Case Report

Dupilumab in The Reactive Perforating Collagenosis Management in a Patient with Multimorbidity: A Case Report

Yusuf Can Edek[1], Mehmet Gülengül[1], Samed Şahin[1], Betül Öğüt[2], Esra Adışen[1]
[1]Department of Dermatology, Gazi University Faculty of Medicine, Ankara, Türkiye
[2]Department of Pathology, Gazi University Faculty of Medicine, Ankara, Türkiye

Abstract

Acquired perforating dermatoses (APD) are a group of diseases characterized by transepidermal excretion of dermal connective tissue materials and characterized by itchy skin lesions. Reactive perforating collagenosis (RPC) is the type of APD in which transepidermal collagen fiber elimination is detected. The number of cases in which dupilumab has been successfully used in the treatment of RPC is increasing in the literature. There are case reports showing the safe and effective use of dupilumab in RPC patients with comorbidities such as chronic kidney disease, Wilson disease, coronary artery disease, cerebrovascular disease, and hepatocellular cancer. In this case report, we present a female RPC patient with multimorbidity who had complete treatment response with dupilumab.

Keywords: Acquired perforating dermatoses, dupilumab, reactive perforating collagenosis

Introduction

Acquired perforating dermatoses (APD) are a group of diseases characterized by transepidermal excretion of dermal connective tissue materials, with itchy skin lesions. Reactive perforating collagenosis (RPC) is a type of APD in which transepidermal collagen fiber elimination is detected. The disease may be accompanied by many comorbidities such as diabetes mellitus, chronic kidney disease, malignancy, and endocrine diseases.[1,2]

In this case report, we present a female RPC patient with multimorbidity who had complete treatment response to dupilumab.

Case Report

A 79-year-old female patient presented to our dermatology outpatient clinic with pruritic lesions. In the anamnesis taken from the patient, it was learned that her complaints had been going on for two years. During this process, she received various topical treatments (topical steroid, topical calcineurin inhibitor), systemic treatments (oral antihistamines, steroid, doxycycline, colchicine), and phototherapy [narrowband-UVB (NB-UVB), two times weekly, 49.8 J/cm^2 cumulative dose] for her pruritus, and her symptoms persisted despite treatment. The patient described that her itching was severe [Visual Analogue Scale (VAS): 8] and that it greatly reduced her quality of life [Dermatological Quality of Life Index (DLQI): 15]. Her prior medical records showed hypertension, coronary artery disease, hyperlipidemia, gastritis. The medications of the patient included amlodipine, *nebivolol, furosemide,* pitavastatin, and lansoprazol. The patient had no history of atopy, infection, or trauma.

Dermatological examination showed widespread erythematous keratotic papules, nodules, and excoriations on the trunk and extremities (Figures 1a-c). Histopathological

Adress for correspondence: Yusuf Can Edek, MD,
Department of Dermatology, Gazi University Faculty of Medicine, Ankara, Türkiye
Email: yusuf-can-35@hotmail.com
ORCID ID: 0000-0002-3877-8681

Submission: 17-Aug-2025
Acceptance: 24-Sep-2025 **Web Publication:** 27-Nov-2025

Access this article online

Quick Response Code:

Website: www.turkjdermatol.com

DOI: 10.4274/tjd.galenos.2025.08760

How to cite this article: Edek YC, Gülengül M, Şahin S, Öğüt B, Adışen E. Dupilumab in the reactive perforating collagenosis management in a patient with multimorbidity: a case report. Turk J Dermatol. 2025;19(4):244-246.

examination of a punch biopsy taken from a papule on the trunk showed epidermal ulceration and basophilic inflammatory debris. Transepidermal elimination of collagen fibers was detected in the epidermis with Elastin Van Gieson stain, (Figure 2). Considering the patient's clinical examination and histopathological evaluation together, the patient was diagnosed with RPC. It was decided to initiate dupilumab treatment in the patient who had multiple comorbidities and was resistant to many treatment agents. The patient received an initial subcutaneous dose of 600 mg of dupilumab, followed by 300 mg every two weeks. In the first month follow-up, it was observed that the itching had decreased significantly, her quality of life had improved, and lesions had regressed. At the third month follow-up, the patient continues her treatment without any active complaints (VAS:0, DLQI:1) or side effects (Figures 1b-d and 3).

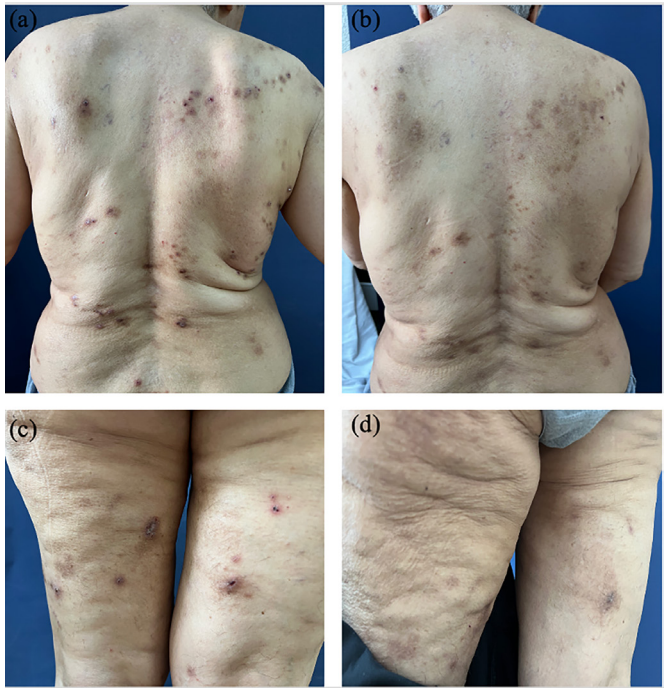

Figure 1. Diffuse erythematous keratotic papules and nodules on the patient's trunk (a), and lower extremities (c), regressed appearance of the patient's lesions with post-inflammatory hyperpigmentation in the third month of the treatment (b),(d)

