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Persistent Affective and Psychomotor Symptoms During Withdrawal Following Exposure to Concentrated Kratom Derivatives: A Case Report

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Case Report

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Abstract

Background

Concentrated and semisynthetic kratom-derived products containing 7-hydroxymitragynine (7-OH) or mitragynine pseudoindoxyl (MP) are increasingly available, but human withdrawal presentations and management remain poorly characterized.

Case Presentation:

A 42-year-old man with opioid use disorder in sustained remission and generalized anxiety disorder presented with moderate opioid withdrawal (Clinical Opiate Withdrawal Scale score 15) after 18 months of daily 7-OH use and recent ingestion of a commercial product labeled to contain MP. He reported repeated unsuccessful cessation attempts and worsening withdrawal symptoms after self-directed buprenorphine-naloxone use. During inpatient medically managed withdrawal treatment, a 2 mg/0.5 mg buprenorphine-naloxone test dose was followed by two 8 mg/2 mg doses because symptoms persisted. Autonomic and gastrointestinal findings improved by hospital day 2, while marked anxiety and psychomotor restlessness continued and were treated symptomatically with lorazepam and quetiapine. All reported withdrawal symptoms had resolved by hospital day 3.

Conclusions

This case illustrates the management challenges associated with withdrawal after exposure to concentrated kratom derivatives and suggests that affective and psychomotor symptoms may persist after classic autonomic and somatic opioid withdrawal findings improve. Interpretation is limited by chronic 7-OH exposure, unverified product contents and dose, recent labeled MP exposure, intermittent buprenorphine use, baseline anxiety, and absence of longitudinal follow-up. These findings therefore should not be taken to establish a distinct MP-specific withdrawal syndrome or to demonstrate that standard opioid withdrawal scales are inadequate in this population.

Background

The commercial landscape of kratom, Mitragyna speciosa, has evolved from raw-leaf products to highly purified and semisynthetic formulations [1, 2]. Although mitragynine (MG), the primary alkaloid in kratom, has lower mu-opioid receptor (MOR) potency than several of its derivatives, 7-hydroxymitragynine (7-OH) and mitragynine pseudoindoxyl (MP) display substantially greater MOR potency [3–7]. Concentrated products containing 7-OH and MP are increasingly marketed as kratom- or kava-related products [2, 8], and labeled alkaloid content may not reliably reflect actual composition [9]. In July 2026, the U.S. Drug Enforcement Administration (DEA) published a notice of intent to temporarily place MP, MGM-15, and MGM-16 in Schedule I of the Controlled Substances Act [10].

Published clinical experience remains limited. Case reports have described MP withdrawal with opioid-like symptoms and differing management approaches [11, 12], while other reports have described 7-OH use disorder or withdrawal treated with buprenorphine [13, 17]. Broader reviews have also raised concerns regarding dependence and toxicity across increasingly diverse kratom products [16]. This report describes the presentation and inpatient withdrawal management of a patient with chronic 7-OH use and recent exposure to a product labeled to contain MP.

Case presentation

A 42-year-old White man with a history of opioid use disorder (OUD) in remission for 8 years, generalized anxiety disorder, asthma, and cholecystectomy presented to the emergency department requesting withdrawal treatment related to 7-OH and a product labeled to contain MP.

He reported daily use of 7-OH tablets (dose unknown) for 18 months. On the day of presentation, he reported ingesting two tablets of a “Pseudo-Indoxyl” product labeled as containing MP that he purchased at a local gas station. He described higher energy and motivation while using 7-OH and, on cessation, abdominal cramps, insomnia, restlessness, and anxiety. He reported multiple unsuccessful attempts to stop, including a recent self-directed attempt using four sublingual buprenorphine-naloxone 2.9 mg/0.71 mg tablets and nonprescription alprazolam. He stated that buprenorphine-naloxone had intensified withdrawal symptoms during prior attempts. His history of OUD followed oxycodone use after surgery and had been maintained on buprenorphine-naloxone, although adherence became intermittent after he began using 7-OH. He reported no prior detoxification or rehabilitation treatment.

Home medications included sertraline 50 mg, albuterol, ursodiol, and prescribed sublingual buprenorphine-naloxone 2.9 mg/0.71 mg. On examination, he was awake and alert but visibly anxious, with psychomotor restlessness, pacing, and frequent shifting of position. Vital signs and laboratory results were unremarkable except for benzodiazepines detected on urine toxicology. Mild facial diaphoresis and nasal congestion were present, and he reported mild abdominal pain and anxiety. His Clinical Opiate Withdrawal Scale (COWS) score was 15, consistent with moderate opioid withdrawal.

He was admitted for inpatient medically managed withdrawal treatment. Buprenorphine-naloxone was used off-label based on the opioid receptor activity of kratom alkaloids and published experience with buprenorphine for kratom-related withdrawal [11, 13, 17]. A 2 mg/0.5 mg test dose was administered. As-needed medications included clonidine 0.1 mg, cyclobenzaprine 5 mg, and lorazepam 1 mg.

