

CASE REPORT

TOXICOLOGY

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Swollen Lips After a Night of Partying—An Allergic Reaction to Ecstasy?†

ABSTRACT: Ecstasy (MDMA) is a mood-lifting drug with numerous somatic side effects, for example, dehydration or continuous chewing and biting. We describe the case of a young woman who underwent a forensic medical examination for suspected sexual assault. She claimed to have suffered from a memory lapse, and she had a painful swelling of her lips with a plaque-like coating on her lips and buccal mucosa. The attending physician suspected that these findings might have been caused by strong sucking pressure on her lips within the context of a sexual assault. A toxicological examination of a blood specimen verified that she had been under the influence of an extremely high dose of ecstasy (1.456 mg/L MDMA and 0.0213 mg/L MDA). Pursuant to the forensic medical assessment, the described findings on her lips, and buccal mucosa were interpreted as an allergic and mechanical reaction (through continuous chewing and biting) to ecstasy.

KEYWORDS: forensic science, ecstasy, MDMA, angioedema, sexual assault, adverse effects

A 20-year-old woman woke up in the emergency care unit of a hospital after a night of partying and claimed to have suffered from amnesia of the last few hours of the night. She stated that she had consumed alcohol at different bars with several casual acquaintances and later danced with her new boyfriend at a club. She described moderate beer consumption and strictly denied having taken any drugs during that night or at any time prior. As the emergency doctors suspected a case of sexual assault, a clinical forensic examination was initiated. The young woman was fully conscious and clearly oriented to person, place, and time during the forensic medical examination. She did not have any known previous illnesses or allergies. The gynecological examination showed no fresh injuries in her anogenital region. Upon examination, the woman revealed individual fresh injuries characteristic of a sexual assault: small spotted hematomas on her upper arms (compatible with grip marks), the inside of her thighs (compatible with straddle injuries), and on her breasts as well as scratched skin on her lower neckline and right upper arm. However, most prominent was a painful swelling of her lips with a plaque-like, yellowish white coating on her lips, and buccal mucosa (Fig. 1a–c). The attending physician in the hospital's emergency care unit suspected that this might have been caused by strong sucking pressure on her lips within the context of a sexual assault. The woman had no laryngeal edema, dyspnea, or dysphagia. A dermatologist ruled out an infection as the

cause of the findings on her lips. The clinical laboratory blood testing showed increased leukocytes (15.9 nL/L, reference value:

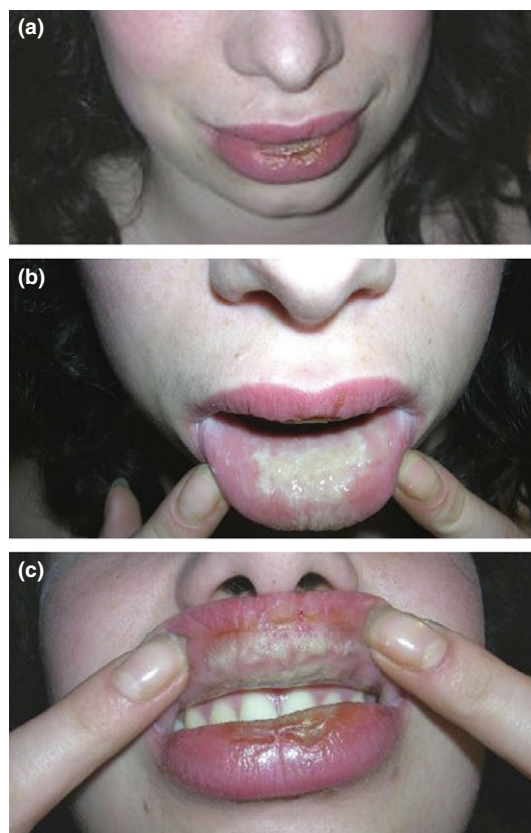


FIG. 1—Swollen lips with a plug-like yellowish white coating.

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3.5–9.8 nL/L) and slightly increased creatine kinase (264 U/L reference value: <170 U/L). An immunological testing was not performed. The swelling of the lips increased and lasted for several days.

The police investigation report stated that security personnel carried the young woman, who had been in an agitated condition with severe motor agitation, out of the club, based on suspicion of an acute drug intoxication and that she had later been taken to the emergency care unit by ambulance. The bouncer stated that aside from the general urge to move around, the young woman also displayed pronounced grimacing and uncontrolled chewing and grinding of her teeth.

