Received: 29 December 2022 | Revised: 23 May 2023 | Accepted: 29 May 2023

DOI: 10.1002/ccr3.8342

CASE REPORT

Clinical Case Reports Open Access WILEY

An unusual presentation of subcutaneous panniculitis-like T-cell lymphoma: Extensive necrosis and hemophagocytic lymphohistiocytosis: A case report

Mehdi Loukhnati | **Khaoula Khalil** | **Fatima Ezzahra Lahlimi** | **Illias Tazi**

Department of Hematology and Bone Marrow Transplantation Mohammed VI University Hospital, Cadi Ayyad University, Marrakesh, Morocco

Correspondence
Mehdi Loukhnati, Department of Hematology and Bone Marrow Transplantation Mohammed VI University Hospital, Cadi Ayyad University, Marrakesh 40080, Morocco.
Email: loukmehdi@gmail.com

Key Clinical message

Subcutaneous panniculitis-like T-cell lymphoma, a primary cutaneous lymphoma, which is described as following a slow course, could claim life. The occurrence of facial and breast nodules, the association with hemophagocytic lymphohistiocytosis, and the extent of necrosis and ulceration are signs of its aggressive nature needing early diagnosis and prompt treatment.

Abstract

Subcutaneous panniculitis-like T-cell lymphoma (SPTCL) is a rare skin disease that accounts for <1% of all peripheral T-cell lymphomas. It is described as following a slow and gradual process. However, it can be associated with a variety of clinical symptoms ranging from mild to severe. Hemophagocytic lymphohistiocytosis (HLH), a rare and potentially fatal hematologic factor that complicates SPTCL in 20% of cases, is an important prognostic factor. We report here an aggressive case of disseminated SPTCL with HLH involving a young woman who presented with extensive necrosis and ulceration at diagnosis. The report highlights the aggressive course of the disease, the occurrence of facial and breast nodules, the association with HLH, and the extent of necrosis and ulceration. The report highlights the poor prognosis despite polychemotherapy regimen use.

KEYWORDS

case report, Hemophagocytic lymphohistiocytosis, necrosis, subcutaneous panniculitis-like T-cell lymphoma

1 | INTRODUCTION

Subcutaneous panniculitis-like T-cell lymphoma (SPTCL) is a very rare variant and poorly differentiated type of cutaneous T-cell lymphoma. It accounts for <1% of all peripheral T-cell lymphomas and is considered to be an indolent skin malignancy.[1] Physical examination reveals unique or multiple subcutaneous nodules or plaques typically on the arms, legs, or the trunk.[2]

Hemophagocytic lymphohistiocytosis (HLH) is a rare and potentially fatal syndrome characterized by immune hyperactivation and extreme inflammation, ultimately leading to multiple organ failure. It complicates SPTCL in 20% of the cases and is a major prognostic factor.[1,2]

2 | CASE PRESENTATION

A 26-year-old North African woman with no particular history presented was admitted to the emergency department of Mohamed VI University Hospital with 2-month complaint of multiple tender violaceous lesions on her face, abdomen, and legs that rapidly have spread all over her body. Many of them were ulcerated with extensive necrosis with a maximum diameter of 5 cm. This was associated to recurrent fever, aggravating asthenia, decreased appetite, and an estimated weight loss of 11 kg over 4 months. She was admitted to the emergency department of Mohamed VI University Hospital.

On physical examination, the patient was pale and presented fever of 39.1C. Numerous erythematous, subcutaneous nodules were present on her face, neck, breasts, abdomen, back, and limbs (Figure 1). They were indurated and ulcerated with signs of extensive necrosis (Figure 2). No lesions were noted on mucous membranes or on the scalp liver and spleen were both palpable without peripheral lymphadenopathy.

A full blood count on admission demonstrated microcytic anemia with hemoglobin at 7.5 g/dL, mean Corpuscular volume (MCV) at 78.6 fL, platelets 307×10^9/L, white blood cell count revealed neutropenia with absolute neutrophil count at 880/mm^3 and lymphopenia with absolute lymphocyte count at 140/mm^3. C-reactive protein was elevated at 268 mg/L. The patient was immediately started on intravenous broad-spectrum antibiotics.

Bone marrow examination showed the presence of hemophagocytosis, and additional laboratory data revealed

FIGURE 1 Indurated and disseminated subcutaneous nodules if the breasts, abdomen, and arms.

