

CASE REPORT

Allergic contact dermatitis and periorbital oedema after permanent eyelash dye

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Allergic contact dermatitis is a rare cause of emergency room visits. However, it can progress to life-threatening conditions such as urticaria and angioedema. In this report, we describe a case that developed severe allergic contact dermatitis around the eye applying an eyelash dye containing p-Phenylenediamine. A 21-year-old female patient was admitted to the emergency department with the complaint of swelling and redness around both eyes. Swelling and redness started 3 days ago with permanent eyelash dye (containing p-Phenylenediamine) application in the beauty center. Clinically, periorbital edema and rash was suspected to be an allergic reaction to a substance contained in the eyelash dye. For allergic contact dermatitis, 40 mg methylprednisolone, 45.5 mg pheniramine maleate, IV bolus was administered. The vesicular rash was thought to be a herpes lesion. She was discharged from the emergency department, with an initial dose of 16 mg methyl prednisolone (discontinued by reducing the dose), 500 mg oral valacyclovir twice a day, mupirocin cream on twice a day and oral levocetirizine 5 mg once daily. It was observed that the patient's lesions and redness regressed after 2 weeks. The effects of cosmetic products, which are the agents that come into contact with the skin most often, may differ individually. Agents included in cosmetic products, such as in our case, may cause severe contact dermatitis that requires treatment. Beauticians should also be informed about PPD. Patients who have had allergic reactions due to the use of PPD-containing dyes should use PPD-free cosmetic products.

Keywords: dermatitis, allergic contact, cosmetics, emergency department, 4-phenylenediamine

Received 22 April 2024 / Accepted 12 September 2024

Introduction

Dermatology-related complaints are generally non-acute and occur to outpatient clinics. The 4-12% of visits to the emergency department consists of complaints about the skin [1,2]. Most of the complaints are situations that do not require emergency treatment.

Contact dermatitis is divided into irritant contact dermatitis and allergic contact dermatitis [3]. Allergic contact dermatitis is a rare cause of emergency room visits [1]. However, it can progress to life-threatening conditions such as urticaria and angioedema. PPD is a potent, common contact allergen. Contact allergic reactions to PPD primarily manifest clinically as eczematous, lichenoid [4]. Irritant contact dermatitis is a nonspecific response of the skin to direct chemical action, secreting inflammatory mediators predominantly from epidermal cells.

Allergic contact dermatitis is a delayed (type 4) hypersensitivity reaction to exogenous contact antigens [5]. Acute irritant reaction usually begins and peaks rapidly after exposure and then begins to improve. In allergic contact dermatitis, lesions usually appear 24 to 72 hours after exposure to the causative agent and peak at approximately 72 to 96 hours. Allergic contact dermatitis heals more slowly than irritant contact dermatitis [5].

In this report, we describe a case that developed severe allergic contact dermatitis around the eye applying an eyelash dye containing p-Phenylenediamine (PPD).

Case Presentation

A 21-year-old female patient was admitted to the emergency department with the complaint of swelling and redness around both eyes. Swelling and redness started after the application of permanent eyelash dye (containing p-Phenylenediamine as stated in the leaflet in the applied dye packaging) at the beauty center 3 days ago. In his medical history, she had no allergic reactions, drug use, or chronic disease. There has been no hair dye or similar application to date. The day before, at another health institution, the ophthalmologist prescribed antibiotic eye drops (Gentamicin) and antihistamine oral tablets (Levocetirizine). On physical examination of the patient, there was edema and redness in the periorbital region and eyelids, which caused complete closure of both eyes. Vesicular rash was detected in an area of 2x2 cm on the left side of the nose (Figure 1). Clinically, periorbital edema and rash was suspected to be an allergic reaction to a substance contained in the eyelash dye. The respiratory rate was 20 bpm, pulse rate 72 bpm, body temperature 36.6°C, blood pressure 127/65 mmHg and GCS 15. A peripheral venous catheter was placed for intravenous drug administration. Serum biochemical parameters and blood count values of the patient were normal. For allergic contact dermatitis, 40 mg methylprednisolone and 45.5 mg pheniramine maleate IV bolus were administered. During her follow-up in the emergency room, her vital signs did not change. It was thought that vesicular rash might be an accompanying herpes lesion and dermatology consultation requested. She was discharged from the emergency department, with an initial dose of 16 mg methyl prednisolone (discontinued in two weeks

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Fig. 1. Oedema and erythema of the cheeks and the periocular region.

by reducing the dose), 500 mg oral valacyclovir twice a day, mupirocin cream on twice a day and oral levocetirizine 5 mg once daily. It was observed that the patient's lesions and redness regressed after 2 weeks (Figure 2). In order to avoid a more serious allergic reaction, she was advised to stay away from applications containing PPD and similar substances.

