

Occupational allergic contact dermatitis caused by heroin (diacetylmorphine) and morphine

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Natural alkaloids extracted from *Papaver somniferum* are widely used in medicine and handled by nurses, but the number of reported cases of occupational allergic contact dermatitis remains small. Herein, we describe a case of airborne occupational contact dermatitis caused by heroin and morphine.

Case Report

A 40-year-old nurse with known nickel allergy and hand eczema had, for 3 years, been working in a municipal treatment centre for drug addicts. She had developed work-related airborne acute erythematous and oedematous facial dermatitis when handing heroin (diacetylmorphine or diamorphine, CAS no. 561-27-3) and morphine [CAS no. 52-26-6 as hydrochloride (HCl)] to the clients.

Patch tests were performed in two separate sessions. Patch test materials were applied to the back for 2 days with Finn Chambers[®] on Scanpor[®] tape (SmartPractice[®], Phoenix, AZ, USA), and readings were performed on day (D) 3 or 4 and D7. First, the patient was tested with the baseline series (TRUE Test[®] Panels 1–3), except for nickel, supplemented with pet.-based allergens (SmartPractice[®]) and morphine HCl 1% aq. On D3 and D7, the patient had a +++ reaction to morphine HCl.

A second patch test session was carried out to better characterize the patient's sensitization to opioid analgesics. We used four different narcotics supplied by the

Table 1. Patch tests results with different opioids, all tested 1% aq. vol/vol; during an initial patch test session, the patient had a +++ reaction to morphine HCl after the regular 2-day patch test exposure

Drug	D3/D4	D5/D7
Oxycodone HCl	–	–
Hydromorphone HCl	–	–
Methadone HCl	–	–
Morphine HCl (applied for 20 min)	++	++
Heroin	+++	+++
Codein phosphate hemihydrate	–	–

HCl, hydrochloride.

hospital pharmacy, namely oxycodone HCl, hydromorphone HCl, methadone HCl, and morphine HCl. Heroin was supplied by the municipal centre, and codein phosphate hemihydrate was supplied by the manufacturer. All substances were tested 1% aq. Morphine HCl was applied for only 20 min on this occasion, and there was no immediate-type reaction. The results are shown in Table 1; there were strong to extreme positive reactions to morphine HCl and heroin.

Our patient returned to work, and was free from symptoms when avoiding contact with morphine HCl and heroin.

Discussion

Hogen Esch et al. (1) published a clinical series from different heroin delivery projects, in which 8 of 24 nurses had positive patch test reactions to heroin. Morphine and heroin share similar chemical structures, and cross-reactivity is therefore expected, as described by Sasseville et al. (2). It is possible that systemic administration after sensitization by topical exposure can trigger systemic allergic dermatitis.

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