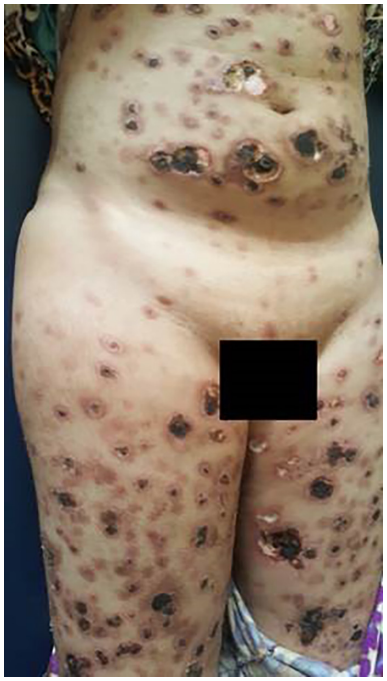

FIGURE 2 1–5 cm subcutaneous nodules with signs of extensive necrosis.

a high ferritin level (11,000 ng/mL), elevated triglycerides (0.013 mmol/L), and low fibrinogen (1.0 g/L). The serum lactate dehydrogenase (LDH) was elevated at 989 U/L. The serum creatinin was normal. Liver enzymes were within normal limits. The diagnosis of HLH was established with an HScore indicating a 99% probability, and dexamethasone at the dose of 10 mg/m^2 was started without delay.

Serologic tests were negative for hepatitis A, B and C, HIV and cytomegalovirus (CMV) and results of an Epstein–Barr virus (EBV) serologic test were consistent with previous exposure. Blood cultures were negative. Serologic tests were negative for antinuclear antibodies, anti-native DNA antibodies, and rheumatoid factor. Serum angiotensin converting enzyme level was normal, and tuberculosis quantiferon PCR was negative.

A punch biopsy specimen from the skin lesion showed atrophic epidermis and lobular necrosis in dermis and hypodermis associated to atypical lymphocytic infiltrate. Those atypical lymphocytes showed subtle rimming surrounding fat cells (Figure 3). Direct immunofluorescence was negative. Immunohistochemistry analysis showed positive expression for CD3, CD8, and CD5 and negative expression for CD4, CD56, CD20, CD30, and CD10 (Figure 4). This confirmed the diagnosis of a subcutaneous panniculitis-like T-cell lymphoma. Beta F1 stain was not performed.

While awaiting the skin biopsy report, the patient was immediately started on intravenous broad-spectrum antibiotics. Full body computed tomography scan showed

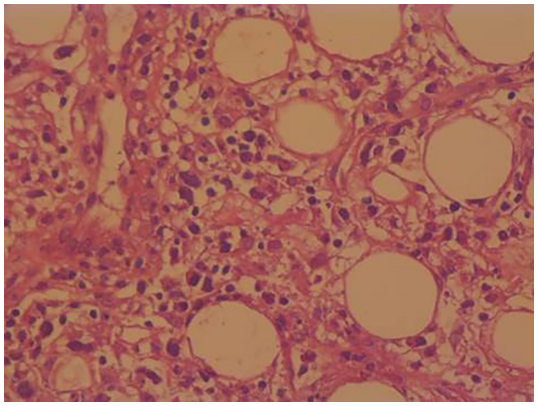

FIGURE 3 Hematoxylin and eosin staining of lesional skin revealing atypical lymphocyte rimming of individual adipocytes.

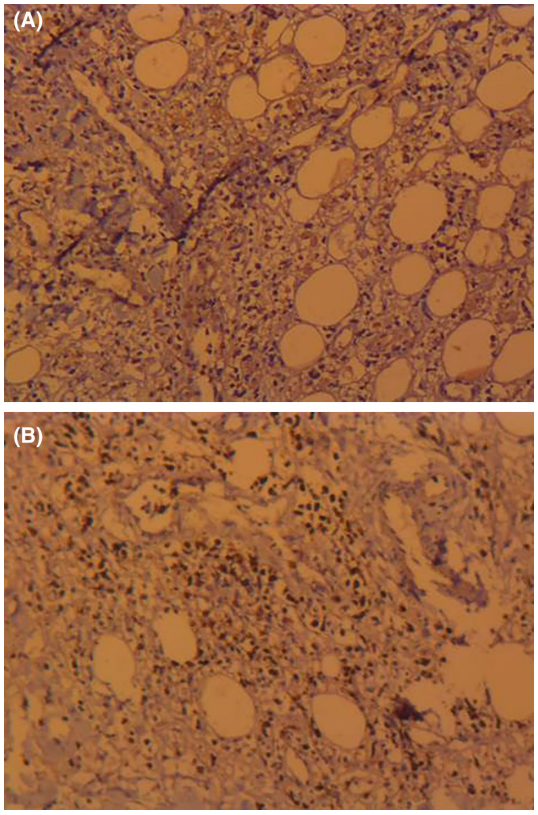

FIGURE 4 (A) Immunohistochemical staining (magnification ×400) was positive for CD3. (B) Immunohistochemical staining (magnification ×400) was positive for CD8.

multiple enhancing nodules in subcutaneous layer of all body sites and hepatosplenomegaly.

