



Case Report

Unmasking the Inflammatory Spectrum of Acne Vulgaris: A Case Report Highlighting Clinical Progression and Therapeutic Response

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Abstract

Inflammatory acne vulgaris is a multifactorial dermatological condition characterized by papules, pustules, nodules, and potential scarring, significantly impacting both physical appearance and psychosocial well-being. This case report presents a detailed account of a young adult with moderate-to-severe inflammatory acne, emphasizing clinical presentation, underlying pathophysiology, and response to combination therapy. The uniqueness of this report lies in its focus on early intervention strategies and tailored treatment approaches that resulted in marked improvement and prevention of long-term sequelae. The case underscores the importance of individualized management and adherence to therapy in achieving optimal outcomes.

Introduction

Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit, commonly affecting adolescents and young adults. It arises due to a combination of increased sebum production, follicular hyperkeratinization, colonization by Cutibacterium acnes, and inflammation. Inflammatory acne, in particular, may lead to significant scarring and psychological distress if not treated promptly and effectively.

Case Presentation

A 19-year-old female presented to the dermatology clinic with complaints of persistent facial lesions for 2 years, which had worsened over the past 6 months. The lesions were associated with pain, redness, and occasional discharge.

Clinical Findings:

- Multiple erythematous papules and pustules over the cheeks, forehead, and chin
- Presence of nodules in the mandibular region
- Post-inflammatory hyperpigmentation and early scarring
- No systemic symptoms reported

Medical History:

- No significant past medical history
- No known drug allergies
- Irregular menstrual cycles reported

Lifestyle Factors:

- High intake of oily and processed foods
- Increased stress due to academic pressure
- Inconsistent skincare routine

Investigations

- Hormonal profile: Mild elevation in androgens
- Complete blood count: Within normal limits
- No signs of systemic infection

Diagnosis

Moderate-to-severe inflammatory acne vulgaris with hormonal influence.

Treatment Plan

The patient was started on a combination therapy approach

Topical Treatment:

- Benzoyl peroxide (2.5%) gel – once daily
- Topical retinoid (adapalene) – at night

Systemic Treatment:

- Oral doxycycline (100 mg/day) for 8 weeks
- Oral contraceptive pills (for hormonal regulation, under gynecological guidance)

Adjunct Measures:

- Non-comedogenic skincare products
- Dietary modifications (reduced high glycemic foods)
- Stress management techniques

Outcome and Follow-Up

At 4-week follow-up, a noticeable reduction in inflammatory lesions was observed. By 8 weeks, there was significant improvement with minimal new lesion formation. At 12 weeks, post-inflammatory hyperpigmentation persisted but active lesions had largely resolved. No major adverse effects were reported.

Discussion

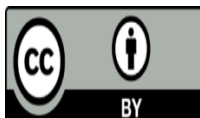
Inflammatory acne vulgaris results from a complex interplay of hormonal, microbial, and immunological factors. This case highlights the importance of early, aggressive treatment in moderate-to-severe cases to prevent scarring. Combination therapy targeting multiple pathogenic mechanisms remains the cornerstone of management. Patient education and adherence are critical determinants of therapeutic success.

Conclusion

This case emphasizes the effectiveness of a personalized, multimodal treatment strategy in managing inflammatory acne vulgaris. Early intervention, combined with patient compliance and lifestyle modifications, can significantly improve clinical outcomes and reduce long-term complications

References

1. Min, S.; Park, S.Y.; Yoon, J.Y.; Kwon, H.H.; Suh, D.H. Fractional microneedling radiofrequency treatment for acne-related post-inflammatory erythema. *Acta Derm.-Venereol.* 2016, 96, 87–91.
2. Reynolds, R.V.; Yeung, H.; Cheng, C.E.; Cook-Bolden, F.; Desai, S.R.; Druby, K.M.; Freeman, E.E.; Keri, J.E.; Gold, L.F.S.; Tan, J.K.; et al. Guidelines of care for the management of acne vulgaris. *J. Am. Acad. Dermatol.* 2024, 90, 1006.e1–1006.e30.
3. Noh, H.H.; Shin, S.H.; Roh, Y.J.; Moon, N.J.; Seo, S.J.; Park, K.Y. Particulate matter increases Cutibacterium acnes-induced inflammation in human epidermal keratinocytes via the TLR4/NF- κ B pathway. *PLoS ONE* 2022, 17, e0268595.
4. Theunissen, L.; Courbes, F. Succinic Acid: A Promising Multi-Functional Ingredient for Cosmetic and Personal-Care Applications. *HPC Today* 2018, 13, 42–44.
5. Reuter, K.; Steinbach, A.; Helms, V. Interfering with Bacterial Quorum Sensing. *Perspect. Medicin. Chem.* 2016, 8, 1–15.
6. Braga, V.C.d.C.; Pianetti, G.A.; César, I.C. Comparative Stability of Arbutin in *Arctostaphylos uva-ursi* by a New Comprehensive Stability-Indicating HPLC Method. *Phytochem. Anal.* 2020, 31, 884–891.
7. Motamedi, M.; Chehade, A.; Sanghera, R.; Grewal, P. A Clinician's Guide to Topical Retinoids. *J. Cutan. Med. Surg.* 2022, 26, 71–78.



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