

Leukaemia Cutis at the Site of Striae Distensae: An Isotopic Response?

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Many dermatoses exhibit lesions distributed in a linear fashion: the linearity may be related to anatomical structures (blood or lymph vessels, or nerves), to mechanical factors (urticarial dermatographism, striae distensae cutis, or frictional melanosis) or to some other provocative injuries that are themselves linear (e.g. Köbner's phenomenon). We report here a case of leukaemia cutis presenting as striae distensae-like linear streaks.

CASE REPORT

A 60-year-old woman presented with asymptomatic skin eruptions, swelling of the right cheek, fever, chills, nasal discharge, abdominal fullness, general malaise and poor appetite, which had been present for 2 weeks. No unusual travel or drug history was revealed. Physical examination revealed gingival hypertrophy, several erythematous, linear papules on the abdomen, and multiple purpuric maculopapular lesions on the shins. The linear papules of the abdomen were reminiscent of eruptions along striae distensae (Fig. 1A). Laboratory surveys showed leukocytosis (white blood cell (WBC) count 69,800/mm³ with abnormal differential count: blast 1%, promyelocyte 1%, promonocyte 73%), anaemia (haemoglobin (Hb) 9.6 g/dl) and elevated C-reactive protein. Skin biopsy of the abdomen showed nodular and diffuse infiltration of medium-sized hyperchromatic neoplastic cells, with perivascular and periadnexal accentuation in the dermis (Fig. 2A). The tumour cells had round to slightly indented nuclei and basophilic cytoplasm with small nucleoli and mitoses

(Fig. 2B). Focal erythrocyte extravasation was present. Immunohistochemically, the tumour cells were focally positive for MPO and CD117, but negative for CD34. Bone marrow biopsy was consistent with acute myeloid leukaemia. A diagnosis of leukaemia cutis was made and the patient subsequently received chemotherapy with idarubicin and cytarabine. Three weeks later, the skin lesions had cleared almost completely, leaving the original striae distensae (Fig. 1B).

DISCUSSION

Striae distensae are linear smooth bands of atrophic-appearing skin, resulting from various physiological states, including pregnancy, adrenocortical excess and rapid changes in body weight. Several dermatoses have been reported developing within striae distensae, including urticarial vasculitis, lupus erythematosus, keloid, linear focal elastosis and chronic graft-versus-host disease (1–5). However, although leukaemia cells involved with minor traumas and scars have been reported in a patient with acute myelomonocytic leukaemia (6), leukaemia cutis at the site of striae distensae has not been reported previously.

The occurrence of a new skin disorder at the site of another, unrelated and already healed, skin disease was first described by Wyburn-Mason in 1955 (7). In 1995, Wolf et al. named this condition "isotopic response" (8). In contrast to "isomorphic response", which means "the same morphology as the existing disease", "isotopic response" describes the occurrence of a new, unrelated disease that appears at the same location as a previously

