

# Novel case of maternal and neonatal kratom dependence and withdrawal

Lindsay Mackay MD CCFP Ronald Abrahams MSc MD CCFP FCFP

The opioid crisis is growing across Canada, resulting in devastating morbidity and mortality.<sup>1</sup> It is vital that awareness be raised within the medical community concerning kratom, a legally obtainable and easily accessible drug with harmful effects and addiction potential comparable to what is seen with common opioids.

## Case

A 29-year-old woman with 4 pregnancies, 1 birth of viable offspring, and 3 abortions was admitted on postpartum day 2 from another hospital with the goal of tapering her daily kratom use. Her infant was transferred to a tertiary neonatal intensive care unit (NICU) to be treated for neonatal withdrawal. The patient was admitted to an inpatient combined care unit for pregnant and postpartum women who struggle with addiction.

The patient was in a stable relationship with the baby's father and came from a supportive family. She was employed full-time and her housing was considered adequate. Her past medical history was relevant for opioid use disorder, chronic low back pain, and anxiety. She was initially prescribed oxycodone for low back pain 6 years previously, and her use escalated over time to well beyond what was prescribed and was negatively affecting her life. She attended an opioid detoxification program on 2 occasions. Following detoxification, 2 years before presentation, her back pain recurred. She was introduced to kratom by an acquaintance, who informed her it was a natural herbal supplement that relieved anxiety and pain. She found that it effectively treated her back pain and improved her mood and anxiety. When her pregnancy was confirmed, she was using 18 to 20 g of kratom powder 3 times daily and continued this dose until delivery. She legally purchased kratom for \$40 per day. The patient described symptoms consistent with opioid withdrawal (ie, diaphoresis, rhinorrhea, myalgia, anxiety, nausea, diarrhea, and piloerection) if she delayed her dose by 4 to 6 hours. She had tried numerous times unsuccessfully to taper her kratom intake over the past 2 years. The patient had a relatively unremarkable pregnancy and delivered a female infant at 37 weeks and 5 days. On postpartum day 2 the infant's neonatal abstinence scores increased and she developed feeding intolerance, jitteriness, irritability, and emesis for which she was transferred to the NICU. In the NICU the infant was treated with intravenous morphine up to a maximum dose of 10 µg/kg/h. The baby was eventually stepped down to oral morphine once she was able to tolerate oral intake and was transferred to the ward with her mother on day 7. During the next few days, the patient started to breastfeed to alleviate the baby's withdrawal and enhance bonding.

Upon admission to the perinatal addictions unit, the patient was given the option to taper her own supply of kratom on the ward; however, she opted to partially replace the kratom with morphine owing to the lower cost and the inability to obtain kratom while in hospital. On postpartum day 2 the patient was started on 10 mg of oral morphine 3 times daily and her kratom dose was cut in half to 10 g, 3 times daily. On this regimen she experienced some mild to moderate withdrawal symptoms consisting of anxiety,

## Editor's key points

- Kratom is a legally obtainable and easily accessible drug with harmful effects, addiction potential, and withdrawal symptoms comparable to what is seen with common opioids.
- Kratom withdrawal in neonates should be treated with rooming-in and close contact with the mother as the standard of care to prevent neonatal intensive care unit admission and to prevent or reduce morphine use.
- Clinicians should ask patients about their use of legal herbal supplements, specifically kratom, and educate patients about their risks.

## Points de repère du rédacteur

- Le kratom est une substance médicinale légalement et facilement accessible. Il a des effets néfastes, peut créer une dépendance, et sa cessation cause des symptômes de sevrage comparables à ceux observés avec les opioïdes courants.
- Il faut traiter les symptômes de sevrage du kratom chez les nouveau-nés par un partage de la chambre et un contact étroit avec la mère comme norme de soins pour prévenir une admission à l'unité néonatale de soins intensifs et pour prévenir ou réduire le recours à la morphine.
- Les cliniciens devraient questionner leurs patientes à propos de leur utilisation de suppléments d'herbes médicinales légaux, en particulier le kratom, et renseigner leurs patientes sur leurs risques.

piloerection, diaphoresis, and restlessness that improved over the next few days. The morphine and kratom were decreased in an alternating manner during hospitalization, and the patient was no longer taking either substance after 4 weeks. The taper was slow to ensure the patient was able to appropriately care for her new baby without being in severe withdrawal. Long-term opioid replacement therapy was discussed with the patient; however, she was motivated to be off kratom and other opioids entirely before discharge.

## Discussion

A literature search was completed in PubMed using the key words *kratom* and *Mitragyna speciosa*. Kratom is the tropical tree *Mitragyna speciosa*, which is native to Southeast Asia. It has been long used in the region as a stimulant for labourers and has more recently been used as a recreational drug of abuse. It is currently a controlled substance in most of Southeast Asia; however, it is legal in both the United States and Canada.<sup>2</sup> The active alkaloid compounds are mitragynine and 7-hydroxymitragynine, which are selective and full agonists, respectively, at μ-opioid receptors.<sup>3</sup> Kratom appears to have opioid-like effects at higher doses (ie, >5 g) and stimulant-like effects at lower doses (ie, approximately 1 to 5 g).<sup>4</sup>

There has been a growing number of case reports published regarding addiction, withdrawal, and overdoses resulting in death when kratom is combined with other substances such as sedatives and antidepressants.<sup>5-13</sup> There is only one mention of the effect of the substance in pregnancy in the literature, where a woman in Thailand using kratom gave birth to an infant with a withdrawal syndrome.<sup>13</sup> There is compelling evidence to support that treating neonatal opioid withdrawal syndrome with rooming-in decreases hospital stay cost per infant, NICU admission, morphine requirements, and length of stay compared with standard care in a nursery.<sup>14-17</sup>

Women who deliver on the combined care perinatal addictions unit are roomed-in with their infants, and breastfeeding and close contact are promoted to treat neonatal withdrawal. Morphine is only used when absolutely necessary based on objective findings. As the patient in this case did not deliver on the ward, the baby was treated for withdrawal with morphine in the NICU initially before being transferred to the tertiary NICU. We strongly believe kratom withdrawal in neonates should be treated with rooming-in and close contact with the mother as the standard of care. In this case, it is possible that immediate rooming-in could have prevented NICU admission and reduced or eliminated morphine use for the infant.

The literature describes a kratom withdrawal syndrome consistent with the patient's experience of gastrointestinal upset, rhinorrhea, agitation, anxiety, tremor, and insomnia.<sup>2,11,18</sup> The patient also described feeling

psychologically dependent on the substance as she believed it relieved her anxiety and chronic pain and, without it, she had difficulty fulfilling her home and work responsibilities.

## Conclusion

With the growing popularity of seemingly natural alternatives to traditional prescription medicines, it is vital that primary care providers are aware of the dangers and the effects kratom and other unregulated psychoactive herbs might have on maternal and infant outcomes.



**Dr Mackay** is a family physician who provides low-risk obstetric and addictions treatment in Vancouver, BC. **Dr Abrahams** is Clinical Professor in the Department of Family Practice at the University of British Columbia and Medical Director of Perinatal Addictions at the BC Women's Hospital and Health Centre in Vancouver.

### Competing interests

None declared

### Correspondence

Dr Lindsay Mackay, e-mail [lindsay.mackay@cw.bc.ca](mailto:lindsay.mackay@cw.bc.ca)

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