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Research Communication

Lymphocytic Lobular Panniculitis: A Diagnostic Challenge

Silvia Alberti-Violetti[a, b] Emilio Berti[a, b]

[a]UOC Dermatologia, Fondazione IRCCS Ca' Granda, Ospedale Maggiore Policlinico, Milan, Italy; [b]Dipartimento di Fisiopatologia Medico-Chirurgica e dei Trapianti, Università degli Studi di Milano, Milan, Italy

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Histological evidence of a lymphocytic lobular panniculitis is always a great diagnostic challenge. The possible diagnosis ranging from benign conditions, such as lupus panniculitis (LP), to indolent or aggressive types of T-cell lymphoproliferative disorders, such as subcutaneous panniculitis-like T-cell lymphoma (SPTL) and primary cutaneous γ/δ T-cell lymphoma (GDTCL). Integration between clinical, histological, and immunophenotypic features is necessary to obtain a definitive diagnosis.

SPTL is a rare cutaneous lymphoma, accounting for <1% of all non-Hodgkin lymphomas. It is related to a favorable prognosis except for cases complicated by hemophagocytic syndrome, associated with a decrease in survival (5-year overall survival 46% compared to 91%) [1]. SPTL had previously been categorized into 2 distinct entities: the α/β subtype, characterized by a good prognosis, and the γ/δ subtype, with a more aggressive behavior. Later, the second subtype was reclassified as distinct entity in the group of rare disease by the name of GDTCL [2]. SPTL occurs frequently in young people and is characterized by subcutaneous nodules and plaques, which can be necrotic but rarely ulcerated (Fig. 1a). The extremities are typically involved. Systemic symptoms, such as fatigue, fever, or weight loss, may be present [3]. The lesions are characterized by a lipotropic infiltrate of predominant small/medium-sized pleomorphic T cells in the subcutaneous tissue, usually sparing the dermis and epidermis. Neoplastic cells, mixed with macrophages, tend to be localized around adipocytes, forming the typical "rimming" and "capping" images (Fig. 1b, c). The phenotype of the neoplastic cells is βF1+, CD3+, CD4–, CD8+, CD45RO+ (Fig. 1d), and they express cytotoxic granules (TIA-1, granzyme, and perforin). Epstein-Barr virus (EBV) is usually not found. Analysis of the T-cell receptor (TCR) rearrangement by polymerase chain reaction (PCR) shows clonal proliferation of the T cells [1].

Silvia Alberti-Violetti, MD
Fondazione IRCCS Ca' Ospedale Maggiore Policlinico
Via Pace, 9
IT–20122 Milan (Italy)
E-Mail silvia.viole@gmail.com

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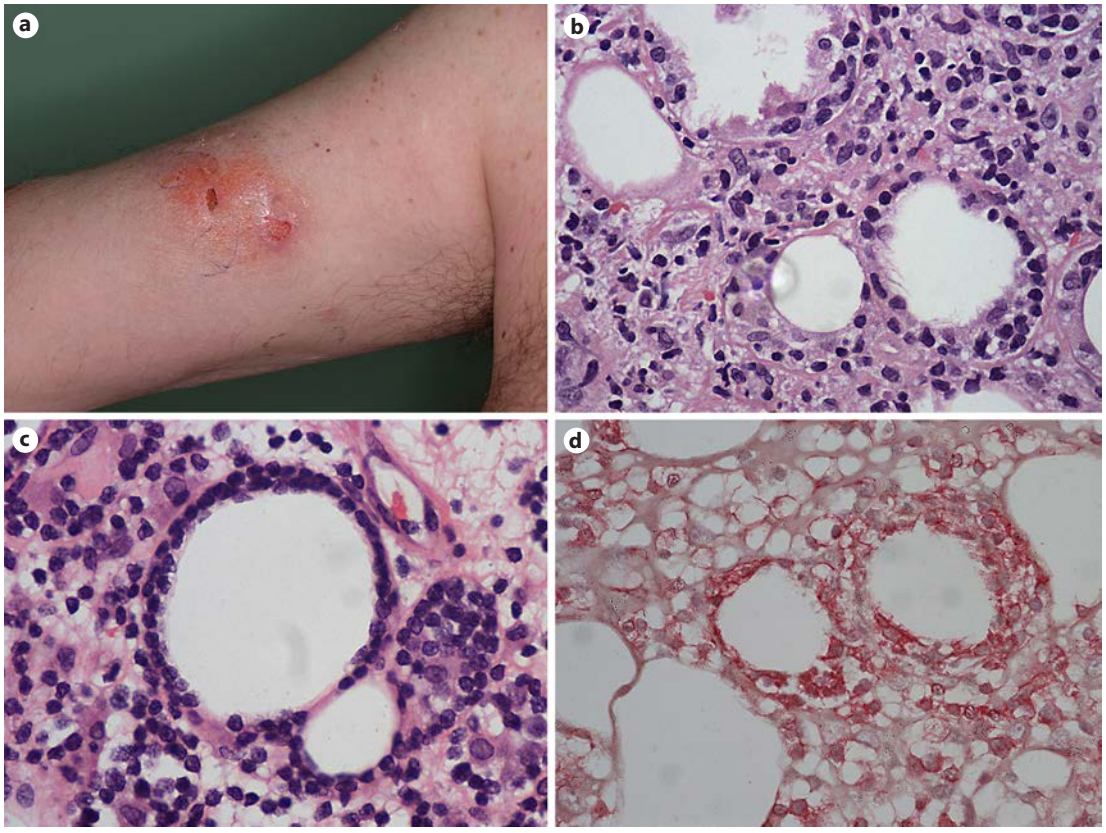

