

PATTERN OF CONTACT DERMATITIS AMONGST SOLDIERS

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Six hundred and fifty seven cases suspected to have contact dermatitis reporting at 14 dermatological centres of armed forces hospitals during a 12-month period were investigated. One hundred sixty one cases showed positive patch tests. Sixty five cases showed positive patch tests with footwear materials including rubber, leather and canvas. Clothing, topical medicaments, airborne allergens and marking ink were responsible in 5.75%, 25%, 3.82% and 0.85% patients respectively.

Key words : Contact dermatitis, Occupational dermatitis, Soldiers.

Armed forces personnel are occupationally exposed to many substances capable of producing contact sensitisation. Some of these materials like clothing and footwear are common to all service personnel, while some other substances like petrol, oils of different grades and greases, or ammunition material are handled more by selected groups. There is paucity of published records dealing with this aspect of military dermatoses.

Materials and Methods

Data from 14 well organized dermatological centres of armed forces collected during a single year 1981 was scrutinized. Details of cases suspected to have contact dermatitis and patch test results to suspected causes were obtained. Standard patch test procedures¹ were used in most of the centres. Patch test readings were recorded after 48-72 hours. Rubber, leather, canvas and cloth were wetted in normal saline after being minced and then patch tested. Petroleum products were used in 5% concentration. Topical medicaments were applied in their respective commercially available concentrations.

Results

Six hundred and fifty seven cases were clinically diagnosed as contact dermatitis but

patch tests were done in 470 cases only. One hundred and ninety three patients showed positive patch test reactions thus giving 41.06% positivity. Different substances found responsible for contact dermatitis are shown in table I.

Table I. Contact dermatitis produced by various contactants.

Contactant	Number of patients	
	Tested	Positive on patch test
1. Foot wear		
(a) Rubber	70 (14.9%)	34 (7.23%)
(b) Canvas	35 (7.45%)	17 (3.62%)
(c) Leather	63 (13.4%)	14 (2.98%)
2. Clothing including socks		
(a) Wool	64 (13.62%)	18 (3.82%)
(b) Cotton (Olive green)	15 (3.2%)	7 (1.49%)
(c) Nylon	18 (3.82%)	1 (0.21%)
(d) Marking ink	6 (1.27%)	4 (0.85%)
(e) Cap band	3 (0.63%)	1 (0.21%)
3. Petrol/greases	52 (11.06%)	17 (3.62%)
4. Air-borne antigens	19 (4.04%)	18 (3.82%)
5. Medicaments	23 (4.89%)	20 (4.25%)
6. Others	92 (19.57%)	42 (8.93%)
Total	470	193 (41.06%)

Comments

Contact dermatitis is by far the most frequently reported occupational disease, and patch testing with the standard and vehicle series reveals a substantial number of relevant causes.² While some work from India and

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abroad on occupational dermatoses in large industries is available,^{1,3} we could not find any exhaustive study on this subject entirely related to armed forces.

Rubber (34), canvas shoes (17) and leather (14) were found to be the commonest offenders in the present series. Prolonged use of foot wear is a well known requirement for the soldier. Sometimes, due to sweating or adverse weather conditions, the socks get wet increasing the probability of developing sensitisation. Woolen socks are the normal regulation socks worn by the soldier. In the present study, 18 cases showed positive patch tests with wool, mostly socks. In a study by Pasricha and Kanwar,⁵ 12.5% cases were allergic to foot wear and 5.65% to clothes as compared to 13.8% and 5.53% respectively in our study.

Marking ink is a well known sensitizer. However, only 4 cases of contact dermatitis due to marking ink were seen in one year. Two of these were cadets of the National Defence Academy. The reason for this low incidence is that labelling of the garments is done in such a way that the mark does not come in direct contact with the skin.

Although the soldiers are occupationally exposed to airborne contactants as well as direct contact with the vegetation, it is interesting to see that only parthenium dermatitis was commonly seen. The authors have otherwise seen contact dermatitis to pines and irritant dermatitis following jungle training. However, no other weeds/plants were detected as the causative agent of contact dermatitis.

Olive green coloured cloth and the lining material of caps usually of blue black or green colour, are not strong sensitizers as seen from the very low incidence of contact dermatitis to these agents. Only one case gave positive patch test with the cap lining and 7 cases with cotton. Not all were olive green cloth. There was no

case of contact dermatitis to terrycotton material which is increasingly being used by the soldiers.

Petroleum products accounted for 3.6% of patch test positive cases. Topical medicaments produced positive patch tests in 20 cases. Of these, 5 were due to nitrofurazone, 4 each due to tolnaftate and neomycin. Pasricha and Guru⁴ and Bajaj et al⁶ also detected a high rate of contact hypersensitivity to nitrofurazone and neomycin. The other materials found responsible for contact dermatitis included toilet soap (15), shaving cream (5), cosmetics (17), *Parthenium hysterophorus* (18), plastic (3) and cement (2).

The diagnosis of occupational dermatitis should be based upon circumstantial evidence, location of the dermatitis, periodicity of improvement/disappearance and recurrence in relation to time and place i.e., employment, configuration, course of dermatitis and exposure to a known allergen.⁷ Patch test confirms the suspected dermatitis. In practice the methods adopted for patch testing leave much to be desired.

Though ideally prerecruitment selection should exclude cases having atopy, hyperhidrosis, seborrhoea, ichthyosis and abnormal pigmentation, such a selection is not always feasible. The key to prevention is elimination of skin contact with irritant and sensitizers,⁸ but the circumstances under which the personnel of armed forces have to discharge their duties both in war and peace deny such privileges. Sometimes contact dermatitis and irritant dermatitis are fictitiously induced by soldiers to avoid hazardous military duties.

Acknowledgement

We express gratitude to dermatologist colleagues for their careful records which the authors consulted.

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