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# Challenging Case in Clinical Practice: Prolonged Water-Only Fasting Followed by an Exclusively Whole-Plant-Food Diet in the Management of Severe Plaque Psoriasis

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## Introduction

Psoriasis is an immune-mediated, inflammatory disease with a chronic relapsing nature that is characterized by increased skin proliferation and systemic manifestations.<sup>1</sup> Topical and systemic medications manage inflammation and typically require long-term adherence to avoid relapse.<sup>2</sup> Here we present the case of a man with chronic, severe plaque psoriasis that regressed into remission after a 13-day, medically supervised water-only fast followed by a whole-plant-food diet free of gluten and added salt, oil, and sugar.

## Case Presentation

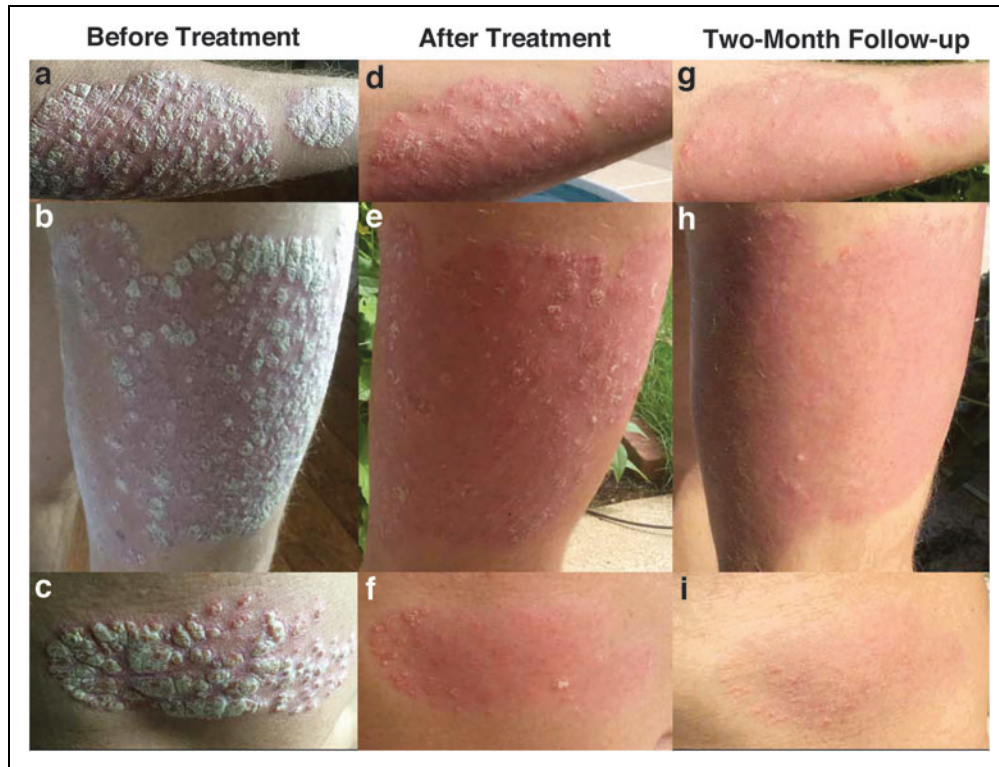
A 47-year-old male, with a 28-year history of severe plaque psoriasis, presented to our health center with erythematous plaques and silver scales predominantly on his abdomen, right thigh, and right forearm (shown in Fig. 1a–c). He also presented with intertriginous psoriasis of the groin and bilateral fingernail and toenail bed manifestations that caused him debilitating pain, bleeding, and impaired mobility. He reported worsening of symptoms, including itching and asymmetrical arthritis, during the winter or periods of high stress. He was treated intermittently with topical corticosteroids, but these treatments did not achieve full remission, with plaques remaining in at least one location, and he stopped using them approximately seven years prior due to personal concerns

about long-term use. As an alternative, he adopted a plant-based diet with some added salt and sugar, which had little effect on his psoriasis plaques.

The patient also reported a history of gastroenteritis during periods of increased stress with intermittent epigastric pain and increased bowel movements as the main symptoms. He had never smoked, did not drink alcohol, and exercised daily. On arrival, his weight, body mass index (BMI), and blood pressure measurements were within normal range (Table 1).

The patient elected to undergo a medically supervised, water-only fast at our health center with the intention of improving symptoms associated with plaque psoriasis. He prepared by eating exclusively raw or steamed fruits and vegetables for two days prior to arriving to the center. Upon admission, he underwent a clinical exam and was approved for 13 days of water-only fasting followed by 6 days of refeeding, based on medical history, physical exam, and laboratory tests that demonstrated a lack of contraindications.<sup>3</sup>

During the residential, medically supervised water-only fast, the patient consumed a minimum of 40 ounces of distilled water per day; distilled water is used rather than spring or other types of water because it may eliminate the unintentional consumption of substances, such as minerals, microorganisms, or other contaminants. His vitals were monitored twice daily along with weekly serology to monitor electrolyte balance and other physiological functions. The patient's electrolytes, liver and kidney function, and blood pressure remained within normal range and he experienced episodes of preexisting, mild epigastric discomfort throughout the entire fast.



