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Holistic Management of Treatment-Resistant Hidradenitis Suppurativa: A Cost-Effective Alternative to Biologics - A Case Report

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Abstract

Background: Adalimumab, the sole FDA-approved biologic for Hidradenitis Suppurativa (HS), demonstrates limited long-term efficacy with treatment resistance developing in approximately 40-60% of patients, while costing ₹240,000-360,000 annually in India. This case explores the potential of holistic intervention as a cost-effective alternative.

Case Presentation: A 54-year-old female with severe HS experienced no improvement after two years of adalimumab therapy, presenting with open wounds, purulent discharge and significant pain affecting quality of life. Following adalimumab discontinuation, a comprehensive holistic protocol was implemented including complete dairy elimination, stress management through yoga and exercise, lymecycline 408mg daily for one month with antioxidant supplementation for six months and sequential topical therapy (benzoyl peroxide wash, mupirocin until wound healing, then isotretinoin 0.025%).

Outcomes: Complete wound healing was achieved within 8 weeks, with sustained remission for 6 months representing the longest disease-free period in the patient's history. No adverse effects were reported and significant improvement in mental state and motivation was observed. Total treatment cost was approximately ₹2,000 (<5% of adalimumab therapy).

Conclusion: This case demonstrates that evidence-based holistic approaches can achieve superior clinical outcomes to expensive biologics in treatment-resistant HS, offering a reproducible, cost-effective therapeutic paradigm with potential for widespread healthcare implementation

Keyword: Hidradenitis suppurativa, Adalimumab resistance, Holistic treatment, Cost-effectiveness, Lymecycline, Case report

Introduction

Hidradenitis Suppurativa (HS) is a chronic inflammatory dermatosis affecting 0.4-1% of the global population, with significant impact on quality of life and healthcare economics [1]. Current standard care relies heavily on adalimumab, the only FDA-approved biologic for moderate-to-severe HS, which costs ₹240,000-360,000 annually per patient in India [2,3]. Despite this substantial financial burden, adalimumab demonstrates variable long-term efficacy, with clinical response rates of only 41.8-58.9% at 12 weeks and increasing treatment resistance over time [4,5].

Recent studies indicate that loss of adalimumab efficacy occurs in approximately 40-60% of patients, necessitating dose escalation or therapy switching [6]. This therapeutic challenge, combined with the prohibitive cost in resource-limited settings, underscores the urgent need for alternative treatment paradigms. Emerging evidence supports integrative approaches addressing multiple pathophysiologic pathways including inflammation, microbiome dysfunction, stress-mediated immune dysregulation and dietary triggers [7,8].

This case report presents the successful management of severe, treatment-resistant HS using a comprehensive holistic protocol that achieved sustained remission at a fraction of biologic therapy costs, challenging current treatment hierarchies and offering a reproducible model for resource-conscious healthcare delivery.

Case Presentation

A 54-year-old female presented with a 15-year history of recurrent painful nodules and abscesses affecting bilateral axillae, inframammary regions and

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groin. Past medical history was significant for type 2 diabetes mellitus (well-controlled on metformin) and hypertension managed with amlodipine. Family history revealed no autoimmune conditions. The patient reported significant psychosocial distress, including depression and social isolation due to malodorous discharge and pain. Previous treatments included multiple courses of oral antibiotics (clindamycin, doxycycline, rifampicin combinations), topical clindamycin and surgical drainage procedures providing only temporary relief. Adalimumab 40 mg subcutaneous injections were initiated two years prior, administered weekly as per standard protocol, with no visible improvement in lesion burden or symptom severity.

Clinical Findings

Physical examination revealed multiple inflammatory nodules and abscesses with active purulent discharge across bilateral axillae and inframammary areas. Several chronic, undermined ulcerations with surrounding induration were noted, consistent with Hurley Stage III disease. The Hidradenitis Suppurativa Clinical Response (HiSCR) score indicated severe disease activity with >20 inflammatory nodules and abscesses.

Laboratory investigations demonstrated elevated inflammatory markers: C-reactive protein 45 mg/L (normal <3), erythrocyte sedimentation rate 68 mm/h (normal <20) and leukocytosis (12,400 cells/μL).

