

Managing 7-Hydroxymitragynine Use Disorder with Buprenorphine-Naloxone

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Abstract

Kratom, a plant native to Southeast Asia, is legal in Hawai'i and is used for many purposes including pain relief and opioid withdrawal. Kratom contains many alkaloids with mitragynine being the most abundant. 7-hydroxymitragynine, one of the minor alkaloids in kratom, is approximately 46 times more potent than mitragynine. In recent years, 7-hydroxymitragynine has been available online and in Hawai'i vape shops where any individual can purchase it. In July 2026, due to its negative side effects, including substance use disorder development, the United States Drug Enforcement Administration announced its intent to temporarily placing 7-hydroxymitragynine under schedule I; kratom, which contains 7-hydroxymitragynine, remains uncontrolled. This case describes a patient with a history of getting off illicit opioids using kratom who developed tolerance and transitioned to 7-hydroxymitragynine. The patient believed 7-hydroxymitragynine, a "natural" plant product, was safe. She eventually also developed tolerance to 7-hydroxymitragynine, spending approximately \$150 per day. This financial burden affected her mental health and contributed to the development of suicidal ideation. In the hospital, her withdrawal symptoms from 7-hydroxymitragynine were similar to opioid withdrawal. She was managed with buprenorphine-naloxone, requiring 40mg-10mg per day to control her cravings. This case highlights the adverse effects of 7-hydroxymitragynine and demonstrates the successful treatment of 7-hydroxymitragynine withdrawal and substance use disorder (specifically 7-hydroxymitragynine) with high-dose buprenorphine-naloxone. Although the temporary scheduling of 7-hydroxymitragynine may limit its availability, other psychoactive botanical products may emerge as alternatives. Therefore, clinicians are recommended to routinely inquire about patients' use of botanical supplements in addition to illicit substances.

Introduction

Kratom, also known as *Mitragyna Speciosa*, is a legal botanic substance in most of the United States (US), including Hawai'i.^{1,2} Although used for centuries in Southeast Asia, kratom is classified under "drugs of concern" by the US Drug Enforcement Administration (DEA) because of its potential for negative effects such as overdose and dependence.^{3,4} Kratom acts on various opioid receptors and

has opioid-like properties, but at low doses, it acts as a stimulant.⁵ Some common uses of kratom include recreation, pain management, and opioid withdrawal.⁶ The most recent data from the 2021 National Survey on Drug Use and Health estimated 0.6% (1.7 million) of Americans 12 years and older have used kratom in the past year.⁷ Kratom sales are increasing and in 2024, kratom had \$441,408,984 in sales, increasing 21.9% since the previous year.⁸

Kratom contains many alkaloids, with mitragynine being the most abundant.^{6,9} According to Cinosi et al, kratom is estimated to be composed of 66% mitragynine.⁶ 7-hydroxymitragynine, a 2% minor alkaloid of kratom, is approximately 46 times and 13 times more potent than mitragynine and morphine, respectively (please see [Table 1](#) for currently known differences between kratom and 7-hydroxymitragynine products).^{6,10} In recent years, 7-hydroxymitragynine, also known as 7-OH, has been available in local vape shops in Hawai'i and any individual can purchase 7-hydroxymitragynine.² It is also available online and comes usually in the forms of tablets and shots.^{1,2,11} One serving according to the manufacturer is usually less than 10mg however in some cases, it is more. The recommended dose also varies depending on the company.¹¹ Since it is a "plant" product, people who use kratom or 7-hydroxymitragynine (or come across it in the store) may think that these substances are safe.

Literature searches show some case reports / series of patients taking kratom who develop kratom use disorder and are treated with buprenorphine-naloxone.¹² While these prior cases provided treatment insight into kratom use disorder, to our knowledge, as of 6/2025, there are no case reports on patients taking just 7-hydroxymitragynine.^{12,13} The authors report a case of a patient who initially used kratom but later switched to 7-hydroxymitragynine after developing tolerance to the effects of kratom. Using DSM-5 criteria, she was diagnosed with "other substance" use disorder, specifically 7-hydroxymitragynine, and was treated successfully with high doses of buprenorphine-naloxone.

