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Ecstasy-induced fixed drug eruption

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CASE REPORT

Fixed drug eruption (FDE) is a drug hypersensitivity reaction mostly caused by antibiotics and anti-inflammatory non-steroidal drugs.[1,2] 3,4-Methylenedioxy-*N*-methylamphetamine (MDMA) is a party drug, available as a powder or a tablet, the latter often referred to as 'ecstasy'.[3] Skin reactions associated with illicit drug use have only rarely been reported.[4] We here report a first case of FDE induced by MDMA. A 25-year-old woman had developed several erythematous itchy macules on the arms (Figure 1A), back and face, in September 2019, 3 weeks following treatment with antibiotics (ceftriaxone, doxycycline, and metronidazole) for a salpingitis. Although at the time the antibiotics had been suspected as a possible cause of the skin eruption, history revealed that the skin lesions had since then recurred several times (with intervals of several months), on the exact same skin areas, and always within 12 h after the recreational intake of MDMA, a drug which she had also taken during the first episode of the skin eruption. Following an inflammatory phase, the lesions always healed with remarkable hyperpigmentation (Figure 1B). Besides MDMA, she also confessed regularly using cocaine and alcohol, none of which, however, seemed to induce any skin reactions. Physical examination revealed well-defined (~1-cm diameter), hyperpigmented lesions on the forearm and the back, as well as around the lips. Patch tests were performed with the European baseline series from Chemotechnique Diagnostics (Vellinge, Sweden) on the upper back. All patch test preparations were mounted on IQ Ultra Chemotechnique Diagnostics (Vellinge, Sweden) patch test chambers, and occluded for 2 days with Urgoderm non-woven stretch plaster URGO (Chenôve, France). Because an FDE was strongly suspected, we also patch tested an MDMA tablet, provided by the patient and diluted 50% pet., on both lesional and non-lesional skin; the previously suspected antibiotics, although considered a less likely cause at the time of patch testing, were tested in a similar way. Readings on day 2 (D2) and D4, performed according to ESCD guidelines, were positive to the MDMA tablet (50% pet.), but only on previously affected skin, whereas the same test remained entirely negative on previously uninvolved skin (Figure 2); all other patch tests were equally negative. The oral introduction of drugs (ceftriaxone, doxycycline, and metronidazole) caused no skin reaction. An MDMA tablet supplied by the patient was qualitatively analyzed by mass

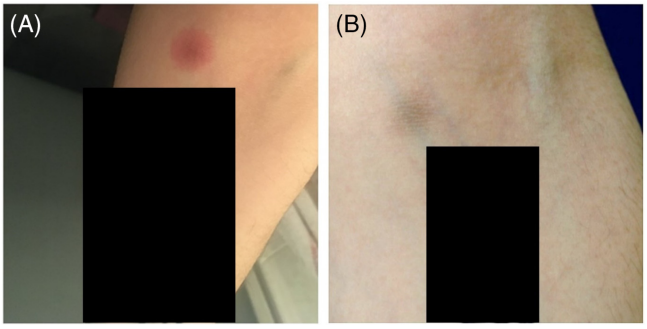

FIGURE 1 Photographs provided by the patient. (**A**) Erythematous and slightly papular well-defined macula on the left forearm. (**B**) Residual hyperpigmented lesions, lasting several months, on the same skin areas

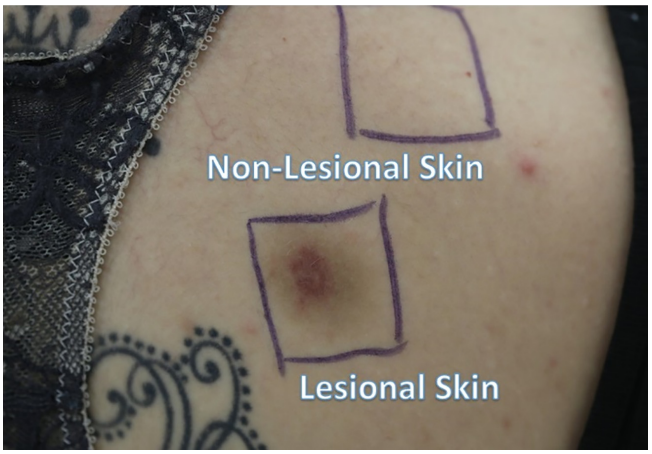

FIGURE 2 Reading on day (D4) of patch tests containing the MDMA tablet (50% pet.), provided by the patient, on previously affected and non-affected skin