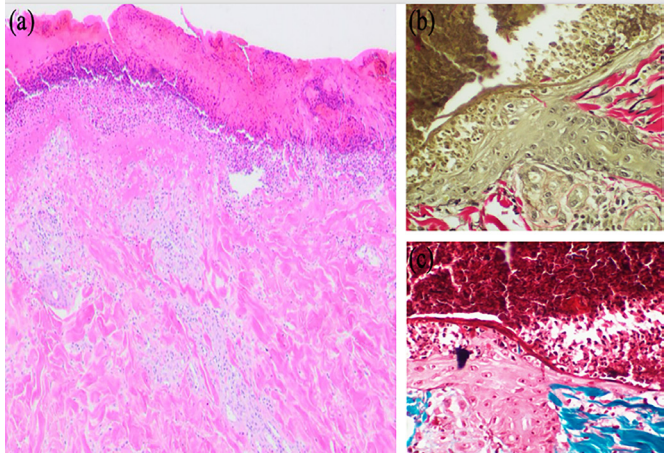

Figure 2. Histopathological examination, epidermal ulceration and basophilic inflammatory debris (a) (H&E, x40), transepidermal elimination of collagen fibers (b), (c) (Elastin Van Gieson, Masson trichrome, x200, x20)
H&E: Hematoxylin and eosin

Discussion

The primary goal of RPC treatment should be to prevent itching, and moisturizers, topical steroids, and systemic antihistamines can be used for this purpose. Keratolytic agents, phototherapy, methotrexate, and allopurinol are among the therapeutic agents that can be prescribed in the management of RPC. Although various topical and systemic agents can be used in the treatment of RPC, it can sometimes be challenging.[1,2] While many treatment agents were used in our patient, her complaints remained resistant to treatment. In cases resistant to treatments, the use of tofacitinib, baricitinib, and dupilumab has been reported recently.[3-5]

Dupilumab is a monoclonal antibody that reduces interleukin (IL)-4 and IL-13 levels by binding to the IL-4 receptor. Liu et al.[5] found increased IL-4 and IL-13 expression in RPC tissues in their study, and they stated that type-2 inflammation plays a role in RPC pathogenesis and that dupilumab may be an effective treatment agent. The number of cases in which dupilumab has been successfully used in the treatment of RPC is increasing in the literature.[5-9] There are case reports showing the safe and effective use of dupilumab in RPC patients with comorbidities such as chronic kidney disease, Wilson disease, coronary artery disease, cerebrovascular disease, and hepatocellular cancer.[5-8] Gil-Lianes et al.[9] applied dupilumab and NB-UVB therapy in a patient resistant to oral antihistamines, topical, systemic steroids, phototherapy, and cyclosporine in the management of atopic dermatitis and PRC. In our case, due to lack of response to multiple treatment agents, dupilumab was administered, and a full treatment response was achieved.

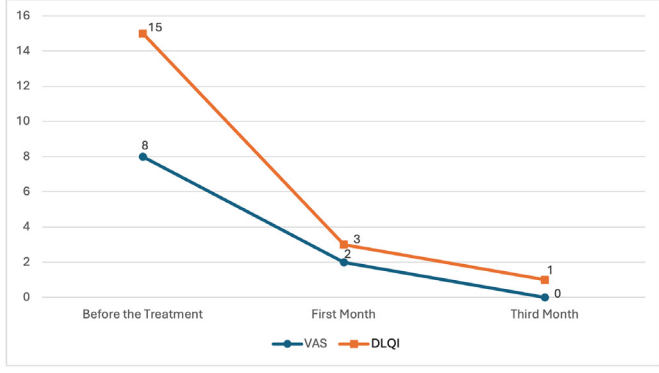

Figure 3. Change in patient's VAS and DLQI scores over time with treatment
VAS: Visual Analogue Scale, DLQI: Dermatology life quality index

Conclusion

With this case report, we would like to emphasize that dupilumab is an effective and safe treatment in the management of RPC, even in patients with multimorbidity.

Footnote

Informed Consent: Informed consent was obtained from the patient.

Authorship Contributions

Surgical and Medical Practices: Y.C.E., M.G., S.Ş., B.Ö., E.A., Concept: Y.C.E., M.G., S.Ş., B.Ö., E.A., Design: Y.C.E., M.G., S.Ş., B.Ö., E.A., Data Collection or Processing: Y.C.E., M.G., S.Ş., B.Ö., E.A., Analysis or Interpretation: Y.C.E., M.G., S.Ş., B.Ö., E.A., Literature Search: Y.C.E., M.G., S.Ş., B.Ö., E.A., Writing: Y.C.E., M.G., S.Ş., B.Ö., E.A.

Conflict of Interest: The authors declared that they have no conflict of interest.

Financial Disclosure: The authors declared that this study received no financial support.

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