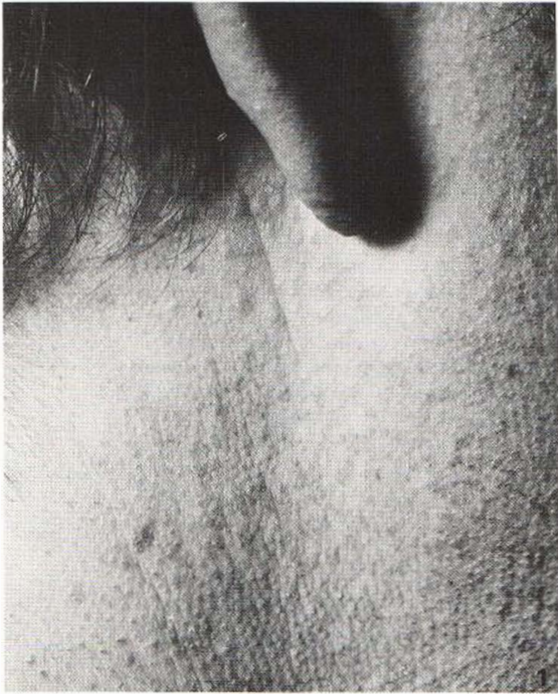


Fig. 1. Skin-coloured papules localized to the helix and to the skin behind the ear.

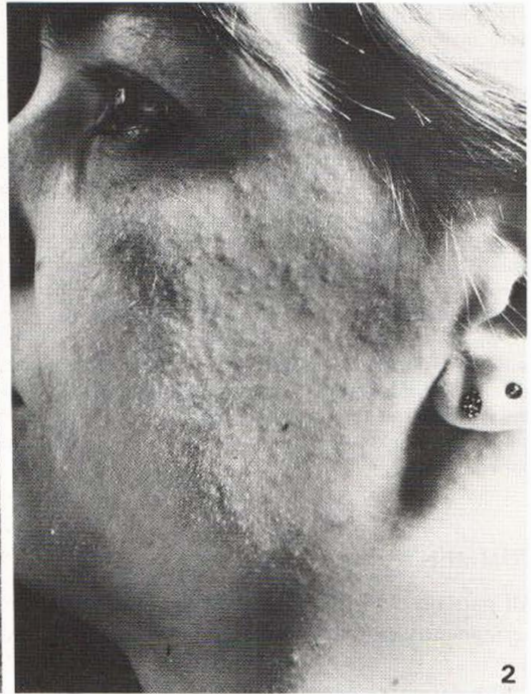


Fig. 2. Skin-coloured papules on the cheek.

and pillow-cases shortly before the dermatitis appeared. The findings in the first 25 patients are now presented.

PATIENTS AND METHODS

Clinical findings

Most patients were young (9-36 years of age), and about two-thirds were women. Two had had atopic eczema during early childhood and 1 patient had psoriasis. None of the others had previously had any skin disease. None of the patients had taken any drugs. Patients presented sporadically over a period of several years, but only 1 was seen during the summer months. In no case were family members or neighbours affected.

The clinical picture was similar and characteristic in all patients, with monomorphous, rather discrete, skin-coloured or slightly erythematous papules 1-3 mm in diameter. In some the papules resembled urticae, and 1 patient had a bright red papulo-vesicular eruption. The papules were localized very characteristically to the helices and lobes of the ears and to the skin behind the ears (Fig. 1), and the cheeks and sides of the neck were often also involved (Fig. 2). A few patients had papules also on the arms. The distribution of the lesions was usually symmetrical. The papules were slightly to moderately itching, but some patients complained instead of a burning sensation. The patients were otherwise healthy, and had no constitutional symptoms, fever, or adenopathy.

Punch biopsy was performed in 6 patients. The histological changes were discrete, with normal or slightly spongiotic epidermis and minimal lymphocytic infiltration round the capillaries in the upper and middle dermis.

Relation to exposure to sheets

The dermatitis started in all cases 1-5 days, and in most cases 1-2 days, after sleeping on new, unwashed, permanently-pressed (non-iron, easy care, easy press) cotton sheets and pillow-cases

which were always dyed, either plain or, more often, in garish abstract or floral patterns. The sheets were manufactured by several different companies. Some were made by Swedish companies, but imported products were also involved. The sheets had usually been purchased cheaply at supermarkets. Some patients had never before used permanently-pressed sheets, whereas others had used such sheets of various kind without getting dermatitis. Most patients said that the textiles in question were hard, stiff and uncomfortable to the touch.

