Received: 28 February 2024 | Revised: 9 May 2024 | Accepted: 17 May 2024

DOI: 10.1002/ccr3.9007

CASE REPORT

Clinical Case Reports Open Access WILEY

A case of a patient requiring medically supervised withdrawal after ingestion of witch hazel toner as a surrogate alcohol

Kayley E. Anderson[1] | **Alëna A. Balasanova**[2]

[1]College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, USA

[2]Department of Psychiatry, College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, USA

Correspondence
Alëna A. Balasanova, Department of Psychiatry, University of Nebraska Medical Center, Nebraska Medical Center, Poynter Hall 5 Floor, Omaha, NE 68198-5578, USA.
Email: alena.balasanova@unmc.edu

Key Clinical Message

Standardized alcohol withdrawal treatments, such as the phenobarbital taper protocol, are effective in the management of alcohol withdrawal syndromes associated with surrogate alcohols including witch hazel toner.

Abstract

Ingestion of alcohol not intended for consumption, also known as surrogate alcohols, is well-documented in patients with alcohol use disorder. Ingestion of surrogate alcohols may lead to higher morbidity and mortality than standard alcohol consumption alone. However, management of complications such as withdrawal syndromes in individuals consuming surrogate alcohols has received little attention in the literature. We present the case of a patient with alcohol use disorder who required medically supervised withdrawal following ingestion of witch hazel toner as a surrogate alcohol. Review of patient's history revealed routine ingestion of witch hazel toner as a substitute to traditional alcohols. Witch hazel toner is a non-FDA regulated product designed for topical use; it is commonly sold in a steam distilled formulation containing 13%–15% ethanol and small amounts of essential oil components, such as carvacrol and eugenol. During hospitalization the patient received treatment of alcohol withdrawal with a phenobarbital taper protocol and was discharged in stable condition. He also received resources for alcohol use disorder to follow-up in the outpatient setting. To our knowledge this is the first reported case of a patient requiring medically supervised withdrawal following ingestion of witch hazel toner and sheds light on the potential complications and management of patients who present following ingestion.

KEYWORDS

addiction, alcohol, ingestion, surrogate alcohol, withdrawal

1 | INTRODUCTION

We present the case of a patient with alcohol use disorder who routinely ingested witch hazel toner as an alternative to alcohol and presented for medically supervised withdrawal. The patient successfully completed a phenobarbital taper protocol in the hospital and was discharged in stable condition. He was provided with alcohol use disorder resources to follow-up in the outpatient setting. The patient provided written and verbal permission to publish the information in this manuscript.

2 | CASE PRESENTATION

The patient was a 58-year-old man with a past medical history of alcohol use disorder, unspecified anxiety and depressive disorders, and chronic low back pain who presented to the hospital via fire department after being found down in his home. Initial reports stated the patient had been consuming witch hazel toner as a surrogate alcohol. In the emergency department, blood alcohol level was 254 mg/dL and aspartate aminotransferase and aminotransferase were 46 and 25 U/L respectively. He also had a lactate level of 5.2 mmol/L. The patient was given standard oral vitamin supplementation (folate, thiamine, and multivitamin) as well as a 2-L bolus of lactated ringers and 4 mL of oral lorazepam. Poison control was contacted and recommended admission for clinical monitoring of witch hazel toner toxicity without specific additional interventions. The patient was subsequently admitted to the general medical floor for acute alcohol intoxication with reported desire for medically supervised withdrawal.

3 | INVESTIGATIONS AND TREATMENT

On admission, our institution's alcohol withdrawal phenobarbital taper protocol was initiated; this consists of a 10 mL per kilogram of ideal body weight intramuscular loading dose followed by twice daily scheduled oral doses for 3 days. Additionally, as-needed oral phenobarbital is available on an as-needed basis every 6 h for objective signs of withdrawal such as vital sign abnormalities, tremor, or diaphoresis. The patient had a documented history of prior alcohol withdrawal episodes with an uncertain history of complicated withdrawal. He began to display objective signs of alcohol withdrawal including tachycardia, hypertension, and tremors but did not endorse any auditory, visual, or tactile hallucinations and denied past history of seizures in the context of withdrawal. After initiation of the phenobarbital protocol the patient received an additional 4 mL of oral lorazepam for breakthrough withdrawal symptoms. The oral lorazepam was discontinued after this second dose due to the availability of as-needed phenobarbital for breakthrough symptoms. The patient's lactic acidosis began to improve by hospital day 2 and completely resolved by the day of discharge.

4 | OUTCOME AND FOLLOW-UP

Upon interviewing the patient, he revealed regularly consuming witch hazel toner as a cheaper alternative to standard alcohols. He reported past episodes of consuming up to five 8-fluid ounce bottles of witch hazel toner in a single sitting. Review of medical records also showed prior admissions under similar circumstances, where the patient would report ingesting witch hazel toner and his laboratory studies followed a similar pattern of lactic acidosis with varying levels of acute liver damage ranging from no clinically significant elevations in liver function tests to acute hepatitis. During past admissions, liver function tests normalized prior to discharge, and their elevation was attributed to the acute effects of alcohol ingestion.