Case Presentation

A houseless woman in her early 20's with a history of polysubstance use (illicit opioids, kratom, and 7-hydroxymitragynine) was admitted due to suicidal ideation. She reported using illicit opioids in the past; however, she was not forthcoming about the exact use or treatment she tried. Two years prior to admission, she was introduced to oral kratom by her friend as a means of discontinuing illicit opi-

oid use. This worked, but her kratom dose quickly increased until she was taking approximately 60g per day and sometimes more. One year prior to admission, the patient recognized that kratom was no longer effective and subsequently started to use oral 7-hydroxymitragynine. Initially, the patient was taking 75mg per day, but she developed tolerance quickly and consumed up to 600mg per day (spending approximately \$150 per day) a few weeks prior to admission to avoid withdrawal symptoms. Per the patient, most of her days leading up to admission were spent consuming 7-hydroxymitragynine to avoid withdrawal symptoms; each dose (15 mg tablet) provided only about 20 minutes of relief before withdrawal symptoms gradually returned. She purchased the 7-hydroxymitragynine tablets from a local vape shop. During this time, she was unable to work or do other activities. She reported that her use of 7-hydroxymitragynine led to financial burden, anxiety about the use, and ultimately culminated in hopelessness and suicidal ideation. Using DSM-5 criteria, the patient met the criteria for “other substance” use disorder, specifically, 7-hydroxymitragynine. The patient’s physical exams were within normal limits. She had no skin lesions or needle marks on her arms or legs. Her lab tests were all within normal limits. She was admitted to the psychiatric ward.

On the day of admission, her Clinical Opiate Withdrawal Scale (COWS) was 5 (mild opioid withdrawal), however her COWS quickly worsened by the second hospital day ranging from 12-16 (moderate opioid withdrawal).¹⁴ She was diagnosed with withdrawal from 7-hydroxymitragynine and was treated with buprenorphine-naloxone by the addiction medicine team. She was initially given buprenorphine-naloxone 2mg-0.5mg (for 2mg buprenorphine – 0.5 mg naloxone) every 2 hours as needed for withdrawal, up to 12 doses (24mg-6mg per day). Her COWS came down to 2 after taking total of 4mg-1mg; however, she was encouraged to take as much as she needed to control her cravings. The patient informed the team that she wanted to limit her buprenorphine-naloxone use because she wanted to stop taking all substances, including buprenorphine-naloxone, as soon as possible. Counseling and education, including duration of treatment for buprenorphine-naloxone, were given. On the 2nd hospital day, she took total of buprenorphine-naloxone 10mg-2.5mg. The patient’s buprenorphine-naloxone doses increased steadily throughout the hospitalization despite the low COWS. She understood the importance of controlling her craving to avoid relapse, especially leading to illicit opioid use. By the 6th hospital day, her dose stabilized at buprenorphine-naloxone 40mg-10mg per day with no craving and was discharged on the 8th hospital day to a community substance treatment program and was continued on buprenorphine-naloxone as outpatient. See [Table 2](#) for buprenorphine-naloxone doses taken by the patient.

Supportive medications were provided as needed to manage withdrawal symptoms. The patient was offered various medications, including ondansetron 4-8mg every 8 hours as needed for nausea and vomiting, ibuprofen 600mg every 6 hours as needed for muscle aches / pain, and loperamide 2mg every 2 hours as needed for diarrhea (maxi-

mum 16mg per day). The use of these medications was minimal.

Discussion

This case supports using higher doses of buprenorphine-naloxone to manage 7-hydroxymitragynine use disorder / withdrawal. Per history, the patient used kratom to discontinue illicit opioid use. A year later, due to ineffectiveness of kratom, she transitioned to 7-hydroxymitragynine and quickly developed tolerance spending \$150 per day, leading to financial stress which affected her mental health and contributed to the development of suicidal ideation.

The clinical presentation of this patient was characterized by classic opioid withdrawal symptoms such as an increase in heart rate, upset stomach, tremor, restlessness, irritability, bone pain, joint aches and piloerection, which supported similarities in withdrawal between kratom alkaloids and traditional opioids. Interestingly, this patient did not exhibit rhinorrhea, yawning, or mydriasis, which are symptoms seen in opioid withdrawal. Although there are still many unknowns about kratom / 7-hydroxymitragynine, Smith et al, surveyed those who use kratom and found common kratom withdrawal symptoms included anxiety, irritability and low energy while other typical symptoms seen in opioid withdrawal, such as rhinorrhea and tearing were not as common.¹⁵ Her withdrawal was relieved with buprenorphine-naloxone, which demonstrates promise in treating patients with withdrawal symptoms from 7-hydroxymitragynine. When compared to other kratom use disorder patients, this patient needed a higher dose of maintenance buprenorphine, 40mg-10mg per day, to control cravings.^{12,13} This difference may be partly explained by the pharmacology of 7-hydroxymitragynine being more potent than mitragynine as well as her year-long daily use of 7-hydroxymitragynine. Being a “natural” plant product like kratom, 7-hydroxymitragynine may lead to the perception that it is a “safe” substance. This was evident in this patient, who believed 7-hydroxymitragynine was safe and was not aware of the negative effects, including the risk of developing dependence. This case also highlights an issue with a patient’s self-directed transition from illicit opioids to kratom, and then to 7-hydroxymitragynine as a harm-reduction attempt, which led her to developing a new substance use disorder.

