

Skin Infections in Ichthyosis

Prevention, Recognition, Treatment

Alli Blumstein

Visiting Predoctoral Research Fellow
Department of Dermatology
Feinberg School of Medicine, Northwestern University

While there are many forms of ichthyosis, all types are characterized by an impaired skin barrier. The skin barrier is the outermost part of the skin and the first line of defense against the outside world. With a compromised skin barrier, people with ichthyosis are more susceptible to bacterial and fungal skin infections. A recent study showed that individuals with ichthyosis have shifts in their surface bacteria and fungi, presumably related to poor barrier and reduced lipids/skin dryness. These shifts in the microbiome of skin likely contribute to overgrowth of harmful organisms and increase in certain bacterial and fungal infections in some individuals. As an example, many with ichthyosis are “colonized” (meaning have living on their skin) by *Staphylococcus aureus*, a harmful bacterium that is not usually found in healthy skin.

Prevention

The first step to preventing skin infections in people with ichthyosis is to maintain the skin barrier through emollient use. Emollients soften and moisturize the skin but petrolatum (petroleum jelly), a common ingredient of emollients, has been shown to improve barrier function and have anti-inflammatory effects as well, which can reduce the likelihood of infections.

Another method for improving barrier function and thereby reduce skin infections is taking dilute bleach baths. One can add a half to one cup of normal concentration (not concentrated) household bleach to a full bathtub for the soak; localized areas, such as the hands or feet can be soaked similarly with a tsp of bleach per gallon of water (or about 1 cc per liter). These have been used often for individuals with eczema who, similarly, have a poor skin barrier. Antibacterial soaps, such as Cetaphil antibacterial soap, or antiseptic washes, such as Hibiclens, can also be used to help with odor and bacterial overgrowth, but stopped if not tolerated because of skin sensitivity.

Recognizing signs of skin infection

Signs of bacterial infection (most often from *Staphylococcus aureus*) include an increased odor, drainage of pus or pus bumps, and/or greater red and tenderness. Fungal infections (Candida/yeast and dermatophyte/ringworm) can lead to increased skin redness and scaling, which can be masked by the ichthyosis. Your dermatologist can evaluate these signs and determine the type of organism involved and most appropriate oral or topical treatment through skin swabs and scrapings as appropriate. Your dermatologist will be looking for these signs in your routine skin checks.

Treatment

Skin infection is best treated by your dermatologist. Topical antibacterials and antifungals may suffice for very limited infection, but oral medications are available and often preferable to rapidly turn around infections.

References

1. Lodén M. Role of topical emollients and moisturizers in the treatment of dry skin barrier disorders. *Am J Clin Dermatol*. 2003;4(11):771-88.
2. Tham KC, Lefferdink R, Duan K, et al. Distinct skin microbiome community structures in congenital ichthyosis. *Br J Dermatol*. 2022 May 28. doi: 10.1111/bjd.21687. Online ahead of print.
3. Paller, AS, Mancini, AJ. Hereditary Disorders of Cornification (the Ichthyoses and Palmoplantar Keratodermas). In: *Clinical Pediatric Dermatology: A Textbook of Skin Disorders of Childhood and Adolescence*. (pp. 108-138), 6th Edition, 2022. London: Elsevier.
4. Browning, John C. "Ichthyosis Care: Skin Infection in Ichthyosis" *Foundation for Ichthyosis & Related Skin Types, Inc.*, <https://www.firstskinfoundation.org/skin-infection-in-ichthyosis>. Last accessed August 2, 2022.
5. Bakaa L, Pernica JM, Couban RJ, et al. Bleach baths for atopic dermatitis: A systematic review and meta-analysis including unpublished data, Bayesian interpretation, and GRADE. *Ann Allergy Asthma Immunol*. 2022;128:660-668.e9.
6. Miao H, Dong R, Zhang S, et al Inherited ichthyosis and fungal infection: an update on pathogenesis and treatment strategies. *Dtsch Dermatol Ges*. 2021;19:341-350.

This information is provided as a service to patients and parents of patients who have ichthyosis. It is not intended to supplement appropriate medical care, but instead to complement that care with guidance in practical issues facing patients and parents. Neither FIRST, its Board of Directors, Medical & Scientific Advisory Board, Board of Medical Editors, nor Foundation staff and officials endorse any treatments or products reported here. All issues pertaining to the care of patients with ichthyosis should be discussed with a dermatologist experienced in the treatment of their skin disorder.



Foundation for
Ichthyosis & Related
Skin Types

PO Box 1067, Lansdale, PA 19446-0687
Phone: 800-545-3286
Website: www.firstskinfoundation.org
Email: info@firstskinfoundation.org

Improve lives and seek cures for those affected by ichthyosis and related skin types.

August 2022