



Leukaemia cutis: an unusual localisation in the groin mimicking infection

Peter D Zang, Brandon L Adler, Meagan Hughes, Nicole Harter, Brittney DeClerck, Minnelly Luu

A 16-year-old obese male patient with a history of precursor B-cell acute lymphoblastic leukaemia diagnosed in September, 2016 (immunophenotype from bone marrow flow cytometry: expression of CD9, CD10 bright, CD19, CD22 variable, CD24, CD33, CD34, CD38 variable, CD58, CD71 partial, CD123 variable, HLA-DR, TdT, and CRLF2) who was on maintenance chemotherapy (6-mercaptopurine, vincristine, methotrexate, and prednisone) since June, 2017, developed peripheral blasts that were concerning for recurrence. He was admitted to Children's Hospital Los Angeles (CA, USA) in August, 2018. He also reported 1 week of mildly tender skin lesions in the groin. The night before consultation, he became febrile (38.5°C) and was started on broad-spectrum antibiotics (vancomycin, cefepime, trimethoprim-sulfamethoxazole, and micafungin).

On physical examination, there were several soft, violaceous, necrotic nodules in the pubis (figure, A). Small follicular papulopustules were also present throughout the trunk and thighs, consistent with folliculitis. The differential diagnosis included furunculosis, serious infectious causes such as ecthyma gangrenosum or deep fungal infection, and leukaemia-associated Sweet's syndrome (acute febrile neutrophilic dermatosis). Skin biopsy revealed atypical B cells in the dermis and subcutis that were positive for CD19, CD10, and TdT, and negative for CD20, diagnostic of leukaemia cutis (figure, B). Blood cultures were negative and tissue cultures grew commensal organisms (coagulase-negative *Staphylococcus*, *Propionibacterium acnes*, and *Finnegoldia magna*). Bone marrow biopsy confirmed relapse of precursor B-cell acute lymphoblastic leukaemia, and the patient was started on

induction chemotherapy with mitoxantrone, vincristine, pegylated asparaginase, dexamethasone, and intrathecal methotrexate. He did not achieve second remission and subsequently failed to respond to CD19 CAR T-cell therapy and salvage chemotherapy. He died from progression of disease in April, 2019.

Previous research has shown that leukaemia cutis occurs in only 1–3% of patients with acute lymphoblastic leukaemia, compared with 10–15% of patients with acute myelogenous leukemia and 4–20% of those with chronic lymphocytic leukaemia. It is rarer still in precursor B-cell acute lymphoblastic leukaemia, with most reported cases presenting as firm erythematous nodules without predilection for the groin. Development of leukaemia cutis can convey a poor prognosis in patients with leukaemia. This patient's presentation was suggestive of furunculosis or other infection; there was low suspicion for leukaemia cutis prior to histological examination. We highlight an unusual presentation and localisation of leukaemia cutis in the groin heralding relapse of acute lymphoblastic leukaemia. Although leukaemia cutis is uncommon in this setting, it should always be considered in the differential diagnosis of new-onset skin lesions in patients with a history of acute lymphoblastic leukaemia.

Contributors

All authors were involved in the care of the patient, and the writing and approval of the report. Written informed consent to publication was obtained.

Declaration of interests

We declare no competing interests.

© 2019 Elsevier Ltd. All rights reserved.

Lancet Oncol 2019; 20: e464

Keck School of Medicine, University of Southern California, Los Angeles, CA, USA (P D Zang BA); Department of Dermatology (B L Adler MD, M Hughes MD, N Harter MD, B DeClerck MD, M Luu MD) and Department of Pathology (B DeClerck), Keck School of Medicine, University of Southern California, Los Angeles, CA, USA; and Children's Hospital Los Angeles, Los Angeles, CA, USA (M Hughes, N Harter, M Luu)

Correspondence to: Dr Minnelly Luu, Children's Hospital Los Angeles, 4650 Sunset Blvd, Los Angeles, CA 90027, USA
mluu@chla.usc.edu

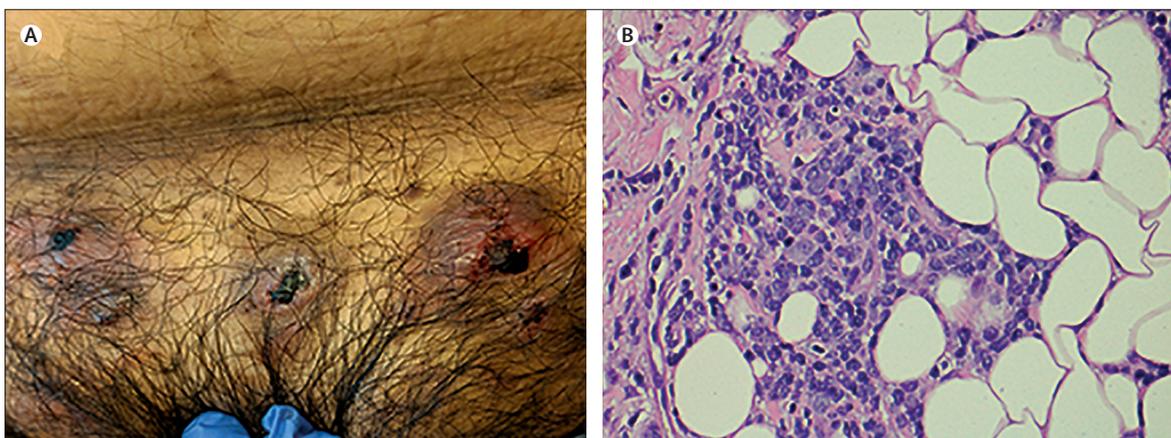


Figure: Leukaemia cutis

(A) Soft, violaceous, necrotic nodules in the pubis. (B) High-power view (haematoxylin–eosin stain, original magnification $\times 40$) showing atypical B cells in the subcutis (CD10+/CD19+/TdT+/CD20-).