Upon admission to the hospital, the young woman showed a blood alcohol level of 1.19 g/L; additionally, the forensic toxicological analysis of a blood specimen determined a serum concentration blood level of 1.456 mg/L of 3,4-methylenedioxymethamphetamine (MDMA) and 0.0213 mg/L of its metabolite 3,4-methylenedioxyamphetamine (MDA) in addition to 0.030 mg/L of benzoylcegonine. Other drugs, relevant medication or gamma-hydroxybutyric acid (GHB) were not detected.

Discussion

Ecstasy (MDMA) is an illegal drug with a mood-lifting and euphoric effect often consumed at rave and techno parties. Most consumers are young and still regard ecstasy to be a relatively harmless drug. However, numerous minor somatic adverse effects such as headache, nausea, trismus, and bruxism have been reported (1) in addition to severe adverse effects requiring emergency medical care such as hyperthermia, hyponatremia, disseminated intravascular coagulopathy, rhabdomyolysis, acute renal failure, liver failure, and water intoxication. The specialist medical literature includes reports on individual fatalities of various medical causes in patients who had taken ecstasy; most were accidental deaths (e.g., [2–5]). Suicides caused by ecstasy are rare, but several have been reported (6). Adverse effects of ecstasy are not necessarily dose-dependent, making it difficult to determine the lethal dose (7). “Recreational” MDMA blood levels usually range from 0.10 to 0.25 mg/L (3). Most of the described medical emergency cases and fatalities have shown MDMA blood levels of 0.5–10.0 mg/L (8–10). Upon admission to the hospital, the young woman in the present case was under the influence of an extremely high, toxic dose of ecstasy. Approximately 12 h later, she showed no major physical or psychological irregularities during the forensic medical examination aside from the findings on her lips and buccal mucosa. According to the forensic medical evaluation, the massive swelling of her lips might have been caused by an allergic reaction. However, whether the allergic reaction was caused by MDMA or one of the concomitant substances remains unknown. Additionally, a mechanical mechanism causing the swelling cannot be entirely excluded. Dehydration and self-harm through the continuous chewing and biting as adverse effects of ecstasy consumption may explain the plaque-like, yellowish white coating on her lips, and buccal mucosa.

Swollen lips and buccal mucosal injuries are known adverse effects among ecstasy consumers, as described in the entries of freely accessible internet platforms (e.g., www.eve-rave.ch/Forum/viewtopic.php?t=42536). The specialist literature describes allergic reactions to ecstasy and reports on uvular angioedema (1,11). Some researchers suspected bradykinin-mediated angioedema through MDMA and suggested Icatibant as an effective medication (1). However, this assumption has triggered critical

discussions (12,13). Sauvageau reported the death of a 13-year-old girl caused by an allergic shock to ecstasy (4). Her autopsy revealed laryngeal edema and an increased neutrophil count. Like the young woman in the present case, the girl reportedly developed swollen lips after consuming ecstasy several weeks earlier.

Covert administration of ecstasy as drug-assisted submission within the context of a sexual assault is certainly feasible because of its disinhibiting and euphoric effect, as described in a previous case report (14). Both the origin of the injury caused by an external influence within the context of a sexual assault and the covert administration of ecstasy as a rape drug were considered unlikely in the present case. Due to the witness statements of the security personnel, the injuries were likely to be caused by them, when dragging the agitated woman out of the discotheque. The evidence of benzoylcegonine contradicted the young woman’s statement to have never taken any drugs, making an incorrect statement regarding her ecstasy consumption plausible. The concomitant injuries can be explained by self-harm caused by the patient’s motor agitation, restraint by the security personnel when carrying her out of the club, and handling of the patient by the medical personnel of the emergency services and the hospital. Further extensive police investigations gave no new indications of sexual assault, and the criminal case was dismissed.

The presented case illustrates a possible acute adverse effect of ecstasy consumption, which can be misinterpreted as a third-party injury within the context of a suspected sexual assault. The most important factors in this case are as follows:

- Swollen lips and injuries of the buccal mucosa are side effects of ecstasy consumption.
- They are mostly likely to be due to allergic and/ or mechanical reaction to ecstasy.
- Forensic toxicological examination should be part of suspected cases of sexual assault.

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