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The histological features of toxic erythema of chemotherapy: A retrospective review

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Background: Toxic erythema of chemotherapy (TEC) describes a spectrum of clinical cutaneous entities occurring after the initiation of cytotoxic chemotherapeutic agents such as antimetabolites (i.e. cytarabine) and anthracyclines (i.e. doxorubicin). Typically, it presents as a severe skin reaction manifesting as acral erythema, edema and dysesthesias of the hands and feet. Our goal was to review the skin biopsy slides of confirmed TEC cases to better define unique histological features found in this rare dermatological entity.

Methods: We retrospectively reviewed the charts of 500 patients who had undergone allogeneic or peripheral stem cell transplant from January 2010 to December 2015 and were receiving chemotherapy. We identified 39 patients with a skin eruption consistent with TEC. From the 39 confirmed TEC cases, only 11 had skin biopsies. All cases were reviewed alongside a Dermatopathologist to define and collect histological findings.

Results: The most common histological findings were interface vacuolar dermatitis, dysmaturation of keratinocytes and the presence of dyskeratotic keratinocytes. The histological hallmarks of TEC that were seen in unique cases were epidermal hyperpigmentation, focal pigment incontinence, epidermal bullae and focal eccrine syringometaplasia.

Conclusion: We conclude that the diagnosis of TEC is mainly a clinical diagnosis based on morphology and location of eruption in the right clinical context. The histopathological features of TEC are generally non-specific, and can only support a clinical diagnosis. Large-scale studies are needed to find consistent clinical and histological features to better define a standardized diagnostic criterion for TEC.

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