

## CLINICAL REPORT

# Persistent Post-occupational Dermatitis: Report of Five Cases

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**Persistent post-occupational dermatitis is a phenomenon that is well-recognized by occupational dermatologists, but there have been few studies on it. In view of this, we proposed to assess the prevalence of this phenomenon in an English setting and ascertain the characteristics of the patients affected. Using modified criteria adapted from previous studies, details of 1100 patients seen in a contact dermatitis clinic were screened. Persistent post-occupational dermatitis was diagnosed in 5 patients out of 1100 seen over a 35-month period in a contact clinic (4 women, 1 man; age of onset 19–52 years). All had hand dermatitis that persisted despite removal of the apparent causative agents. Four patients were nickel-allergic on patch testing, though nickel was thought to be a potential causative agent in only one case and 2 patients were allergic to thiuram-mix on patch testing, and in both thiuram had a possible causative role. In all 5 cases, irritant exposure seemed important, with allergic factors contributing in 3 cases. Two patients had had eczema in childhood. Persistent post-occupational dermatitis is uncommon, affecting less than 0.5% of patients seen in a contact dermatitis clinic, but when diagnosed it has major implications for the future employment prospects of the individuals concerned. Key words: occupational dermatitis; allergic contact dermatitis; irritant dermatitis; allergens; irritants.**

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Occupational hand dermatitis is a frequently recognized condition in dermatology. The problem of persistence of dermatitis after the apparent causative agents have been removed, in the absence of any obvious pre-existing endogenous factors, has long been noted by contact dermatologists, especially those working in the occupational and medico-legal fields. Wall & Gebauer (1) made a concise description of this syndrome in 1991, when they coined the term “persistent post-occupational dermatitis” (PPOD). Sajjachareonpong and colleagues (2) developed the description further in 2004. PPOD initially develops as an occupational dermatitis due either to irritant or allergen contact, and persists despite withdrawal of the offending agent.

PPOD has been defined by Sajjachareonpong et al. (2), based on a modification of the criteria for irritant contact dermatitis (ICD) suggested by Mathias (3). We have used a modification of these criteria (Table I) to examine our own practice as we suspected that the condition of PPOD was not uncommon.

## METHODS

Using the criteria in Table I, we screened 1100 patients seen between January 2002 and November 2004 in our contact dermatitis clinic. Some patients were seen as routine referrals to the clinic and others for medico-legal opinions.

## RESULTS AND CASE REPORTS

We identified five patients who fulfilled the standards defined in the Methods section.

### Patient 1

A 56-year-old woman gave a 4-year history of micro-vesicular hand dermatitis, which was intermittent and improved whilst on holiday. She worked as a home care worker and gave no prior history of atopy. The dermatitis resulted in frequent periods off work. Patch testing showed allergic positives to nickel, cobalt and thiuram mix. The latter was thought to be relevant along with irritant exposure. Thiuram-free gloves were suggested, but her dermatitis persisted despite these measures and the avoidance of irritant factors. Her skin problems continue despite now being on long-term sick leave.

### Patient 2

A 27-year-old non-atopic man reported a 3-year history of intermittent hand dermatitis 2 years after commencing work as an apprentice fitter. The symptoms improved when away from work, returning within 2

Table I. Diagnostic criteria for persistent post-occupational dermatitis (1, 2)

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- No immediately preceding dermatitis.
  - Dermatitis virtually always located on the hand.
  - Evidence of an occupational component.
  - May be induced by either irritant or allergen contact.
  - Dermatitis persists despite withdrawal of the causative agent.
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days of resuming. He was exposed to irritant chemicals and wet work. Patch testing was negative and a predominant irritant dermatitis was diagnosed. He has been unemployed for 4 years and his dermatitis has persisted.

#### *Patient 3*

A 60-year-old woman security officer presented with a 30-year history of intermittent vesicular hand and foot dermatitis. She had had eczema as a child. Symptoms improved when off work. Patch testing showed allergic reaction to nickel. She had contact with keys, but avoidance did not produce an improvement and a predominantly irritant dermatitis was diagnosed. Despite being off work for several months her dermatitis has persisted.

#### *Patient 4*

A 29-year-old woman archaeologist presented with vesicular hand dermatitis of 10-years' duration. She had had eczema as a child. At work on excavations, she wore rubber gloves or worked with bare hands. When away from excavations, her hands showed some improvement. Patch testing showed allergic reactions to nickel and cobalt, and a possible reaction to thiuram mix. An irritant dermatitis was felt to be predominant. Despite avoiding thiuram-containing gloves and leaving her job, her dermatitis has continued.

#### *Patient 5*

A 53-year-old woman maker of tobacco knives, exposed to mineral oils, presented with palmar hand dermatitis of 9 months' duration. Initially, improvement occurred when away from work, but subsequently she did not observe this. Patch testing was positive for colophonium and nickel, but the dermatitis was felt to be predominantly irritant in origin. Despite being off work long-term, her dermatitis has continued.

## DISCUSSION

All five cases showed evidence of an occupational contact dermatitis. All gave a clear history of improvement during breaks from the exposure. All had persisting dermatitis, one for more than 30 years, and several despite having left work all together. Three of the five patients had no evidence of atopy, making endogenous eczema less likely. PPOD has been noted to occur after both allergic contact dermatitis (ACD) and ICD (1). We observed cases of both ICD and ACD: in three cases, both allergic and irritant factors seemed to be in play. Skin affected by ACD seems to be more susceptible

to irritant factors (4). The literature does suggest that ICD has a poorer outcome (5).

In PPOD, dermatitis may improve with avoidance strategies, but it does not clear altogether. In patient 1, the dermatitis persisted despite the patient being unemployed for 4 years. In Wall & Gebauer's study (1) in a population of patients with occupational dermatitis, 11.5% of all patients had ongoing dermatitis diagnosed as PPOD. Subjects affected by PPOD can be young or middle-aged adults, although any age group may be affected. Wall & Gebauer (1) found that a third of their cases were less than 20 years of age (the apprenticeship group); ages ranged from 19 to 52 years in this study. In our series, we found a lower proportion of patients with PPOD than did Wall & Gebauer (0.5% vs. 11.5%), but our figure might be higher if we had better follow-up data.

Nickel allergy has been associated with a worse outcome in hand eczema (6), and it is of interest that 4 out of our 5 cases were positive for nickel on patch testing, although in only one of these (patient 3) was there thought to be a possible occupational contact for nickel (from keys). None of our cases had keratotic hand dermatitis, which may represent a form of psoriasis.

PPOD had a major impact on the lives of the five patients reported here in terms of their ability to work and their social functioning. Two of the patients were aged less than 25 years at presentation. Having PPOD at this age may make finding future employment difficult, especially for a worker in a semi-skilled occupation (7, 8). We agree with both Wall & Gebauer (1) and Sajjachareonpong et al. (2) that there are considerable medico-legal issues for patients with PPOD. Further research is needed to understand this entity with a view to producing widely accepted diagnostic criteria and to improving management of the condition.

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