spectrometry, confirming the presence of MDMA, but also of cocaine and levamisole, the latter being a well-known cocaine adulterant. The concentration of cocaine and levamisole were above the detection limit but below the quantification limit (<5 ng/mL), so the vast majority of the tablet was therefore composed of MDMA. Additional patch tests with MDMA in methanol (1 mg/mL; 0.1%), cocaine in acetonitril (1 mg/mL; 0.1%), and levamisole powder diluted at 50% in pet., all remained negative on healthy and previously involved skin. Although further patch testing with MDMA in higher concentrations and alternative vehicles was proposed, the patient refused further skin tests. Follow-up, however, revealed that the accidental reintroduction of MDMA tablets led to severe recurrence of the skin lesions, whereas further and regular use of only cocaine did not.

DISCUSSION

In the 50s Nelson reported a case of FDE due to the inhalation of cocaine.[5] Only few cutaneous side effects have been attributed to MDMA, including guttate psoriasis occurring 4 days after the intake of ecstasy,[6] and an urticarial skin reaction developing 12 h after inhaling MDMA powder[7]; however, to the best of our knowledge, no cases of FDE due to ecstasy (MDMA tablets) have previously been reported. As skin tests may remain negative, the allergy work-up of an FDE often relies on a rechallenge with the suspected drug(s), although this evidently poses ethical questions when dealing with illicit drugs. Our patient had a positive patch test to the MDMA tablet (ecstasy) as such, whereas patch tests to its single components, including to pure MDMA, remained negative. We might not fully exclude that the actual culprit was an additive or impurity contained in the MDMA tablet, although the chemical analyses did not suggest the presence of these. It is likely that the negative patch test to (pure) MDMA was due to the low concentration used, and/or because an inappropriate vehicle was chosen (methanol instead of pet.).

To conclude, we present a case of FDE induced by an MDMA tablet (ecstasy), likely due to its MDMA content, based on the suggestive clinical history, characteristic skin lesions, positive patch test (only) on affected skin, as well as a positive oral reintroduction.

AUTHOR CONTRIBUTIONS

Ophélie Barbier: Conceptualization (equal); investigation (equal); writing – original draft (lead); writing – review and editing (equal). **Alia Galadari:** Writing – original draft (equal). **Brigitte Milpied:** Supervision (equal). **Paola Sanchez:** Methodology (equal); validation (equal). **Stéphanie Kassab:** Data curation (equal). **Ruben Goncalves:** Data curation (equal); formal analysis (equal); writing – review and editing (supporting).

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. Phillips EJ, Bigliardi P, Bircher AJ, et al. Controversies in drug allergy: testing for delayed reactions. *J Allergy Clin Immunol*. 2019;143(1):66-73.
2. Patel S, John AM, Handler MZ, Schwartz RA. Fixed drug eruptions: an update, emphasizing the potentially lethal generalized bullous fixed drug eruption. *Am J Clin Dermatol*. 2020;21(3):393-399.
3. Edland-Gryt M, Sandberg S, Pedersen W. From ecstasy to MDMA: recreational drug use, symbolic boundaries, and drug trends. *Int J Drug Policy*. 2017;2017(50):1-8.
4. Hennings C, Miller J. Illicit drugs: what dermatologists need to know. *J Am Acad Dermatol*. 2013;69(1):135-142.
5. Nelson LM. Fixed drug eruptions—a report of two cases, one caused by niacin, the other by cocaine. *Calif Med*. 1955;82(2):127-128.
6. Tan B, Foley P. Guttate psoriasis following ecstasy ingestion. *Australas J Dermatol*. 2004;45(3):167-169.
7. Gómez-Fernández C, Feito Rodríguez M, Casado Verrier B, Herranz Pinto P, Beato-Merino M, Casado Jiménez M. Facial eruption related to snorting ecstasy. *Eur J Dermatol*. 2010;20(6):853-854.

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