Suspecting a connection between the dermatitis and the new sheets, some patients changed sheets after a couple of nights, but even so there was sometimes slight progression of the dermatitis over the following days. However, after discarding the new sheets the dermatitis always disappeared completely within a week. A few patients continued to sleep on the offending sheets, however, but here again the eruption disappeared after a little more than a week. No sheet dermatitis was observed in persons using new sheets that had been washed before use. Even though more than one member of the family had used identical new sheets, as a rule only the patient was affected by dermatitis.

Patch tests with the sheets produced negative results in 5 of 6 patients tested. One patient reacted with small red papules at the test site. Some patients were asked to sleep again on their still unwashed sheets after the dermatitis had cleared up; this time the facial lesions could not be provoked. Patch tests with formaldehyde were negative in all people tested. One patient reacted to dimethylol-4,5-dihydroxy-ethylene-urea but was negative to other dimethylol compounds (1), as were all the other patients tested.

COMMENTS

All patients with the characteristic dermatitis described had thus been exposed to new, permanently-pressed, unwashed sheets and pillow-cases one to a couple of days previously.

The dermatitis is probably connected in some way with the permanent-press procedure. To produce the desired effect dimethylol-4,5-dihydroxy-ethylene-urea (Fixapret CPNS), which is formaldehyde releasing, is commonly used. Only 1 out of 6 patch-tested patients reacted to Fixapret CPNS; none reacted to formaldehyde, which has often been blamed for textile dermatitis. Patch tests with the patient's own sheets produced negative results in 5 out of 6 patients. The test results do not support a delayed type of allergic reaction as the cause of the dermatitis. The resin may have acted as a chemical irritant. However, patch test as is gave no toxic reactions. Alternatively, textile fibres hardened by the resin may have acted as a mechanical irritant, and in fact the clinical picture had some features reminiscent of glass-fibre dermatitis. "Multiple-application delayed-onset contact urticaria" has also been suggested as a possible explanation to textile intolerance (5).

"Canadian sheet dermatitis" differed from the dermatitis now described. In the Canadian patients the symptoms were more pronounced, and the time of exposure to the sheets had always been at least 10 days, implying a delayed type of hypersensitivity reaction. Washing the sheets 3 or 4 times did not necessarily prevent the reaction. Furthermore, discarding the sheets did not immediately result in improvement, and the symptoms sometimes persisted for up to 8 weeks (2). The offending agent in the Canadian cases was later shown to be a fragmentation product of permanent-press resin polymer that was rendered unstable in the presence of heat and moisture (4, 6).

Despite differences between Canadian and European sheet dermatitis the morphology of the lesions was much the same, with characteristic involvement of the helices and lobes of the ears; this was seen in 75% of the Canadian patients and in all of ours. Sheet dermatitis is probably common, but even if the sufferers suspect a connection between the rash and their new sheets, not all will go to the doctor because the symptoms are mild. Shop assistants often know that some individuals cannot tolerate new, permanently-pressed sheets, and sheet manufacturers have had complaints from customers.

The pathogenesis of the sheet dermatitis described remains obscure. It is peculiar with regard to the clinical picture and to the fact that the lesions cannot be reproduced.

REFERENCES

1. Fregert S, Tegner E. Non-iron agents. *Contact Dermatitis Newsletter* 1971; 9: 200.
2. Panaccio F, Montgomery DC, Adam JE. Follicular contact dermatitis due to coloured permanent-pressed sheets. *Can Med Assoc J* 1973; 109: 23-26.
3. Wilkinson RD. Sheet dermatitis. *Can Med Assoc J* 1973; 109: 14.
4. Rycroft RJG, Cronin E, Calnan CD. Canadian sheet dermatitis. *Br Med J* 1976; 2: 1175.
5. Andersen KE, Maibach HI. Multiple application delayed onset contact urticaria: possible relation to certain unusual formalin and textile reactions? *Contact Dermatitis* 1984; 10: 227-234.
6. Cronin E. *Contact dermatitis*. Edinburgh and London: Churchill Livingstone, 1980: 67-68.