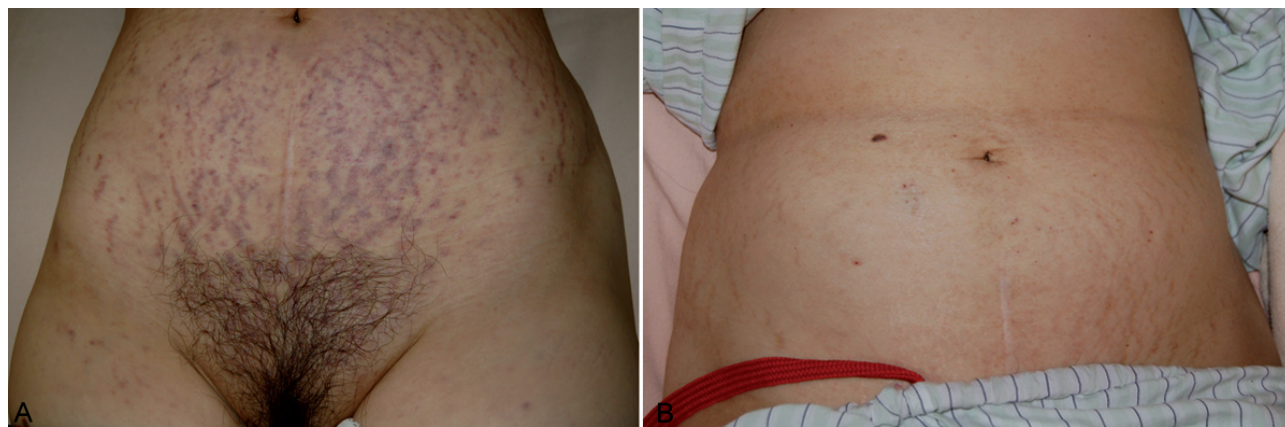


Fig. 1. (A) Multiple erythematous, linear papules and plaques at the site of striae distensae on the abdomen. (B) After chemotherapy, the skin lesions cleared almost completely, leaving the original striae distensae.

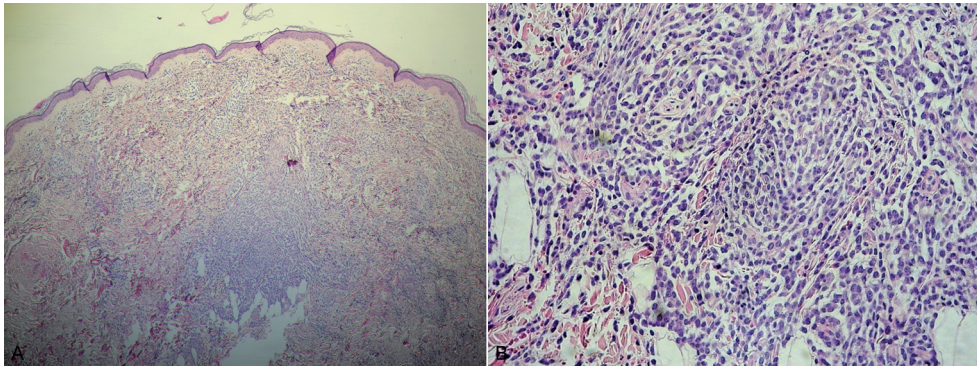


Fig. 2. (A) Skin biopsy of the abdomen showed nodular and diffuse infiltration of medium-sized hyperchromatic neoplastic cells, with perivascular and periadnexal accentuation in the dermis (haematoxylin and eosin (H&E), original magnification $\times 40$). (B) The tumour cells have round to slightly indented nuclei and basophilic cytoplasm with small nucleoli and mitoses (H&E, $\times 400$).

already healed disease; hence “isotopic” means “at the same place” (8, 9).

The proposed aetiologies of isotopic response are viral, immunological, neural, vascular and *locus minoris resistentiae* (a site of lessened resistance). The preceding disease is usually a herpesvirus infection. The most common type of post-herpetic isotopic response is a granuloma annulare-like reaction, but other manifestations, including malignancies (e.g. breast carcinoma, skin cancer, and leukaemia), immune disorders (e.g. lichen planus), and infections (e.g. dermatophytosis and verruca) have been reported (10). Reports also suggest a possible isotopic response unrelated to healed herpesviral scars, including herpes simplex appearing on a scrofuloderma scar, molluscum contagiosum on a region of burned skin, and disseminated granuloma annulare following erythema multiforme minor (11–13). However, in Saraswat’s view, whether there is any other non-viral primary skin lesion associated with isotopic response remains a matter of debate (14).

In summary, we report here a case of leukaemia cutis at the site of striae distensae. The coexistence of the two conditions may be a coincidence, a reflection of locus minoris resistentiae, or an isotopic response. Further definition of the isotopic response may help to explain the coexistence of these conditions.

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