Toxic epidermal necrolysis probably due to cosmetic cream: a case report

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SUMMARY

Toxic epidermal necrolysis (TEN) is a severe and life-threatening cutaneous reaction usually caused by systemic drug administration. Preparations applied to the skin and mucous membranes topically very rarely induce TEN. We present a case of TEN in a 35-year-old woman probably due to facial application of an over-the-counter (OTC) cosmetic cream.

KEY WORDS

toxic epidermal necrolysis, over-the-counter cosmetic preparation, adverse effect

Introduction

Toxic epidermal necrolysis (TEN), or Lyell's Syndrome, is an unusual, acute, and life-threatening dermatological disease. It is characterized by widespread erythematous macules, vesicles, blisters, and full-thickness epidermal necrosis with sloughing; it often involves more than 30% of the body's surface area. It also involves the mucous membranes. It mainly occurs as an adverse reaction to drugs (1, 2). The incidence is approximately one case per million people per year (3). The mortality rate varies from 25 to 80%, with a mean of about 30% (4, 5). In the available literature only a few cases of TEN have been attributed to a topical preparation. Here we present a patient that developed TEN 1 week after beginning treatment for melasma with an over-the-counter (OTC) cosmetic cream.

Case report

A previously healthy 35-year-old woman, 1 week after beginning self-treatment for melasma with an OTC cosmetic cream ("Ideal Cream," of Middle Eastern origin), initially developed general malaise, followed by pruritus and a burning maculopapular, erythematous rash beginning on her face and neck and then extending to her arms. She visited a local hospital where the lesions were diagnosed as contact dermatitis and treated with a topical steroid and an oral antihistaminic drug. Unfortunately the rash spread to the rest of her body, her extremities, and her ocular, oral, and vaginal mucosa, so she was admitted to Firat University Hospital's dermatology clinic. Initially she denied taking any medication or having a recent infection. All vital signs were within the normal range except for a temperature of 38.5 °C. Dermatological examination revealed

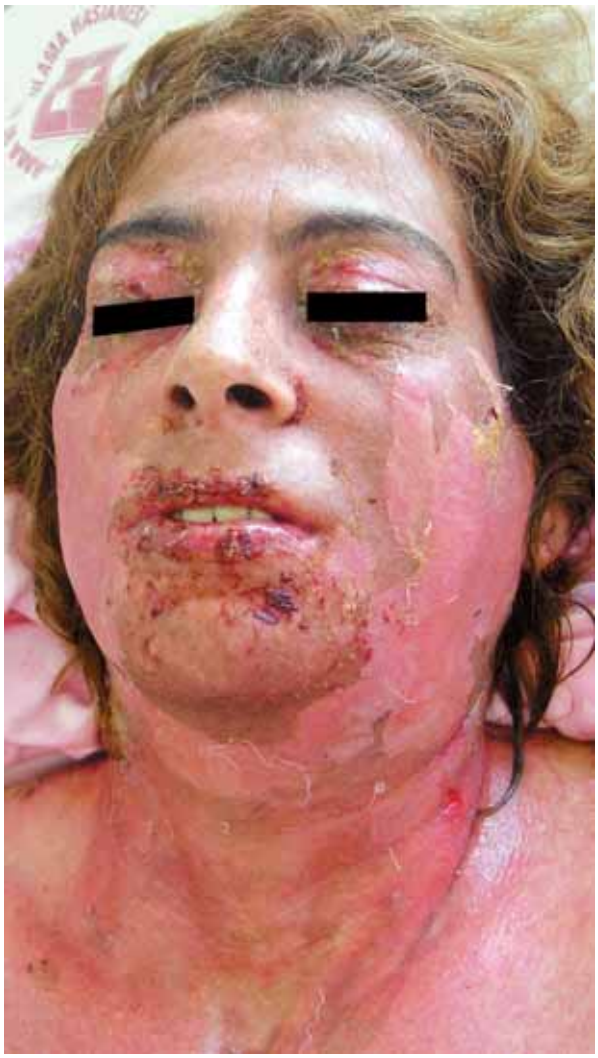

Figure 1. Epidermal detachment of the face and the eyelids.

erythema, edema, and erosions on her face, upper trunk, and extremities. Mucosal ulcerations of her oral, ocular, and genital mucosa were observed (Fig. 1, 2). Nikolsky's sign was positive. Her skin as a whole had become reddened, with marked itching and pain in the lesions. Later, a detailed interrogation revealed the use of "Ideal Cream" for melasma as the presumptive cause. Despite the discontinuation of all previously prescribed medications, her rash progressed over the following week.