The patient was staged $T_{3b}N_0M_0$ subcutaneous panniculitis-like T-cell lymphoma according to the TNM classification system.

The patient was treated with CHOP regimen (cyclophosphamide, doxorubicin, vincristine, and prednisone). 48 h after the first course of chemotherapy, the fever resolved and improvement in disease markers was noted. The skin lesions started healing. Few days after her second course, our patient died at home with no clear explanation of the cause of death.

3 | DISCUSSION

Subcutaneous panniculitis-like T-cell lymphoma is a rare distinct type of T-cell lymphoma that was first described by Gonzalez et al. in 1991.[3] Two subtypes of SPTCL were originally defined: α/β and γ/δ T-cell phenotypes. Recently, in The WHO-EORTC classification, SPTCL and primary cutaneous γ/δ T-cell lymphoma are two distinct entities.[4] It mainly affects young women, with 20% of cases occurring in patients under the age of 20.[1]

Subcutaneous panniculitis-like T-cell lymphoma is described as following a slow course with a good prognosis It manifests as unique or multiple subcutaneous nodules and plaques typically on the extremities and/or trunk. It is described as following a slow course, associated with constitutional symptoms including fever, chills, myalgia, and weight loss.[4,5]

Unique to this case is the occurrence of nodules on the face and the breasts and the extensive necrosis and ulceration seen all over the body. Only three cases of SPTCL of the breast are reported in the literature.[6]

Extra-cutaneous involvement is extremely rare, and approximately 20% of patients with SPTCL have an associated autoimmune disease.[1,7] The incidence of SPTCL in patients with systemic lupus erythematous is higher than in the general population.[8]

The diagnosis of SPTCL is very difficult and very challenging because of the similarities with other types of T-lymphomas and other causes of panniculitis. The histopathology of SPTCL is characterized by infiltration of subcutaneous adipose tissue by neoplastic T cells rimming individual fat cells (adipocytes).[9] According to EORTC classification, malignant T cells are positive for CD3 and CD8, express an α/β T-cell receptor (TCR) gene rearrangement, and are negative for CD4.[10] Immunohistochemistry can provide indirect evidence of the underlying phenotype by staining for TCR β (Beta F1), TCR γ, and TCR δ. Characteristically, the α/β phenotype is positive for CD8, Beta F1 and negative for CD4 and CD56.[11] There is no typical imaging findings on computed tomography (CT), magnetic resonance imaging (MRI), and 18F-fluorodeoxyglucose positron emission tomography/computed tomography (FDG-PET/CT). However, FDG-PET/CT is able to show the degree and the extent of SPTCL lesions, which helps to detect occult lesions.[12]

Hemophagocytic lymphohistiocytosis is a potentially fatal hyperinflammatory syndrome characterized by hyperactivation of lymphocytes and macrophages. Approximately 20% of patients with SPTCL have secondary HLH.[1,2] It is associated with poorer prognosis. The 5-year survival rate for SPTCL associated with HLH is 46% (versus 93% without HLH).

Due to differences in the severity of SPTCL from one study to another, the different reports did not reach a clear consensus on the optimal approach to treatment, noting that treatment options ranged from steroids, radiation to immunotherapy, polychemotherapy followed by allogeneic bone marrow Transplantation.[13] We chose an anthracycline-based regimen because of the extent of skin involvement, the aggressive presentation, and association with HLH. Our case suggests that this extensive necrosis may be a factor in poor prognosis. Our patient died a few weeks after starting treatment, bringing to the realization that although SPTCL is an indolent skin disease, aggressive with unusual presentation exists.

4 | CONCLUSION

This case highlights that clinical presentation, and diagnostic and therapeutic approaches are not straightforward for SPTCL. Further research is needed to distinguish this skin condition and establish standardized treatment guidelines.

AUTHOR CONTRIBUTIONS

Mehdi Loukhnati: Conceptualization; data curation; supervision; validation; writing – original draft. **Khaoula Khalil:** Conceptualization; data curation; supervision; validation; writing – original draft. **Fatima Ezzahra Lahlimi:** Conceptualization; supervision; writing – original draft. **Illias Tazi:** Visualization; writing – original draft; writing – review and editing.

