

Occupational allergic contact dermatitis caused by oxycodone

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doi:10.1111/j.1600-0536.2012.02137.x

Key words: allergic contact dermatitis; cross-reactions; occupational; oxycodone; patch test.

Oxycodone (CAS 76-42-6) is a semisynthetic opioid manufactured from thebaine, an opium-derived compound. Its chemical structure is similar to that of codeine, and it is available in tablet and liquid form.

We describe 3 individual cases of allergic contact dermatitis following occupational exposure to oxycodone.

Case Reports

Case number 1

A 45-year-old male formulation scientist working in a pharmaceutical laboratory for 14 years described episodic swelling and erythema of his eyelids and erythematous patches on his volar wrists, which had developed over several months. When he was away from work, the symptoms resolved, but they flared when he returned to work. He handled naloxone and hydromorphone. He had had similar, but milder, symptoms previously while working with oxycodone (this work was performed using a fume cupboard).

Case number 2

This was a 27-year-old male working as a development scientist in a pharmaceutical laboratory for 4 years with a 4-week history of erythematous skin on the volar aspects of both wrists. His work involved contact with oxycodone and naloxone. Previously, while working with hydromorphone, he had developed small erythematous patches on the hands. Both of these skin eruptions were related to exposures at work.

Case number 3

A 44-year-old male manufacturing operative, working with oxycodone, described a 6-month history of an

erythematous facial rash, which started around his eyes and then spread to involve most of his face. Again, his symptoms improved when he was away from work.

Discussion

All 3 patients were otherwise well, with no history of atopy. The patients were patch tested with the British Cutaneous Allergy Society (BCAS) baseline series, and cases 1 and 2 were tested with hydromorphone, oxycodone at varying strengths, and naloxone in crushed tablet form (Table 1). Case 3 was tested with oxycodone liquid in addition to the BCAS standard series.

Pharmaceutical manufacturing may involve many different compounds, some of which may become airborne during the manufacturing process. Repeated exposure in susceptible individuals can result in allergic contact dermatitis. The 3 cases described all had occupational exposure to oxycodone, among other compounds, and all showed allergic contact dermatitis affecting the face, the hands, or both. One of these cases was also sensitized to two other opioid compounds – naloxone and hydromorphone – to which he had also had occupational exposure. Allergic contact dermatitis caused by opioid compounds is not new (1–3);

Table 1. Patch test reactions at 96 hr (strongest reading in all cases)

		Case no. 1	Case no. 2	Case no. 3
Hydromorphone	2.6-mg capsule	+	–	NT
Naloxone	400 µg/ml	+	–	NT
Oxycodone	10-mg MR tablet	++	–	NT
Oxycodone	40-mg MR tablet	++	+	NT
Oxycodone	80-mg MR tablet	++	+	NT
Oxycodone	10 mg/ml liquid	NT	NT	++
Baseline series				
Ethylenediamine		+	–	–
House dust mite		+	–	–
Methyldibromoglutaronitrile		–	+/-	–

MR, modified release; NT, not tested.

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Conflicts of interest: The authors have declared no conflicts.

however, occupational allergic contact dermatitis caused by oxycodone has not, to our knowledge, been described before.

Oxycodone is a semisynthetic opioid analgesic medication synthesized from opium-derived thebaine. Thebaine, the main alkaloid extracted from *Papaver bracteatum*, is converted industrially into a variety of compounds, including oxycodone and naloxone. Hydromorphone is derived from morphine, rather than thebaine.

Despite the similar derivation from thebaine, no cross-reactivity was seen in case 2 between oxycodone and naloxone, even though there was occupational exposure to both substances.

Case 3 was tested with oxycodone in liquid form, rather than crushed tablets, as this was the form to which he had been exposed. He was not tested with naloxone or hydromorphone, as he had no occupational exposure to either compound.

References

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