Laboratory tests included a complete blood cell count with differential, liver panel, electrolytes, blood sugar, renal function, and urinalysis, which were all within the normal ranges. At the onset of disease her level of C-reactive protein (CRP) was 185 mg/L (normal range: 0–5 mg/L), and her sedimentation rate was 66 mm/h (normal range: 0–20 mm/h). Serology for infectious agents including *Mycoplasma pneumoniae* was negative. Histopathological examination of the skin biopsy stained with HE revealed full-thickness epidermal necrosis and detachment, consistent with a diagnosis of TEN.

The patient was treated by intravenous administration of 120 mg/day prednisolone and parenteral fluid. A bacterial culture test from her skin lesions revealed *Staphylococcus aureus* and, in accordance with the sensitivity test, levofloxacin was administered intravenously. The skin lesions were covered with petrolatum-impregnated gauze.

The lesions on her eyes were treated with ointment containing oxytetracycline. The intravenous administration of prednisolone was reduced gradually as the patient's condition improved. She recovered after 6 weeks of therapy and was discharged almost without sequelae. Follow-up examinations revealed post-inflammatory hyperpigmentation of the skin. The patient's eyes and mucous membranes had recovered completely.

Discussion

Drugs, antibiotics, and anticonvulsants are the most frequent triggers of TEN (5, 6). Other possible causes include immunization, viral infection, graft versus host disease, connective tissue disorders, and exposure to industrial chemicals (3, 7).

The disease started with general malaise, myalgia, and prodromal symptoms. A burning, painful eruption spread from the face to the neck and shoulders and later to the entire trunk and proximal parts of limbs. The peak manifestation of lesions usually occurs in a week. In nearly all cases, mucous membranes are involved. Nikolsky's sign is usually positive (1, 2, 7).

TEN caused by the application of topical preparations to the skin and mucous membranes is very unusual. Flórez et al. reported a case of TEN occurring

Figure 2. Oral mucous membrane involvement.

after ophthalmic use of timolol, dorzolamide, and latanoprost (8). Praz et al. reported a case of TEN induced by topical intranasal application of mupirocin (9). Radimer et al. reported 4 patients with TEN related to exposure to a fumigant mixture containing acrylonitrile and carbon tetrachloride (10). Thompson and Wansker described a young female patient in whom erythema multiforme and TEN developed after two exposures to a locally applied perfume (11). In our case, the patient had used an OTC cosmetic cream 1 week prior to the onset of cutaneous eruptions, and declared that she had not taken any other kind of medication. Detailed questioning and the time course strongly suggested the OTC cosmetic cream as the responsible agent.

It is often difficult to determine causative drugs. There is no reliable laboratory test to confirm TEN. Patch testing and lymphocyte transformation may show weak positivity (12). Detailed disclosure of ingredients in cosmetic products is not required by law in several countries, including Turkey. Thus, defining appropriate test concentrations of ingredients is not possible. In our case, the patient was using only "Ideal Cream," had no infection, and was not using another medication. "Ideal Cream" is an over-the-counter drug whose contents are unknown. It is used to eliminate freckles and acne, including melasma. We have to take into account, however, that patients' histories concerning their drug intake are not reliable. The patient refused the application of patch tests.

The use of traditional drugs is increasing in various populations (14). Many users of traditional medicines generally regard them as "natural," and therefore innocuous, without major side effects.

Treatment of TEN is mostly conservative and includes fluid and electrolyte replacement, nutritional support, temperature regulation, prevention and treatment of infection using daily dressings and broad-spectrum antibiotics, and ophthalmic and oral care. A role is suggested for specific therapies such as a short course of corticosteroids, cyclosporine, and intravenous gamma globulin (IVIG), but there is no universal consensus on their efficacy for treating this disease (15). In light of this, we chose to treat the patient conservatively.

The increased use of cosmetics in modern society may be responsible for the rise in the incidence of adverse reactions. Our presentation suggests the need for increased awareness of the possible severe cutaneous adverse effects of topical OTC drugs.

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