ACKNOWLEDGMENTS

The authors certify that they have taken necessary consent from patient for publication of images.

FUNDING INFORMATION

The author received no specific funding for this work.

CONFLICT OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest.

DATA AVAILABILITY STATEMENT

All data underlying the results are available as part of the article, and no additional source data are required.

CONSENT

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

ORCID

Mehdi Loukhnati https://orcid.org/0000-0003-0338-2756
Khaoula Khalil https://orcid.org/0000-0002-4099-7947

REFERENCES

1. Willemze R, Jansen PM, Cerroni L, et al. Subcutaneous panniculitis-like T-cell lymphoma: definition, classification, and prognostic factors: an EORTC cutaneous lymphoma group study of 83 cases. *Blood*. 2008;111(2):838-845.
2. Sonigo G, Battistella M, Beylot-Barry M, et al. HAVCR2 mutations are associated with severe hemophagocytic syndrome in subcutaneous panniculitis-like T-cell lymphoma. *Blood*. 2020;135(13):1058-1061.
3. Gonzalez CL, Medeiros LJ, Braziel RM, Jaffe ES. T-cell lymphoma involving subcutaneous tissue: a clinicopathologic entity commonly associated with hemophagocytic syndrome. *Am J Surg Pathol*. 1991;15:17-27.
4. Michonneau D, Petrella T, Ortonne N, et al. Subcutaneous panniculitis-like T-cell lymphoma: immunosuppressive drugs induce better response than polychemotherapy. *Acta Derm Venereol*. 2017;97(3):358-364.
5. Gallardo F, Pujol RM. Subcutaneous panniculitic-like T-cell lymphoma and other primary cutaneous lymphomas with prominent subcutaneous tissue involvement. *Dermatol Clin*. 2008;26(4):529-540.
6. Hill CR, Wang AL, Elewski B, Pavlidakey PG. Subcutaneous panniculitis-like T-cell lymphoma: a mixed diagnostic approach to diagnosing a vague clinical picture. *SKIN J Cutaneous Med*. 2019;3:90-97.
7. Go RS, Wester SM. Immunophenotypic and molecular features, clinical outcomes, treatments, and prognostic factors associated with subcutaneous panniculitis-like T-cell lymphoma: a systematic analysis of 156 patients reported in the literature. *Cancer*. 2004;101:1404-1413.
8. Pincus LB, LeBoit PE, McCalmont TH, et al. Subcutaneous panniculitis-like T-cell lymphoma with overlapping clinicopathologic features of lupus erythematosus: coexistence of 2 entities? *Am J Dermatopathol*. 2009;31(6):520-526.
9. Lozzi GP, Massone C, Citarella L, Kerl H, Cerroni L. Rimming of adipocytes by neoplastic lymphocytes: a histopathologic feature not restricted to subcutaneous T-cell lymphoma. *Am J Dermatopathol*. 2006;28:9-12.
10. Massone C, Lozzi GP, Egberts F, et al. The protean spectrum of non-Hodgkin lymphomas with prominent involvement of subcutaneous fat. *J Cutan Pathol*. 2006;33:418-425.
11. Singh S, Philip CC, John MJ. Pediatric subcutaneous panniculitis–like T-cell lymphoma with hemophagocytosis showing complete resolution with the BFM90 protocol. *J Pediatr Hematol Oncol*. 2019;41(6):478-481.

12. Jiang M, Zhao L, Zheng J, Zhang J, Chen P, Zhou W. Report of eleven patients of subcutaneous panniculitis-like T-cell lymphoma: Clinicopathologic features, ^{18}F-FDG PET/CT findings and outcome. *Front Oncol*. 2021;11:650822.
13. LeBlanc RE, Lansigan F. Unraveling subcutaneous panniculitis-like T-cell lymphoma: an association between subcutaneous panniculitis-like T-cell lymphoma, autoimmune lymphoproliferative syndrome, and familial hemophagocytic lymphohistiocytosis. *J Cutan Pathol*. 2020;48(4):572-577.

How to cite this article: Loukhnati M, Khalil K, Lahlimi FE, Tazi I. An unusual presentation of subcutaneous panniculitis-like T-cell lymphoma: Extensive necrosis and hemophagocytic lymphohistiocytosis: A case report. *Clin Case Rep*. 2024;12:e8342. doi:10.1002/ccr3.8342