On hospital day 1, anxiety, psychomotor restlessness, mild diaphoresis, and abdominal pain persisted, and the COWS score remained 15. An 8 mg/2 mg dose of buprenorphine-naloxone was administered. Approximately 90 minutes later, continued moderate withdrawal prompted a second 8 mg/2 mg dose; quetiapine 50 mg was also given for agitation and anxiety. By hospital day 2, autonomic and gastrointestinal findings had largely resolved, but prominent anxiety and psychomotor restlessness persisted. Lorazepam 2 mg was administered, after which these symptoms improved. By hospital day 3, the patient reported resolution of withdrawal symptoms. He was discharged home in stable condition

with a 30-day supply of buprenorphine-naloxone 8 mg/2 mg three times daily, a naloxone rescue kit, quetiapine 100 mg once daily as needed for insomnia, sertraline 50 mg once daily, counseling, and outpatient follow-up within 1 week. The clinical course is summarized in Table 1.

Table 1. Clinical Timeline

Case Presentation

A 42-year-old White man with a history of opioid use disorder (OUD) in remission for 8 years, generalized anxiety disorder, asthma, and cholecystectomy presented to the emergency department requesting withdrawal treatment related to 7-OH and a product labeled to contain MP.

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Table 1. Clinical Timeline

Timeline	Clinical Findings and Diagnostic Assessments	Therapeutic Intervention	Follow-up and Outcomes
Before admission	Approximately 18 months of daily concentrated 7-OH use; prior self-directed buprenorphine initiation reportedly intensified withdrawal. Two days before presentation, nonprescription alprazolam was taken during another attempt to initiate buprenorphine.	No intervention documented before arrival.	Unable to discontinue product independently.
Presentation / hospital day 1	Same-day ingestion of two tablets of a commercial product labeled to contain MP. COWS 15; anxiety, pacing, mild diaphoresis, nasal congestion, and abdominal pain. Urine toxicology detected benzodiazepines; blood alcohol was undetectable.	Buprenorphine-naloxone 2 mg/0.5 mg, then 8 mg/2 mg twice after persistent symptoms (total 18 mg/4.5 mg). Clonidine, cyclobenzaprine, and lorazepam were available as needed; quetiapine 50 mg was administered.	COWS remained 15 after the initial dose and after the first 8 mg/2 mg dose.
Hospital day 2	Autonomic and gastrointestinal findings largely resolved; prominent anxiety and pacing continued.	Lorazepam 2 mg was administered.	Anxiety and restlessness improved.
Hospital day 3 / discharge	No cravings, body aches, chills, diaphoresis, nausea, vomiting, diarrhea, or anxiety reported.	Discharge with buprenorphine-naloxone 8 mg/2 mg three times daily, naloxone kit, counseling, and outpatient follow-up within 1 week.	Discharged home in stable condition. No longitudinal follow-up data were available.

Abbreviations: 7-OH, 7-hydroxymitragynine; COWS, Clinical Opiate Withdrawal Scale; MP, mitragynine pseudoindoxyl.

Discussion and Conclusions

Concentrated kratom derivatives such as 7-OH and MP raise concerns regarding abuse, dependence, and toxicity [16]. Human withdrawal data remain limited, while some preclinical studies have suggested less physical dependence than would be expected from their opioid receptor activity [5, 14, 15].

In this case, chronic 7-OH use was associated with substantial physiological dependence and an opioid-like withdrawal syndrome. During inpatient treatment, improvement in autonomic and gastrointestinal

findings after buprenorphine-naloxone dosing preceded improvement in anxiety and psychomotor restlessness. This temporal pattern may be clinically relevant because symptom burden could remain substantial even as conventional opioid withdrawal signs improve.

Numerous factors constrain interpretation. The dose of chronic 7-OH exposure was unknown, and the contents of the commercial product labeled as MP were not analytically confirmed. Recent labeled MP exposure occurred in the setting of chronic 7-OH use, intermittent buprenorphine-naloxone use, benzodiazepine exposure, and pre-existing generalized anxiety disorder. No longitudinal follow-up data were available. Accordingly, the persistent affective and psychomotor symptoms cannot be attributed specifically to MP, and a distinct withdrawal phenotype cannot be established from a single case.

Clinicians treating withdrawal after exposure to concentrated kratom derivatives may need to assess persistent affective and psychomotor symptoms in addition to classic autonomic and somatic opioid withdrawal findings. Additional clinical reports and systematic data are needed to characterize the withdrawal course and optimal management of these newer products.

Abbreviations

7-OH
7-hydroxymitragynine
COWS
Clinical Opiate Withdrawal Scale
DEA
Drug Enforcement Administration
MG
mitragynine
MP
mitragynine pseudoindoxyl
MOR
mu-opioid receptor
OUD
opioid use disorder.

Declarations

Ethics approval and consent to participate

Not applicable.

Clinical trial number

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report. No patient images are included. The consent documentation is available upon request.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

S.M., Q.C., and R.K. wrote the main manuscript. L.A., S.F., and J.O. contributed to the analysis and interpretation of clinical information and literature and critically revised the manuscript for important intellectual content. All authors read and approved the final manuscript and agree to be accountable for the work.

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