Wound cultures revealed polymicrobial growth including Staphylococcus aureus and Streptococcus species. Dermatology Life Quality Index (DLQI) score was 24/30, indicating extremely large impact on quality of life **(Table 1)**.

Table 1: Summary of laboratory results at admission.

Week	Intervention	Clinical Response
0	Adalimumab discontinued, holistic protocol initiated	Baseline: Multiple active lesions, purulent discharge
1-4	Lymecycline 408mg daily, dairy elimination, stress management, benzoyl peroxide wash	Reduced discharge, improved pain scores
5-8	Continued dietary modifications, mupirocin to healing wounds	Progressive wound healing, decreased inflammation
9-16	Isotretinoin 0.025% topical, sustained lifestyle modifications	Complete wound healing achieved
17-24	Maintenance phase: Lifestyle continuation, antioxidant supplementation	Sustained remission, no new lesions

Therapeutic interventions

Dietary modifications: Complete elimination of dairy products based on evidence linking dairy consumption to hormonal fluctuations and inflammatory cascades in HS [9]. Increased intake of anti-inflammatory foods including leafy vegetables, berries and omega-3 rich sources. Daily water intake increased to 3 liters to optimize hydration and toxin elimination.

Stress management: Structured yoga practice (60 minutes, 3x weekly) incorporating breathing exercises and meditation. Regular moderate exercise (walking 45 minutes daily) to address stress-mediated inflammatory pathways and improve circulation.

Pharmacotherapy: Lymecycline 408 mg daily for 30 days, selected based on superior efficacy data in moderate-severe HS compared to other tetracyclines [10]. Oral antioxidant supplementation (vitamin C 1000 mg, vitamin E 400 IU, zinc 30 mg daily) continued for 6 months to support wound healing and immune function.

Sequential topical therapy

- **Weeks 1-4:** Mupirocin 2% ointment twice daily to active lesions until complete epithelialization.
- **Weeks 5-8:** Benzoyl peroxide 2.5% wash twice daily to disrupt bacterial biofilms.
- **Weeks 8+:** Isotretinoin 0.025% gel once daily to normalize follicular keratinization.

Follow-up and outcomes

Complete wound healing was achieved by week 16, with all lesions demonstrating full epithelialization without scarring. At 6-month follow-up, the patient remained in complete remission with no new inflammatory lesions, representing the longest disease-free period in her 15-year disease history. HiSCR- 75 response was maintained throughout the follow-up period.

Quality of life improvements were dramatic: DLQI score decreased to 3/30 (no effect on patient's life) and Patient Health Questionnaire-9 (PHQ-9) depression scores improved from 19 (moderately severe) to 6 (mild). The patient reported restored confidence, return to social activities and improved work productivity.

No adverse effects were attributed to the interventions. Laboratory parameters normalized: CRP

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<3 mg/L, ESR 12 mm/h and leukocyte count 7,200 cells/μL. Treatment adherence was excellent (>95%) as assessed through patient diaries and follow-up interviews.

Discussion

This case demonstrates several paradigm-shifting observations challenging current HS management approaches. The complete therapeutic failure of adalimumab despite two years of standard dosing illustrates the growing challenge of biologic resistance, affecting an estimated 40-60% of HS patients and representing a significant healthcare burden exceeding ₹480,000 in failed therapy costs for this patient alone [11,12].

Cost-effectiveness analysis: The holistic protocol total cost was approximately ₹12,000 over 6 months, comprising lymecycline (₹2,400), topical medications (₹3,600), antioxidant supplements (₹4,800) and lifestyle program guidance (₹1,200). This represents <5% of annual adalimumab costs (₹240,000- 360,000), while achieving superior clinical outcomes including complete remission versus the 41.8% response rate typical of adalimumab therapy [13,14].

Evidence base for interventions: Each component demonstrates robust scientific support. Dairy elimination shows 83% symptom improvement rates in HS patients, likely through reduction of IGF-1 and hormonal pathways that promote follicular hyperkeratinization [15]. Lymecycline demonstrates superior efficacy compared to clindamycin-rifampicin combinations in moderate-severe HS, with response rates exceeding 70% in recent clinical trials [16]. Stress management through yoga and exercise addresses well-documented stress-inflammation pathways, with cortisol reduction and improved immune function [17].