Fig. 1. Subcutaneous panniculitis-like T-cell lymphoma. **a** An erythematous plaque on the right arm. **b** An infiltrate of hyperchromatic small/medium-sized lymphocytes involving the subcutaneous fat. **c** The neoplastic T cells are localized around adipocytes, forming the "rimming" images. **d** CD8 staining reveals positive T cells, especially around adipocytes.

SPTL is frequently associated with autoimmune disorders, especially systemic lupus erythematosus (LE) [4]. GDTCL is similarly characterized by diffuse nodules and plaques, frequently localized on the arms and legs. Ulceration in GDTCL is more common than in SPTL (Fig. 2a). Survival in GDTCL is worse than in SPTL (5-year overall survival 11%) [3]. Unlike in SPTL, in GDTCL the subcutaneous neoplastic infiltrate involves the epidermis and dermis. Tumor cells express markers for TCR-γδ, CD2, CD3, CD45RA, CD56, and cytotoxic proteins. CD4 and CD8 markers are commonly negative (Fig. 2b–d). A clonal rearrangement for the TCRγ gene is frequent [4]. Recently, a mycosis fungoid-like variant has been described, characterized by a better prognosis. It manifests with plaques, papules, and nodules and shows an epidermotropic dermal infiltrate of atypical T lymphocytes without evidence of subcutaneous involvement [5].

LP is an uncommon variant of LE and may occur isolated or with a discoid or systemic LE [6]. Typically, LP occurs in females with chronic-relapsing painful subcutaneous nodules and plaques, covered by erythematous patches or discoid LE lesions. They usually heal with evidence of lipoatrophy and depressed scars. Unlike other panniculitides, nodules are usually localized on the upper arms, shoulders, buttocks, and face (Fig. 3a). Histologically, a lobular "cytophagic" panniculitis is frequently associated to epidermal and dermal features of LE, such as epidermal atrophy, vacuolar interface changes, a thickened basement membrane, dermal mucin deposition, and superficial and deep perivascular lymphocytic inflammation