On July 15, 2025, the Food and Drug Administration (FDA) issued warning letters to firms marketing products containing 7-hydroxymitragynine, claiming 7-hydroxymitragynine cannot be lawfully added to conventional foods.¹⁶ Approximately one year later, the DEA announced its intent to temporarily place 7-hydroxymitragynine in Schedule I, effective August 5th, 2026, making it an illegal controlled substance.¹⁷ However, kratom, which naturally contains 7-hydroxymitragynine, remains uncontrolled.⁴ Although the temporary scheduling of 7-hydroxymitragynine may limit its availability, other psychoactive botanical products may emerge as alternatives. Therefore, the authors recommend clinicians to routinely inquire about pa-

Table 1. Currently Known Differences Between Kratom and 7-Hydroxymitragynine Products^{6,9,10,17}

Characteristic	Kratom	7-hydroxymitragynine
Number of alkaloids	Over 50 alkaloids	Usually only 7-hydroxymitragynine
Prominent alkaloid	Mitragynine (66% of kratom plants)	7-hydroxymitragynine
% of 7-hydroxymitragynine	≤ 2%	Usually only 7-hydroxymitragynine
Natural vs synthetic	Usually natural	Mostly synthetic
Effect on Mu opioid receptors	Partial agonist	Data suggests it acts as a full agonist
Respiratory Depression	Appears to have minimal responsibility toward respiratory depression	More than 3-fold greater potency than morphine.
Potency compared to morphine	Since 7-hydroxymitragynine is 46 more time stronger than mitragynine, kratom may be approximately 0.3 times the potency of morphine from simple calculation (13/46 = 0.28)	13 times stronger than morphine
Legality in Hawai'i	Legal	It will be illegal starting August 5 th 2026
Reversed by naloxone	Yes	Yes
Symptoms of Withdrawal	Similar to opioid withdrawal	Similar to opioid withdrawal
Current Treatment for Withdrawal / Use Disorder	Buprenorphine-naloxone	Buprenorphine-naloxone
Treatment Dosages of Buprenorphine-naloxone	Doses recommended by Weiss et al: range of 4-1mg to 16-4 mg depending on the daily dose of kratom.	In this case report, at 4-1 mg, COWS came down to 2, however required 40-10 mg to control craving.

Table 2. Patient Buprenorphine-naloxone Regimen, Amount Used, and Clinical Opiate Withdrawal Scale (COWS) Score by Day

Day	Regimen	Total buprenorphine-naloxone dose required	COWS score
Day 1	Admitted to the psychiatric ward. No buprenorphine-naloxone given	None	5
Day 2	Buprenorphine-naloxone 2mg-0.5mg q2h PRN for withdrawal, maximum 24mg-6mg per day	10 mg - 2.5mg	12-16 (prior to initiation) 2 (after 4mg-1mg)
Day 3	Buprenorphine-naloxone 8mg-2mg daily + 2mg-0.5 mg q2h PRN for subjective withdrawal, maximum 32mg-8mg per day	22 mg - 5.5mg	COWS score not done - patient was treated for subjective withdrawal, including craving
Day 4-5	Buprenorphine-naloxone 8mg-2mg TID + 2mg-0.5mg q4h PRN for subjective withdrawal, maximum 36mg-9mg per day	36 mg - 9mg	COWS score not done - patient was treated for subjective withdrawal, including craving
Day 6-8	Buprenorphine-naloxone 16mg-4mg QAM + 8mg-2mg at lunch + 16mg-4mg QHS	40 mg - 10mg	2-4 (Day 6)

PRN = *Pro re nata* (as needed), QAM = *quaque die ante meridiem* (every morning), QHS = *quaque hora somni* (every night at bed time), TID = *Ter in die* (three times a day)

tients' use of botanical supplements in addition to illicit substances.

Limitations

The limitations for this study are that this is a case report of a single patient with 7-hydroxymitragynine use disorder who responded well to this treatment protocol, which restricts the generalizability of the findings. Outcomes may differ across different patterns of 7-hydroxymitragynine use or withdrawal severity. Additionally, there is no standardized treatment protocol for kratom or 7-hydroxymitragynine use disorder, leaving clinicians to extrapolate from the limited data available. Furthermore, the unregulated nature of kratom products means that potency and purity can vary widely, which makes clinical responses to pharmacotherapy less predictable. Finally, while the patient reported symptomatic relief and underwent successful buprenorphine-naloxone induction, longer-term outcomes were not assessed. Further research is warranted to establish evidence-based protocols and long-term outcomes.

Patient consent

Our institutional board review had determined that this was a non-human research project. Information in this report has been de-identified to protect anonymity.

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None of the authors identify any conflict of interest

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