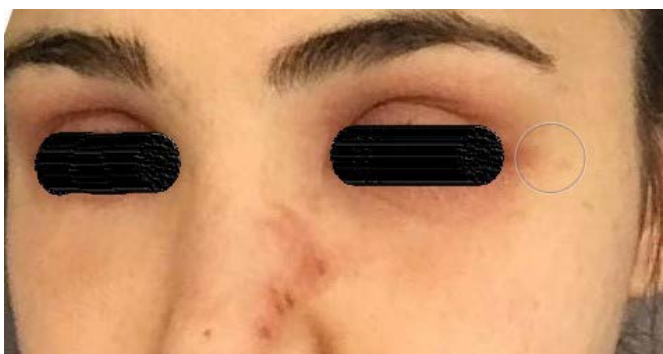


Fig. 2. Complete recovery of oedema and erythema after 2 weeks.

Discussions

We presented a case who was admitted to our emergency department with severe and persistent allergic contact dermatitis. PPD present in hair dye; a common cause of allergic contact dermatitis on the scalp, face, ears [5]. It was noteworthy that the patient presented with a serious complaint after a cosmetic procedure. This case report shows how dangerous applying cosmetic products containing PPD can be.

Contact dermatitis occurs after chemical contact with the skin. Inflammatory reaction is caused by allergic or irritant agents. Allergic contact dermatitis and irritant contact dermatitis are more common at women than at men, Genetic factors such as atopy are effective in the development of irritant type. Chemical or physical agents can cause skin irritation. This can lead to irritant contact dermatitis. Chemical or physical agents can cause skin irritation.

This can lead to irritant contact dermatitis. Physical irritants and detergents in combination produce more irritant contact dermatitis than either alone. Common etiological allergens for allergic contact dermatitis are nickel, chromium, neomycin, formaldehyde, thiomersal, cobalt and parthenium [5].

In a study, cosmetic products were shown as the etiological factor in 8.52% of contact dermatitis cases [3]. Dyes used to color lashes often contain PPD. PPD is added to these products to make the dye color darker, intense and long-lasting [4]. PPD contained in eyelash coloring products has the potential to cause allergic contact dermatitis. There are case reports of allergic contact dermatitis caused by dyes containing PPD (eye lashes, hair dye, and henna tattoo) in the literature [6,7]. Our patient's complaints were severe and caused her to come to the emergency room. Clinical findings in case reports were similar to ours. Severe and persistent centropacial oedema, oedema of eyelid, itching and periorbital dermatitis was also present in our case.

The majority of contact dermatitis cases are self-limiting. However, in some patients it is chronic and may affect quality of life [5]. Although our patient had serious complaints, hospitalization was not required.

The basis of contact dermatitis management is to identify etiological agents and to take preventive measures. Steroids and antihistamine drugs are frequently used in the acute treatment of patients with severe allergic contact dermatitis [8]. The severity and duration of symptoms and complaints are decisive in planning the duration of treatment. In our case, a 10-day treatment plan resulted in the regression of the complaints.

The effects of cosmetic products, which are the agents that come into contact with the skin most often, may differ individually. Agents included in cosmetic products, such as in our case, may cause severe allergic contact dermatitis that requires treatment. Cosmetic products should be tested before use, especially in sensitive areas (face, eyes). Beauticians should be informed about PPD as well as other agents that have the potential to cause allergic reactions [9].

Conclusions

Patients who have had allergic reactions due to the use of PPD-containing dyes should use PPD-free cosmetic products. This case report is important in terms of emphasizing that emergency medicine physicians as well as dermatologists and ophthalmologists, should be aware of the use of eye lash "dyes" and its possible effects.

Contribution

AO, AG, BO, DM conception and drafting of the manuscript. All authors gave final approval prior to submission.

Conflict of interest

None to declare.

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