CASE REPORT

CE 1.0 Contact Hour

Kava-Induced Ichthyosis

Kaeleigh Peterman, Emily Reynolds

ABSTRACT: Acquired ichthyosis is an uncommon finding in the outpatient dermatology clinic. This case portrays a presentation of ichthyosis induced by the medicinal drink, kava, which is becoming a more mainstream beverage in American culture. This case provides an overview of the clinical presentation of ichthyosis and a historical background on kava as well as recent studies on kava-induced ichthyosis or kava dermopathy. It also highlights the need to consider the use of herbal and alternative therapies when considering the underlying causes of skin disorders.

Key words: Ichthyosis, Kava, Herbal Supplements, Alternative Therapies, Kava Dermopathy, Kava Ichthyosis, Xerosis

ICHTHYOSIS

Ichthyosis is an uncommon skin disorder characterized by dry, fish-like scales that primarily affects the trunk and extremities excluding the flexural parts of the body (Dahl, 2019). There are over 20 types of ichthyosis documented, with hereditary ichthyosis vulgaris being the most common and appearing in the first year of life.

Acquired forms of the skin condition can be precipitated by a variety of systemic abnormalities involving the thyroid, HIV exposure, or Hodgkin's lymphoma. It can also be induced by various medications, including a herbal therapy in the form of a medicinal drink called kava (Harvey, 2017).

CASE PRESENTATION

A 26-year-old White woman presents to the dermatology clinic as a new patient with a concern of new onset of severely dry, scaling skin affecting the trunk and bilateral extremities. The patient is healthy with no pertinent medical history, and her only reported medication is an oral contraceptive. She denies recent use of over-the-counter medications, alcohol, or drugs. The patient denies any family history of relevant skin rashes or dry skin disorders.

The patient states the xerosis developed approximately 2 months prior with previous treatment including over-the-counter emollients and chemical exfoliants resulting in minimal improvement. Upon examination, diffuse fish-like scaling with excessive xerosis was noted affecting the chest, abdomen, back, bilateral arms, and legs. Other pertinent findings included mild erythema with diffuse waxy white scaling affecting the scalp consistent with seborrheic dermatitis.

Treatment for the seborrheic dermatitis was initiated with ketoconazole shampoo 2% two to three times per week alternating with over-the-counter antidandruff shampoos. Given her hallmark clinical signs, she was diagnosed with ichthyosis. Because of the patient's lack of family history and adult onset, it was determined to be an acquired form and not hereditary. Laboratory tests were ordered including complete blood count with differential, thyroid stimulating hormone, and HIV with normal findings. The patient was advised to begin daily to twice-daily treatment with a urea-based cream.

The next day, the patient contacted the office noting she regularly drinks kava for stress and depression and as an aid in her recovery from alcoholism. Her current reported intake was at least one kava drink per day. With the absence of other contributory factors, it was deduced that the ichthyosis was likely because of the use of kava. The patient was advised to eliminate the use of kava for the next month until her follow-up.

One month later, the patient reported discontinuing use of kava as advised, with significant improvement of the ichthyosis. Upon examination, there was residual mild xerosis affecting the bilateral arms and left lower leg. The fish-like scaling that was previously appreciated had resolved. On examination, the seborrheic dermatitis affecting the scalp was not sufficiently controlled, and topical clobetasol 0.05% solution was initiated. The patient was advised to continue to limit the use of kava to avoid recurrence of the acquired ichthyosis.

KAVA BACKGROUND

Kava is a medicinal drink enjoyed by many around the world for the psychologic and euphoric benefits as well as others including local anesthetic, antithrombotic, and anticonvulsant

Kaeleigh Peterman, BS, CDT, Vanguard Skin Specialists, Colorado Springs, CO.
Emily Reynolds, RN, MSN, FNP-BC, DCNP, Vanguard Skin Specialists, Colorado Springs, CO.

The authors declare no conflict of interest.

Correspondence concerning this article should be addressed to Emily Reynolds, RN, MSN, FNP-BC, DCNP, Vanguard Skin Specialists, 2620 Tenderfoot Hill Street, Suite 110, Colorado Springs, CO 80906. E-mail: emilyreynoldsfnp@gmail.com

DOI: 10.1097/JDN.0000000000000503

properties (Hannam, Murray, Romani, Tuicakau, & Whitfeld, 2014). Kava is derived from the root of the kava plant *Piper methysticum,* which is within the black pepper family, and has the Greek meaning "intoxicating pepper." Kava-induced ichthyosis or kava dermopathy clinically resembles ichthyosis (Norton & Ruze, 1994). The dry, thickened scaling associated with kava dermopathy is known as "kanikani" or crocodile skin in certain parts of the world (Harvey, 2017). It typically presents as a fine scaling, polygonal in morphology or fish-like, most often on the trunk initially and then spreads to other body areas (Hannam et al., 2014; Figure 1).

Kava dermopathy typically occurs with regular to heavy kava consumption, with use ranging from several times per month to daily to multiple times per day (Clough et al., 2003; Harvey, 2017). In many Eastern communities, kava is enjoyed as a ceremonial and recreational experience, and the thickening of the skin seen by kava-induced ichthyosis is even thought to be a sign of status (Hannam et al., 2014). A study performed in an Arnhem Land Aboriginal community showed that 45% of current kava users had kava dermopathy upon physical examination and 11% of participants had skin changes who were recent users of the drink (Clough et al., 2003). This outcome both confirmed that skin changes occur with the use of kava but also suggested that the ichthyosis rash decreases or resolves after discontinuing the use of kava.