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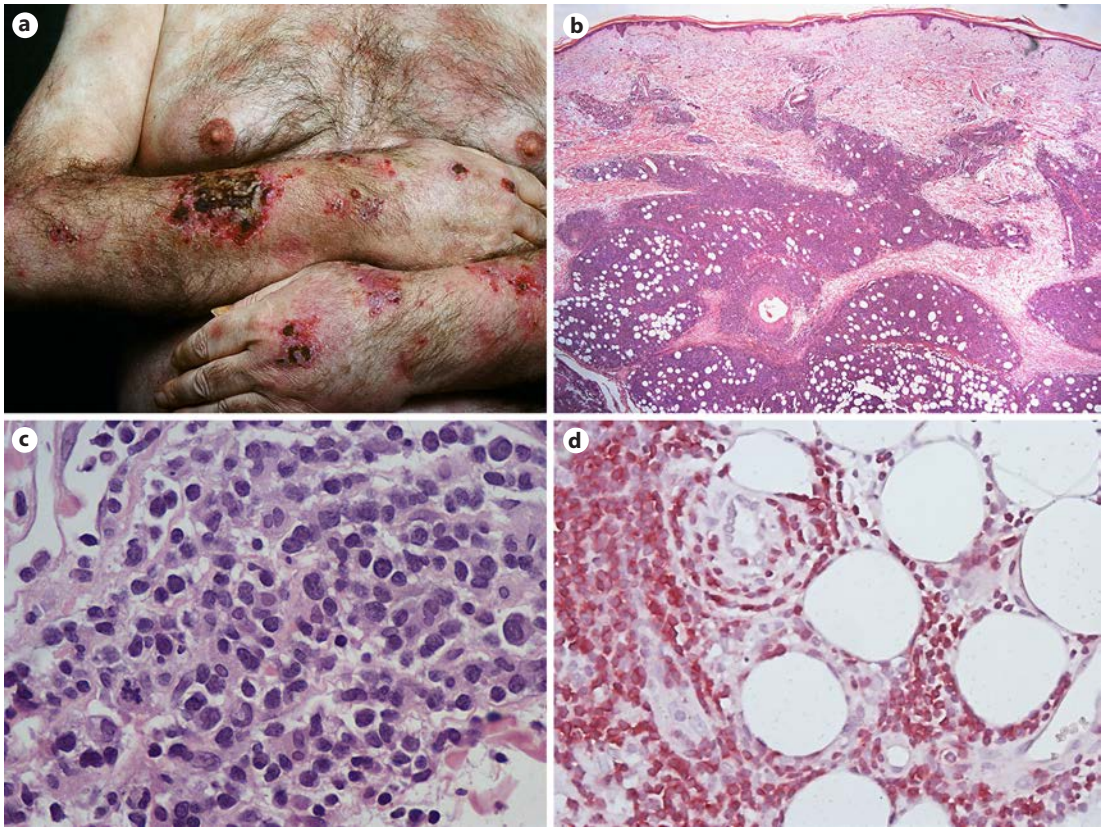

Fig. 2. Primary cutaneous γ/δ T-cell lymphoma. **a** Multiple erythematous plaques and nodules on the trunk and arms, some of them are ulcerated. **b** A dense infiltrate involves the whole dermis and subcutaneous fat. **c** The infiltrate is formed by atypical cells. **d** Anti-TCR-γδ staining shows the γδ phenotype of the neoplastic cells.

(Fig. 3b, c) [7]. The presence of lymphoid follicles, with a germinal center between the collagen bundles and into the septae, is highly characteristic of LP. The infiltrate is usually mixed, including cytotoxic CD8+ α/β T cells (Fig. 3d), but they are not predominant as in SPTL. Immunofluorescence analysis shows a linear deposition of immunoglobulin M and complement-3 on the dermo-epidermal junction. Serum antinuclear antibodies are commonly positive but few patients show lupus-specific positive serology. The rearrangement of the TCR gene is usually polyclonal, but it can also be monoclonal [3, 8].

In conclusion, it is important to define whether a lymphocytic lobular panniculitis is a benign reactive or a lymphoproliferative process, but this is frequently not easy. The presence of clinical and histological features of a systemic disease, integrated in immunohistochemical and molecular data, is helpful for reaching a diagnosis.

Disclosure Statement

The authors have no conflict of interest to declare.

