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Case Presentation

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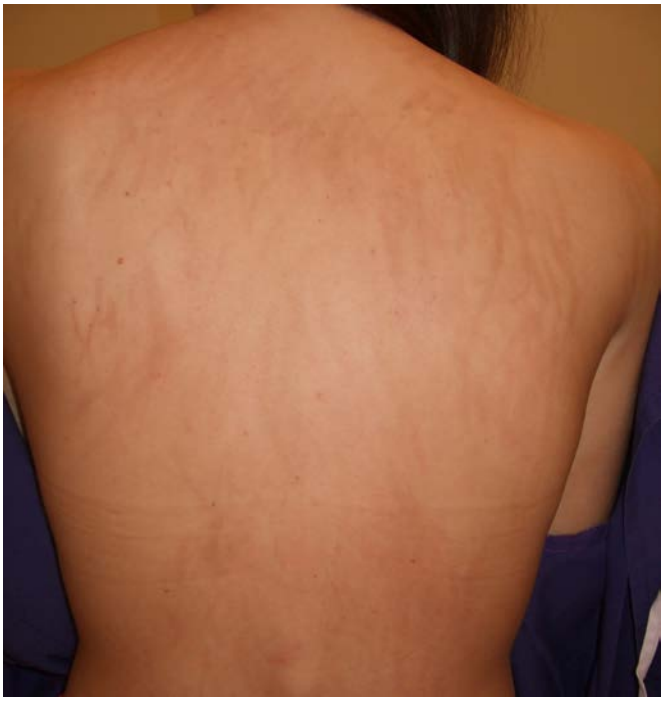
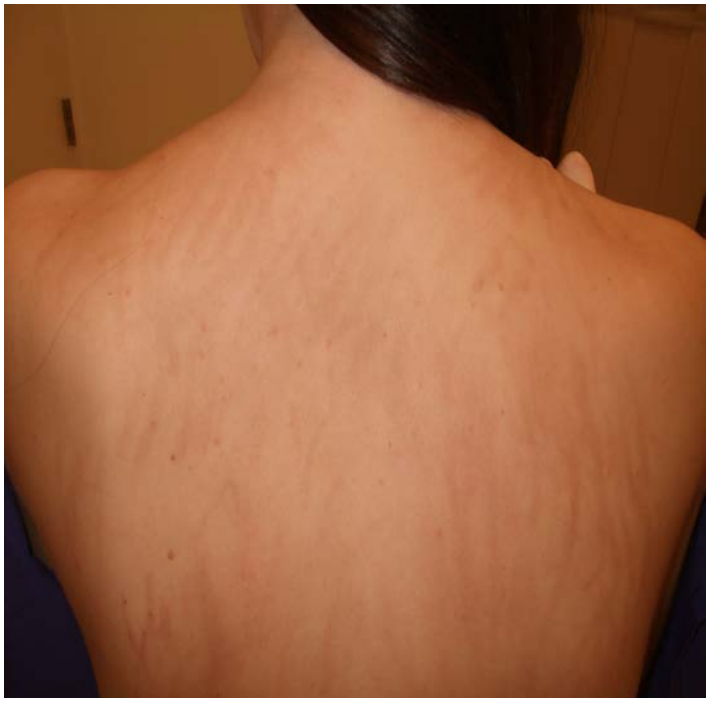
Abstract

A 21-year-old woman presented with a pruritic eruption on her trunk and extremities after receiving bleomycin for treatment of stage III ovarian germ-cell tumor. Physical examination was consistent with bleomycin-induced flagellate erythema. We discuss the pathophysiologic mechanism that produces this dermatitis.





Case synopsis

A 21-year-old woman was referred to the Dermatology Faculty Practice at New York University Langone Medical Center by her oncologist for a 2-week history of a skin eruption. Past medical history included stage III ovarian cancer (germ-cell tumor type) for which she received BEP chemotherapy (bleomycin, etoposide, and cisplatin). Shortly after her first cycle, she noted a pruritic eruption on her chest, back, and abdomen. She had not attempted any treatment but noted that the eruption had faded somewhat since it first appeared. She had a history of eczema but no other skin problems prior to the presentation.

Physical Examination: On the neck, back, proximal aspects of the arms, chest, and abdomen were numerous, erythematous and hyperpigmented, flagellate patches.

Laboratory Data: None

Histopathology: None

Diagnosis: Bleomycin-induced flagellate erythema

Discussion: Flagellate erythema presents with striated, linear, erythematous patches or plaques on the bony prominences and extremities. The eruption is often pruritic and resolves with hyperpigmentation. The mechanism by which this flagellated morphology develops is not yet fully understood but is postulated to be secondary to the toxic effect of bleomycin [1]. Specifically, it is thought that certain tissues, such as the lung and the skin, have lower levels of bleomycin hydrolase, which is an

enzyme that metabolizes bleomycin [2]. Minor trauma, such as scratching or rubbing, results in increased vascular permeability and, subsequently, local accumulation of bleomycin. This locally elevated concentration of bleomycin may cause the release of proinflammatory cytokines or trigger mast cell degranulation, which results in erythema and pruritus [3].

Clinical observations, however, suggest that this hypothesis may be incomplete. Efforts to induce flagellate erythema by rubbing the skin have not yielded reproducible resultsk. This suggests that the unique morphology may not simply be a result of trauma alone [4-5]. Additionally, a case series suggested that there might exist two distinct patient subsets [5]. In this study, the patients who developed the eruption within 24 to 72 hours after receiving bleomycin were mostly women (6/7), all had a diagnosis of Hodgkins lymphoma, and they had received relatively small doses of bleomycin that ranged between 5 and 15 mg. In contrast, patients who developed lesions weeks or months after treatment were mostly men (9/12) with non-hematologic malignant conditions who received higher doses (30 to 465 mg) of bleomycin. Thus, the development of this eruption may depend not only on the dose of bleomycin but also on the genetic background and malignancy-specific cytokine milieu.

There currently is no specific therapy for flagellate erythema, but this condition is not a therapy-limiting side effect. In a small case review, concomitant administration of topical glucocorticoids with bleomycin did not decrease the onset of eruption from the time of chemotherapy administration. Our patient received topical triamcinolone on her first visit, which relieved the pruritus. Since completing chemotherapy, the hyperpigmentation has faded slowly. Several areas were currently being treated with intense pulse light therapy and Erbium 1540 nm non ablative laser.

References

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