**Figure 1.** Psoriatic lesions on right upper forearm (a, d, g), right upper thigh (b, e, h), and upper right abdomen (c, f, i) before treatment, after treatment, and at two-month follow-up, respectively.

On fasting day eight, the water-only fast was interrupted with two 8-ounce servings of juice and one 8-ounce serving of therapeutic vegetable broth to ease mild discomfort felt along the epigastric region of the abdomen. The following day (day nine), he continued water-only fasting until day 13. The patient began refeeding on day 14 and completed a total of 6 days of refeeding using a high-sensitivity protocol, which included five phases of food introduction increasing in complexity, from juicing, raw, steamed, to whole grains and legumes, until eating an exclusively whole-plant-food diet free of added salt, oil, and sugar.

At the end of treatment, the patient’s weight, BMI, and blood pressure remained within normal range (Table 1), and he experienced a significant improvement in the severity of psoriatic lesions. The lesions continued to improve during the exclusively whole-plant-food refeeding period (shown in Fig. 1d–f). The patient also reported a substantial improvement of nailbed psoriasis pain and arthritis. After returning home, the patient continued to eat an exclusively whole-plant-food

diet free of gluten and added salt, oil, and sugar, and at two-months post-treatment he reported continued improvement of existing psoriatic lesions (shown in Fig. 1g–i) and no new plaque formation.

### Discussion

Plaque psoriasis pathophysiology is characterized by dysregulation of innate and adaptive cutaneous immune responses and an increase in chemokines and cytokines, such as TNF- $\alpha$ , IL-17, IFN- $\gamma$ , and IL-23. There is a subsequent hyperproliferation and abnormal differentiation of keratinocytes. Inflammation and hyperplasia are sustained by continued crosstalk between keratinocytes and immune cells. Biologic agents reduce inflammation in plaque psoriasis by directly targeting the IL-23/Th17 axis and TNF- $\alpha$ -signaling.<sup>1</sup>

Preliminary research also suggests that fasting reduces systemic inflammation and may act by reducing pro-inflammatory T-cells and cytokines, including many involved in plaque psoriasis, as well as by increasing anti-inflammatory T-cells.<sup>4</sup> In the 1980s, Lithell et al.<sup>5</sup> observed that prolonged fasting followed by a vegetarian diet ultimately reduced lactoferrin and myeloperoxidase in psoriatic patients and symptom improvement continued upon refeeding.

More recently, it was reported that a patient with a one-year history of moderate-to-severe psoriatic arthritis and appendage lesions was able to discontinue medication and significantly

**Table 1. Clinical Characteristics**

	Before	After fast	After refeed
Weight (kg)	74.9	67.4	67.3
BMI (kg/m <sup>2</sup> )	23	20.7	20.7
SBP/DBP (mmHg)	115/64	121/81	106/72

BMI, body mass index; DBP, diastolic blood pressure; SBP, systolic blood pressure.

reduce symptoms with a nine-day water-only fast followed by whole-plant-food refeeding; it was not reported if results were sustained in this patient.<sup>6</sup> Although limited, these findings support our observation that fasting initiated remission of psoriasis symptoms in the patient presented here.

Avoidance of pro-inflammatory foods and a low-caloric diet may also reduce inflammation and improve symptoms, especially in overweight/obese patients, and has been recommended as an adjuvant treatment to standard therapies.<sup>7-9</sup> It was recently reported that a patient with an 18-year history of methotrexate-controlled, psoriatic arthritis, was able to discontinue the medication and sustain at least a 3-year remission by adhering to a whole-plant-food diet, similar to the one described here.<sup>10</sup> The patient presented here was of normal weight and dietary change alone did not improve his symptoms, but the two-month follow-up outcome suggests that an exclusively whole-plant-food diet free of gluten and added salt, oil and sugar may have sustained remission following water-only fasting.

This outcome is especially meaningful considering that the majority of psoriasis remissions require a maintenance phase of continued topical treatment.<sup>11</sup> The degree to which fasting, diet, or the combination contributed to sustained remission remains to be determined. This case sets a precedent for further research into the use of prolonged water-only fasting followed by a whole-plant-food diet in the management of moderate-to-severe plaque psoriasis.

## Authors' Contributions

M.B. prepared the original draft, collected/interpreted data, and approved the final version of this report. A.V. and A.C.G. critically revised and approved the final version of this report. S.G. and T.R.M. collected/interpreted data as well as critically revised and approved the final version of this report.

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### Ethical Statement

This report was prepared ethically in accordance with the World Medical Association Declaration of Helsinki. This is a case report describing the treatment of a single patient and does not meet the federal definition of human subjects research and is exempt from ethical committee approval. The patient provided written informed consent to publish their case including images.

### Data Availability Statement

All data analyzed in this report are included in this article. Direct further inquiries to the corresponding author.

## Author Disclosure Statement

A.C.G. is owner of the TrueNorth Health Center. All other authors have no conflicts of interest to declare.

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