There have been several hypotheses presented to explain the cause of kava dermopathy including chronic allergic contact dermatitis, the accumulation of kavalactones, and kava-induced interference of cholesterol metabolism, as well as many others (Norton & Ruze, 1994). A more recent study performed in the south Pacific islands of New Caledonia and Futuna Islands, where kava consumption is culturally prominent, suggested that there is a correlation between ichthyosis and the inhibition of nitric oxide synthesis (Barguil, Choblet, Warner, & Nour, 2013). In addition, kava consumption has been linked to elevated serum levels of gamma-glutamyltransferase (GGT), with no impact on patients' actual liver function. Barguil et al. suggested that elevated epithelial GGT may also play a role in kava dermopathy. This study required heavy kava drinkers to discontinue drinking kava for 1 month, with results showing a reduction of GGT levels back to normal range as well as visible improvement of the ichthyosis rash.

Another study performed in Fiji hypothesized that the CYP450 pathway is involved in kava ichthyosis as it is clinically and physiologically similar to lamellar ichthyosis, an autosomal recessive congenital form of ichthyosis (Hannam et al., 2014). Specifically, they suggested that the kavalactones within the kava drink inhibit the CYP450 enzyme, which is structurally similar to the gene CYP4F22 that is responsible for lamellar ichthyosis. At this time, there is no agreement in the scientific community concluding the exact cause of kava-induced ichthyosis.

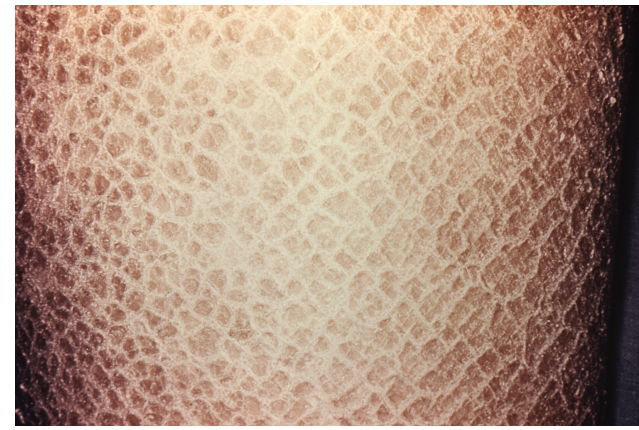

FIGURE 1. Dry, thickened, fish-like scaling seen in ichthyosis.

CONCLUSION

This case study shows the importance of considering all possible herbal and natural remedies that a patient may be consuming. It also provides insight into a fairly uncommon skin condition seen in the United States as kava is more regularly consumed in the South Pacific (Norton & Ruze, 1994). Kava was recently featured in *The Rolling Stone Magazine*, which reported that there are now over 100 kava bars across the United States and it is becoming a more popular product for the treatment of anxiety and sleep disorders (Scaccia, 2018). As kava becomes more mainstream, kava dermopathy will likely be a condition that healthcare professionals in both dermatology and primary care observe more frequently.

REFERENCES

Barguil, Y., Choblet, E., Warner, S., & Nour, M. (2013). Kava ichthyosis: A nitric oxide synthase inhibition? *Annales De Toxicologie Analytique.* Retrieved from https://www.ata-journal.org/articles/ata/pdf/2013/04/ata130027.pdf

Clough, A. R., Jacups, S. P., Wang, Z., Burns, C. B., Bailie, R. S., Cairney, S. J., … Currie, B. J. (2003). Health effects of kava use in an eastern Arnhem Land Aboriginal community. *Internal Medicine Journal*, *33*(8), 336–340.

Dahl, A. A.. (2019). Ichthyosis. Retrieved from https://emedicine.medscape.com/article/1198130-overview

Hannam, S., Murray, M., Romani, L., Tuicakau, M., & Whitfeld, M. J. (2014). Kava dermopathy in Fiji: An acquired ichthyosis? *International Journal of Dermatology*, *53*(12), 1490–1494. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25069767

Harvey, G. (2017). Kava dermopathy. Retrieved from https://www.dermnetnz.org/topics/kava-dermopathy

Norton, S. A., & Ruze, P. (1994). Kava dermopathy. *Journal of the American Academy of Dermatology*, *31*, 89–97.

Scaccia, A. (2018). Kava: Inside the all-natural high that's sweeping America. Retrieved from https://www.rollingstone.com/culture/culture-news/kava-inside-the-all-natural-high-thats-sweeping-america-125828/

For more than 53 additional continuing education articles related to dermatologic conditions, go to NursingCenter.com.

Instructions:

- Read the article. The test for this CE activity can only be taken online at http://www.nursingcenter.com. Tests can no longer be mailed or faxed.
- You will need to create (it's free!) and login to your personal CE Planner account before taking online tests. Your planner will keep track of all your Lippincott Professional Development online CE activities for you.
- There is only one correct answer for each question. If you pass, you will receive a certificate of earned contact hours and answer key. If you fail, you have the option of taking the test again at no additional cost.
- A passing score for this test is 7 correct answers.
- Questions? Contact Lippincott Professional Development: 1-800-787-8985.

Registration Deadline: December 3, 2021

Provider Accreditation:
Lippincott Professional Development will award 1.0 contact hour for this continuing nursing education activity.

Lippincott Professional Development is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1.0 contact hour. Lippincott Professional Development is also an approved provider of continuing nursing education by the District of Columbia, Georgia, West Virginia, New Mexico, South Carolina, and Florida #50-1223.

Your certificate is valid in all states.

Disclosure Statement:
The authors and planners have disclosed that they have no financial relationships related to this article.

Payment and Discounts:

- The registration fee for this test is $10 for members; $20 nonmembers.