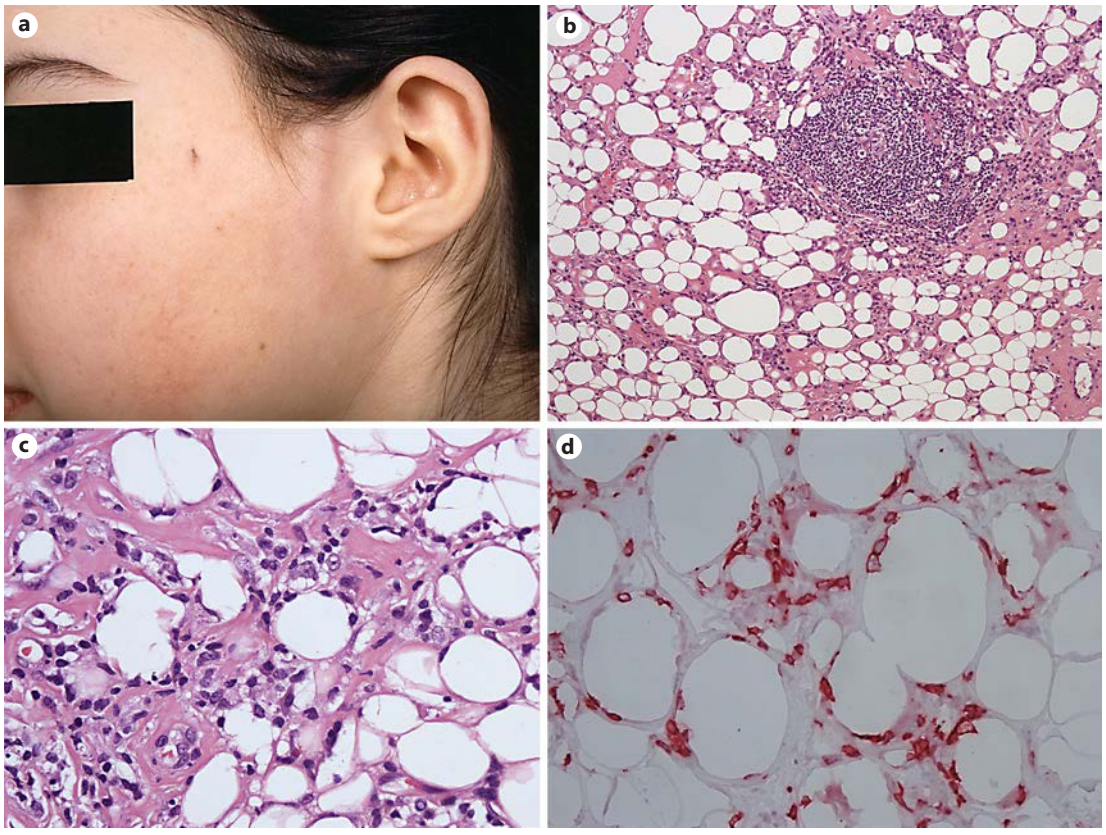

Fig. 3. Lupus panniculitis. **a** A subcutaneous plaque on the left cheek. **b** A lymphoid follicle in the subcutaneous fat. **c** Atypical lymphocytes which tend to be localized around adipocytes forming only a partial "rimming" images. **d** The atypical lymphocytes around adipocytes are CD8 positive.

References

1 Tomasini D, Berti E: Subcutaneous panniculitis-like T-cell lymphoma. G Ital Dermatol Venereol 2013;148:395–411.

2 Swerdlow SH, Campo E, Harris NL, Jaffe ES, Pileri SA, Stein H, Thiele J, Vardiman JW: WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. Lyon, IARC Press, 2008, pp 302–303.

3 Shiau CJ, Abi Daoud MS, Wong SM, Crawford RI: Lymphocytic panniculitis: an algorithmic approach to lymphocytes in subcutaneous tissue. J Clin Pathol 2015;68:954–962.

4 Guitart J: Subcutaneous lymphoma and related conditions. Dermatol Ther 2010;23:350–355.

5 Merrill ED, Agbay R, Miranda RN, Aung PP, Tetzlaff MT, Young KH, Curry JL, Nagarajan P, Ivan D, Prieto VG, Medeiros LJ, Duvic M, Torres-Cabala CA: Primary cutaneous T-cell lymphomas showing gamma-delta (γ/δ) phenotype and predominantly epidermotropic pattern are clinicopathologically distinct from classic primary cutaneous γ/δ T-cell lymphomas. Am J Surg Pathol 2017;41:204–215.

6 Park HS, Choi JW, Kim BK, Cho KH: Lupus erythematosus panniculitis: clinicopathological, immunophenotypic, and molecular studies. Am J Dermatopathol 2010;32:24–30.

7 Arps DP, Patel RM: Lupus profundus (panniculitis). Arch Pathol Lab Med 2013;137:1211–1215.

8 Massone C, Kodama K, Salmhofer W, Abe R, Shimizu H, Parodi A, Kerl H, Cerroni L: Lupus erythematosus panniculitis (lupus profundus): clinical, histopathological and molecular analysis of nine cases. J Cutan Pathol 2005;32:396–404.