

Gut health and skin health connection: a case of probiotic-associated contact dermatitis resolution. Implications for radiation therapy

Abstract

This case report describes a 41-year-old woman with a history of chronic contact dermatitis who experienced significant improvement after taking a specialized probiotic supplement. The patient was initially diagnosed with a postpartum kidney and urinary tract infection (UTI) and was prescribed a course of natural therapy that included the probiotic. Within three weeks of taking the probiotic, the patient's contact dermatitis symptoms, including redness and itching, were completely resolved. The probiotic used in this case was a Freeze-Dried Bravo supplement, characterized by its unique microbial biodiversity and immune-modulating properties. The resolution of the dermatitis, in conjunction with the patient's UTI resolution, suggests a potential link between the gut microbiome and immune system function. Given that contact dermatitis is a common side effect of radiation therapy, these findings could have significant implications for the management of this condition in patients undergoing radiation treatment. Further research is warranted to explore the potential benefits of probiotic supplementation in mitigating radiation-induced skin damage.

Keywords: contact dermatitis, probiotics, microbiome, immune system, radiation therapy

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Introduction

Radiation therapy, a common treatment for various cancers, can have significant effects on the skin. One of the most prevalent side effects is skin irritation, which can affect up to 95% of patients undergoing radiation treatment. This irritation can manifest in various ways, including redness, dryness, tenderness, itching, and peeling. Beyond these general skin reactions, radiation therapy can also increase the skin's sensitivity and susceptibility to allergic reactions. This heightened sensitivity can make the skin more prone to developing contact dermatitis, a skin condition characterized by an allergic reaction to a specific substance. When exposed to allergens, individuals with radiation-induced skin sensitivity may experience symptoms such as itching, redness, swelling, and blistering.

The development of contact dermatitis in patients undergoing radiation therapy can significantly impact their quality of life. It can lead to discomfort, pain, and interference with daily activities. Additionally, the increased risk of allergic reactions can limit the types of skincare products and medications that patients can safely use.

In this case report, we present a patient with a history of chronic contact dermatitis who experienced significant improvement through the use of a specialized probiotic supplement. While this case report specifically focuses on a patient with chronic contact dermatitis, the findings could have significant implications for patients undergoing radiation therapy.

Case description

On 11 March 2024, a forty-one-year-old woman presented herself at the Cultivate True Health clinic with a postpartum kidney and urinary tract infection (UTI) and back pain localized in the kidney area. A course of natural therapy was administered in the form of D-mannose, oil of oregano, frequencies, and a novel probiotic. As part of the treatment plan for the UTI, the patient was given Freeze-Dried Bravo probiotic supplement to support the gut microbiome. This specialized probiotic was developed by Silver Spring Sagl (Switzerland) and is created through a process of fermenting bovine milk and colostrum. This product is characterized by a unique microbial biodiversity that encompasses hundreds of different strains, phages, and plasmids^{1,2} and is infused with immune modulating and detoxifying properties.^{3,4} The patient was prescribed one probiotic capsule per day. During the one-month follow-up visit, the patient reported that all issues with her UTI had been completely resolved within two weeks of treatment. The cleared infection was confirmed by a repeat urinalysis.

During the initial evaluation, a secondary issue of severe contact dermatitis of the hands was reported. The chronic condition had been present for sixteen years and was reported to be at its worst state with a new burning sensation and increased itching and redness. (Figure 1&2) The diagnosis of contact dermatitis had previously been proposed by a dermatologist. While contact dermatitis was not the focus of her initial visit, the patient was surprised to find that daily administration of the Freeze-Dried Bravo probiotic significantly improved the issue within two weeks (evidence by reduced redness) and completely resolved within three weeks. (Figure 3&4).



Figure 1 Dorsal surface of the patient's right hand prior to the initiation of Freeze-Dried Bravo probiotic consumption. Characteristic signs of contact dermatitis, including erythema (redness) and edema (swelling) can be observed.



Figure 2 Palmar surface of the patient's right hand prior to the initiation of Freeze-Dried Bravo probiotic consumption. Characteristic signs of contact dermatitis, including erythema (redness) and edema (swelling) can be observed.



Figure 3 Dorsal surface of the patient's right hand three weeks after daily consumption of the probiotic. A significant improvement in skin condition is evident, with the dorsal surface appearing normal and free from dermatitis symptoms.



Figure 4 Palmar surface of the patient's right hand three weeks after daily consumption of the probiotic. A significant improvement in skin condition is evident, with the palmar surface appearing normal and free from dermatitis symptoms.

All photographs of the patient's right hand were provided by the patient.

Contact dermatitis is a prevalent health concern. Daily activities expose the skin to potential dermatitis-inducing substances such as: preservatives, surfactants, and antimicrobials. Understanding the body's immune response behind contact dermatitis is crucial in developing new treatment approaches. Current medications for skin diseases often have negative side effects. Such concerns have prompted the exploration of alternative strategies to modulate the immune response and alleviate symptoms. Recent research highlights the potential of dietary intervention and supplementation to influence gut microbiome composition and to promote anti-inflammatory responses. Furthermore, studies suggest that gut microbiome plays a significant role in various immune-mediated diseases.⁵

It is inconclusive whether or not the patient's resolution of the signs and symptoms of dermatitis was due to the microbial component of the probiotic and/or to its detoxifying and immune-modulating activities. Likewise, it cannot be definitively determined whether or not the dermatitis was exacerbated by the UTI. This case demonstrates the potential for a multifaceted approach to chronic health concerns. While natural therapies addressed the initial UTI, the probiotic intervention offered a glimpse into the correlation between the microbiome and the immune system. Further research is warranted to corroborate the specific mechanisms by which the probiotic modulates the patient's immune response, potentially leading to the observed improvements. This case serves as a springboard for future investigations into the therapeutic potential of probiotics in managing broader inflammatory and allergic skin conditions.

As far as radiation therapy is concerned, probiotic supplementation could potentially reduce the severity of radiation-induced skin reactions, such as redness, dryness, itching, and peeling and may promote faster healing of radiation-induced skin wounds, reducing discomfort and the risk of infection. By minimizing skin damage and discomfort, probiotic supplementation could improve the overall quality of life for patients undergoing radiation therapy.

While this case report provides promising evidence, more research is needed to fully understand the potential benefits of probiotic supplementation for radiation-induced skin damage. Randomized controlled trials should be conducted to evaluate the efficacy of probiotics in preventing and treating skin reactions in patients

undergoing radiation therapy. Additionally, studies should investigate the optimal type of probiotic, dosage, and duration of treatment for achieving the best results.

Contributors

RB was responsible for observation and treatment of the clinical case. MR was responsible for the drafting of the text, sourcing, and editing of clinical images. All authors gave final approval of the manuscript.

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Competing interests

RB is the founder of Cultivate True Health, a clinic dedicated to holistic natural health and nutrition. MR is the founder of Silver Spring Sagl, the company producing the probiotic used in this experience. MR served as CEO of the company until his retirement in 2020. He had no prior knowledge of the nutritional plan followed by the subject of this article nor of the results. Dr. RB communicated the results to MR only after completion of the experience.

Patient consent for publication

Consent obtained directly from patient. Since this is a single case report that does not produce generalizable knowledge, nor is it an investigation of an FDA regulated product, it is accepted that Institutional Review Board (IRB) review is not required for this activity.

Advisory

No information in this paper is intended or implied to be a substitute for professional medical advice, diagnosis or treatment.

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