The patient's alcohol withdrawal symptoms resolved over the course of his admission, and he was discharged in stable condition on hospital day 4. The addiction psychiatry team was consulted and met with the patient during his hospital stay, offering pharmacotherapy and resources for alcohol use disorder. The patient declined pharmacotherapy but was receptive to resources for outpatient follow-up.

5 | DISCUSSION

Witch hazel is the common name of the plant *Hamamelis virginiana L*, used for its anti-inflammatory and astringent properties for management of dermatologic conditions including acne vulgaris and external hemorrhoids.[1] These properties have been attributed to polyphenols, including tannins, present in the bark and leaves of the plant.[1] Witch hazel is commonly sold in a steam distilled formulation, known as witch hazel toner, containing 13%–15% ethanol and small amounts of essential oil components, such as carvacrol and eugenol.[2] In the United States, witch hazel toner is regulated as an over-the-counter topical product and is not intended for ingestion. Brands generally vary on ethanol content and essential oil components.

Surrogate alcohol ingestion among individuals with alcohol use disorder is a well-documented phenomenon and is associated with higher rates of morbidity and mortality than standard alcohol consumption alone.[3,4] Patients cite easy accessibility and lower cost as driving

factors for consuming surrogate alcohols. Definitions of "surrogate" alcohol vary, encompassing anything from alcohol intended for industrial use (e.g., isopropyl alcohol) to illicitly manufactured alcohol (e.g., "moonshine").[3] It is estimated that 27.9% of the alcohol consumed globally and 12.0% of all alcohol consumed in the United States fits this definition.[3] Additionally, surrogate alcohol ingestion often involves "toxic alcohols" such as methanol, isopropyl alcohol, and ethylene glycol, all of which are found in products not intended for human consumption.

Although potential negative health effects of certain toxic alcohols are well known (e.g., methanol's association with blindness[5]), there is no literature specifically outlining the clinical effects of witch hazel toner when ingested as a surrogate alcohol. To our knowledge, this is the first case of a patient requiring medically supervised withdrawal after witch hazel toner ingestion, and sheds light on the potential presentation and complications associated with this surrogate alcohol. This is important because patients who consume witch hazel toner are at risk for complicated and potentially dangerous withdrawal similar to withdrawal from standard alcohols. Our patient was stabilized using benzodiazepines and a phenobarbital protocol designed for alcohol withdrawal, suggesting that management of witch hazel toner ingestion as a surrogate alcohol rather than a toxic ingestion could aid in shorter times to initiating effective treatment.

6 | CONCLUSION

Our patient presented after regular consumption of witch hazel toner and required medically supervised withdrawal. There is limited literature on management of witch hazel toner consumption as a surrogate alcohol. Our patient was admitted for 4 days of medically supervised withdrawal using phenobarbital. This case sheds light on alcohol withdrawal as a potential complication of witch hazel toner ingestion and demonstrates that a standardized alcohol withdrawal protocol can serve as an effective management strategy.

AUTHOR CONTRIBUTIONS

Kayley E. Anderson: Formal analysis; investigation; methodology; visualization; writing – original draft. **Alëna A. Balasanova:** Conceptualization; investigation; methodology; project administration; resources; supervision; writing – review and editing.

ACKNOWLEDGMENTS

None.

FUNDING INFORMATION

There were no sources of financial or material support for this manuscript.

CONFLICT OF INTEREST STATEMENT

None of the authors declare any conflicts of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

CONSENT

The patient provided written and verbal informed consent for the information in this case report to be published.

ORCID

Alëna A. Balasanova https://orcid.org/0000-0001-9735-2712

REFERENCES

1. Thring TS, Hili P, Naughton DP. Antioxidant and potential anti-inflammatory activity of extracts and formulations of white tea, rose, and witch hazel on primary human dermal fibroblast cells. *J Inflamm*. 2011;8(1):27. doi:10.1186/1476-9255-8-27
2. Gangemi S, Minciullo PL, Miroddi M, Chinou I, Calapai G, Schmidt RJ. Contact dermatitis as an adverse reaction to some topically used European herbal medicinal products - part 2 Echinacea purpurea-Lavandula angustifolia. *Contact Derm*. 2015;72(4):193-205. doi:10.1111/cod.12328
3. Lachenmeier DW, Rehm J, Gmel G. Surrogate alcohol: what do we know and where do we go? Alcoholism: clinical and experimental. *Research*. 2007;31(10):1613-1624. doi:10.1111/j.1530-0277.2007.00474.x
4. Rehm J, Kailasapillai S, Larsen E, et al. A systematic review of the epidemiology of unrecorded alcohol consumption and the chemical composition of unrecorded alcohol. *Addiction*. 2014;109(6):880-893. doi:10.1111/add.12498
5. Gallagher N, Edwards FJ. The diagnosis and Management of Toxic Alcohol Poisoning in the emergency department: a review article. *Advanced Journal of Emergency Medicine*. 2019;3(3):e28. doi:10.22114/ajem.v0i0.153

How to cite this article: Anderson KE, Balasanova AA. A case of a patient requiring medically supervised withdrawal after ingestion of witch hazel toner as a surrogate alcohol. *Clin Case Rep*. 2024;12:e9007. doi:10.1002/ccr3.9007