



LETTER TO THE EDITOR

An unexpected cause of hyperpigmentation: Berloque dermatitis

Hiperpigmentasyonun beklenmedik bir nedeni: Berlok dermatiti

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To the Editor,

Berloque dermatitis is a type of dermatitis that develops through phototoxic mechanisms due to the use of bergamot oil and results in pigmentation. Berloque dermatitis was first described by Freund in 1916 and named “Berlock’s dermatitis” by Rosental in 1924¹. Case series featuring Berloque dermatitis have been reported in the following years in individuals who prepared colognes containing bergamot². Bergamot has also been used in the treatment of vitiligo due to its hyperpigmentation effect³.

Bergapten (5-methoxypsoralen) is phototoxic component of bergamot. The interaction of bergapten with UV-A radiation leads to hyperpigmentation⁴. Nevertheless, bergamot is still commonly used in cosmetics, especially in aromatherapy oils, perfumes, and colognes. The consumption of colognes to provide hand hygiene has remarkably increased in our country during the COVID-19 pandemic. Some of these colognes contained bergamot. In this context, a case of Berloque dermatitis with hyperpigmentation, an unexpected cause of Berloque dermatitis, was presented in this case report and discussed in light of literature data.

A 16-year-old female patient presented with hyperpigmented skin lesions to the dermatology outpatient clinic. A dermatological examination of the patient revealed irregular border and hyperpigmented patchy skin lesions on the face and neck areas (Figure 1). During the examination of the

patient, there was no evidence of systemic involvement. It was learned that the lesions appeared recently, and the patient had no history of exposure and was not receiving any medication. In addition, it was reported that there is no history of atopy, allergic reactions, allergic rhinitis, food allergy, or allergic asthma in the patient's medical and family history. A differential diagnosis panel was created based on anamnesis and physical examination, and it was decided to perform a biopsy for a definitive diagnosis.



Figure 1. Hyperpigmented patchy skin lesions on the face and neck.

Actinic lichen keratosis, Acanthosis nigricans, and Berloque dermatitis were considered in the

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preliminary diagnosis. Histopathological examination of the patient revealed basal vacuolar degeneration, necrotic keratinocytes, and an increasing number of melanocytes on the dermo-epidermal junction (Figure 2). Melanophages accompanying lymphohistiocytic infiltrate were detected in the papillary dermis (Figure 3).

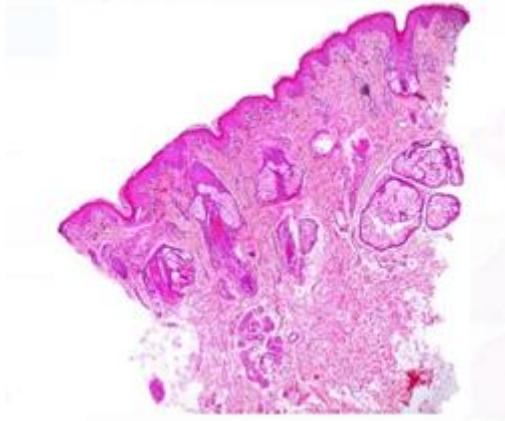


Figure 2. Basal vacuolar degeneration, necrotic keratinocytes, and increase in number of melanocytes on the dermoepidermal junction (H&E, x40).

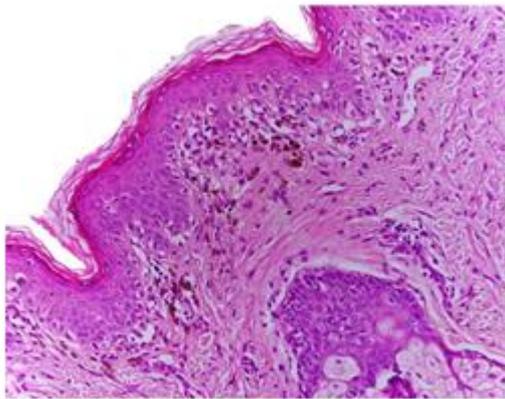


Figure 3. Prominent basal vacuolar degeneration in the dermoepidermal junction. Lymphohistiocytic infiltrate and melanophages in the papillary dermis (H&E, x400).

Based on the histopathological findings, and clinicopathological findings parallel to these findings, the anamnesis was deepened, and it was determined that the patient had used perfume without the knowledge of her family. Considering the localization

of the lesions and based on deepened anamnesis, a definitive diagnosis of Berloque dermatitis was made. Accordingly, the patient was prescribed twice-a-day topical sunscreen (SPF50) and mometasone furoate cream. An informed consent was obtained from the patient's parents.

The incidence of Berloque dermatitis is reportedly higher in women because bergamot is widely used in cosmetic products, and women use these products more^{2,5}. While most female Berloque dermatitis cases reported in the literature are middle-aged, our case was 16 years old. It has been reported that in most cases of Berloque dermatitis, erythema, and subsequent hyperpigmentation develop as a result of a phototoxic reaction within 24-72 hours after the use of bergamot products⁴. In our case, the incomplete anamnesis did not allow us to learn the time between exposure and the onset of lesions. However, erythema development before hyperpigmentation was not observed.

The cases reported in the literature were diagnosed with Berloque dermatitis without needing a biopsy since exposure to bergamot was known. In contrast, in our case, given that exposure to bergamot was not known, it was not possible to reach a definitive diagnosis based on clinical findings alone. The patient's family stated that they did not allow their daughter to use perfumes due to her young age. Therefore, the patient, who was thought to be unexposed, had to be biopsied to make a definitive diagnosis. However, it later became clear that the patient hid her exposure from her family and doctor.

Berloque dermatitis is characterized by histopathological findings seen in a phototoxic reaction^{6,7}. Most of these findings are limited to the epidermis. The prominent findings are basal vacuolar degeneration, necrotic keratinocytes, and melanin pigment increase. These findings were also observed in our case. In severe cases, intraepidermal bullae may also be observed. Actinic lichen keratosis, Acanthosis nigricans, and Berloque dermatitis were considered in the preliminary diagnosis by the dermatology clinic. Basal vacuolar degeneration and an increase in necrotic keratinocytes and melanocytes are not observed in Acanthosis nigricans. The increase in melanin pigment observed in the basal layer is accompanied by hyperkeratosis and papillomatosis in cases with Acanthosis nigricans⁸. These findings were not observed in our case. On the other hand, band-like lymphoid infiltration is observed in the dermis in cases with Actinic lichen keratosis⁹. In our case, mild

perivascular lymphohistiocytic inflammation was observed in the dermis. In parallel, based on histopathological findings, we diagnosed the patient with Berloque dermatitis.

Treatment is not required in most cases with Berloque dermatitis. Protection from the sun, i.e., UV-A radiation, may be useful. Skin-bleaching agents are used in persistent cases. Topical steroids are not helpful¹⁰. Anamnesis and dermatologic examination are usually sufficient to diagnose Berloque dermatitis. Berloque dermatitis cases are not commonly encountered in pathology practice. Since the bergamot exposure of our case was not known initially, a histopathological examination was required.

In conclusion, Berloque dermatitis may be encountered in patients in this age group. Therefore, pathologists should require histopathological examination in cases with hyperpigmentation and consider Berloque dermatitis diagnosis in cases with signs of phototoxic reaction.

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