

Guttate psoriasis: a case of unusual evolution of an occupation-related skin chemical burns

AZZURRA SCHICCHI¹, MARCO M TRESOLDI^{2,4}, VALERIA M PETROLINI¹, DAVIDE LONATI¹,
MARIA PERRONE³, CARLO A LOCATELLI¹

¹Pavia Poison Control Centre - National Toxicology Information Centre - Clinical and Experimental Lab, Toxicology Unit – Istituti Clinici Scientifici Maugeri IRCCS, Pavia, Italy

²Plastic and Reconstructive Surgery, Department of Clinical Surgical, Diagnostic and Pediatric Sciences, University of Pavia, Italy.

³Emergency Department, IRCCS Policlinico San Matteo, Pavia (Italy)

⁴Department of Surgery, Istituti Clinici Scientifici Maugeri, Pavia (Italy)

KEY WORDS: skin burn; occupational accident; chemical burns; caustics

ABSTRACT

Introduction: Chemical burns are a risk in domestic and occupational accidents due to the common use of caustic agents. Long-term sequelae are normally due to the amount of skin and underlying tissues damaged. We describe a case of work-related chemical burns with unusual evolution in guttate psoriasis. **Case Report:** A 36 years-old man was admitted to the Emergency Department (ED) three-hours after a work accident. During the cleaning of an industrial hydraulic system, a jet of hydrochloric acid 20% injured his face and upper limbs. At ED admission, he presented first and second-degree skin burns on the frontal region, on the scalp, on the right forearm, and earlobe. Plastic surgery management consisted in wound topical dressing with silver sulfadiazine and paraffin gauze twice a week for one month. Forty-eight hours after the latter topical treatment (45-days after the work accident), in the same anatomical regions of the previous burn scars, he developed a skin reaction with itchy erythema. The application of topical products was suspended without improvement, excluding an allergic reaction. Within few days, a generalized guttate psoriasis was evident on the whole body. **Discussion:** Despite many prevention actions, work-related burns are a relatively common cause of hospitalization and may involve up to 80% of patients admitted to a burn unit. Guttate psoriasis has not been described as a sequelae of chemical burns. In our case, the others most frequent factors causing guttate psoriasis have been ruled out. Considering the temporal link between the development of guttate psoriasis and the work accident, hydrochloric acid skin burns might have promoted the systemic inflammatory mediators' mechanism involved in the development of guttate psoriasis lesions after the dermal injury.

INTRODUCTION

Chemical burns are a risk in domestic and occupational accidents due to the common use of caustic agents in household products, as well as in products used in industry, and in other occupational fields. Local lesions could be severe, and risk of systemic effects depends on chemical and physical properties

of the involved agents: (i) their toxic and kinetic characteristics, (ii) the concentration and quantity, (iii) the duration of contact, and (iv) the size of the burned area (1). Long-term sequelae are normally due to the amount of skin and underlying tissues damaged (1). We describe a case of cutaneous chemical burns with unusual evolution in guttate psoriasis.

Received 12.12.2020 - Accepted 9.2.2021

Corresponding author: Azzurra Schicchi, M.D. Poison Control Centre and National Toxicology Information Centre - Toxicology Unit, Istituti Clinici Scientifici Maugeri IRCCS, Pavia – Italy; Via Salvatore Maugeri 10, 27100; el: +39-0382-26261; Fax: +39-0382-24605; email: azzurra.schicchi@icsmaugeri.it

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Figure 1 - Second-degree skin chemical burns on the frontal region, on the scalp, on the right forearm at admission immediately after the accident (A), squamous itchy erythema after 45 days from the accident and 2-week topical treatment (B), rapidly evolving into generalized guttate psoriasis (C)

CASE REPORT

A 36 years-old man was admitted to the Emergency Department (ED) three-hours after a work accident. During the cleaning of an industrial hydraulic system, a jet of hydrochloric acid 20%, ambient temperature, injured his face and upper limbs. At the workplace, an immediate clothing removal and accurate washing with cold water was performed. At ED admission, he presented first and second-degree skin burns on the frontal region, on the scalp, on the right forearm (Figure 1-A), and earlobe. He didn't manifest signs of respiratory distress or other systemic clinical manifestations and the performed blood tests were normal. Plastic surgery management consisted in wound topical dressing with silver sulfadiazine and paraffin gauze twice a week for one month. When the skin lesions were healed, a topical silicone gel and sunscreen were applied to improve the scar outcome. Forty-eight hours after the latter topical treatment (45-days after the work accident), in the same anatomical regions of the previous burn scars, he developed a skin reaction with itchy erythema (Figure 1-B). No other systemic signs or symptoms were manifested.

The application of topical products was immediately suspended without improvement, excluding an allergic reaction. Within few days, the skin reaction evolved in a dissemination of multiple small inflammatory-desquamated lesions. A generalized guttate psoriasis was evident on the whole body (Figure 1-C). At the successive outpatient follow-up, an improvement of these lesions was evident after one month of steroid treatment, but did not disappear completely.

DISCUSSION

Despite many prevention actions, work-related burns are a relatively common cause of hospitalization and may involve up to 80% of patients admitted to a burn unit (2).

Guttate psoriasis has not been described as a possible evolution of chemical burns (3). Hydrochloric acid usually causes coagulation necrosis when it comes into contact with the skin (4). Considering the pathophysiology of acids chemical burns, no direct correlation with the involved product was hypothesized. The development of lesions in healthy skin after exposure to any trauma that

involve dermis layer, is known as Koebner phenomenon (KP) (5). The pathogenesis of KP is not yet clear, but in many studies its correlation with psoriasis has been reported (3).

In the described case, the existence of the Koebner is doubted by the rather long appearance time but the others most frequent factors causing guttate psoriasis have been ruled out: previous upper respiratory tract infection, family history negative for autoimmune and cutaneous diseases, no use of drugs linked with psoriasis development.

It is known the stress provokes degranulation of the mast cells, releasing pro-inflammatory cytokines and exacerbating the psoriasis. Although it is difficult to measure the level of stress, consistent evidence emerges from the literature on its role in the pathogenesis or aggravation of psoriasis (6).

In our patient, the stress induced by the trauma-burn, associated with the suspension of work and the consequent risk of job loss, may be the key element under the development of the guttate psoriasis lesion's after the dermal injury.

Invest in prevention actions of work accident should still be a primary goal in industry setting. In case of work-related burns, is important to schedule long-term follow-up of the patients in order to make an early diagnosis of possible complications and to start appropriate treatments.

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NO POTENTIAL CONFLICT OF INTEREST RELEVANT TO THIS ARTICLE WAS REPORTED BY THE AUTHORS. WRITTEN INFORMED CONSENT FOR PUBLICATION OF THEIR DETAILS WAS OBTAINED FROM THE PATIENT.

AKNOWLEDGMENTS: THIS WORK WAS SUPPORTED IN PART BY THE RICERCA CORRENTE FUNDING SCHEME OF THE MINISTRY OF HEALTH, ITALY.