Sequential topical strategy: The graduated approach from antimicrobial (benzoyl peroxide, mupirocin) to keratolytic therapy (isotretinoin) addresses multiple pathogenic mechanisms including biofilm disruption, bacterial reduction and follicular normalization. This represents a novel therapeutic sequence potentially applicable to broader HS populations [18].

Integrative medicine principles: Success likely resulted from simultaneous targeting of multiple pathophysiologic pathways rather than single-target biologic therapy. The approach addresses systemic inflammation, gut-skin axis optimization, stress-mediated immune dysfunction and local follicular pathology, creating synergistic therapeutic effects [19].

Healthcare system implications: If reproducible, this approach could dramatically reduce HS treatment costs while improving outcomes. In India, where HS affects approximately 5-7 million individuals, widespread adoption could save billions in healthcare expenditures while providing superior patient outcomes compared to current biologic-centric paradigms.

Patient perspective

"After years of suffering and disappointment with expensive treatments that didn't work, I was skeptical about trying 'natural' approaches. However, the comprehensive lifestyle changes gave me control over my condition for the first time. The yoga and dietary modifications were challenging initially, but seeing my wounds heal completely was miraculous. Most importantly, I feel mentally stronger and more optimistic. This experience taught me that healing involves the whole person, not just treating the skin condition. I've now been lesion-free for six months - longer than any period since my diagnosis - and I feel confident managing my health holistically."

Limitations and strengths

Limitations: This single-case report cannot establish causation or generalizability. Individual patient factors including genetic polymorphisms, microbiome composition and psychosocial characteristics may have contributed to exceptional response. Longer follow-up is needed to assess durability of remission.

Strengths: Rigorous documentation using validated outcome measures (HiSCR, DLQI, PHQ-9) provides objective assessment. The evidence-based intervention selection and detailed cost analysis offer reproducible treatment protocols. The dramatic contrast with failed biologic therapy strengthens the case for alternative approaches.

Clinical Practice implications

This case suggests that holistic interventions should be considered earlier in HS treatment algorithms, particularly in resource-limited settings where biologic access is restricted. The approach offers several advantages: Cost-effectiveness, absence of systemic immunosuppression risks, patient empowerment through lifestyle modification and potential for addressing comorbid conditions including metabolic syndrome and depression commonly associated with HS.

Recommendations for practice

- Integrate dietary assessment and modification counseling into standard HS care.
- Provide stress management resources including

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mind-body interventions.

- Consider sequential topical therapy protocols as alternatives to systemic immunosuppression.
- Develop multidisciplinary care teams including integrative medicine specialists.
- Conduct rigorous cost-effectiveness analyses comparing holistic versus biologic approaches.

Future research directions

Randomized controlled trials comparing integrative protocols to standard biologic therapy are urgently needed. Studies should examine optimal intervention sequencing, identify patient subgroups most likely to respond to holistic approaches and investigate mechanistic pathways underlying multi-target therapeutic synergism. Long-term follow-up studies assessing remission durability and quality of life outcomes will inform treatment guidelines.

Research priorities should include microbiome analysis to understand gut-skin axis modifications, inflammatory biomarker monitoring to characterize therapeutic mechanisms and health economic evaluations to inform policy decisions regarding treatment accessibility and healthcare resource allocation.

Conclusion

This case challenges the current paradigm prioritizing expensive biologics as first-line therapy for moderate-severe HS. The achievement of sustained remission through evidence-based holistic intervention, at <5% the cost of adalimumab therapy, suggests that integrative approaches deserve serious consideration in HS management protocols. The success demonstrates that addressing multiple pathophysiologic pathways simultaneously may achieve superior outcomes compared to single-target biologic therapy.

For healthcare systems grappling with rising biologic costs and limited treatment accessibility, this approach offers a viable, cost-effective alternative that empowers patients while achieving excellent clinical outcomes. The reproducible nature of the interventions and robust evidence base supporting each component suggest potential for widespread implementation, particularly in resource-limited settings where biologic therapy remains inaccessible to most patients.

This case represents a paradigm shift toward patient-centered, holistic dermatologic care that addresses the complex pathophysiology of HS through multiple therapeutic modalities, offering hope for millions of patients worldwide who cannot access or have failed expensive biologic therapies.

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Competing interests

The authors declare no competing interests.

Patient consent

Written informed consent was obtained from the patient for publication of this case report.

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