Oncology Case Reports Journal

Case Report
Published: 04 Jun, 2024

Secondary Cutaneous Diffuse Large B-Cell Lymphoma: A Rare Presentation with Systemic Implications

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Abstract

Background: Diffuse Large B Cell Lymphoma (DLBCL) is the most prevalent form of non-Hodgkin's lymphoma, comprising 25% to 30% of cases. DLBCL typically manifests as new tumors in lymph nodes or other areas, notably axillary and abdominal regions. However, in about one third of cases, DLBCL initially affects extranodal organs, commonly the gastrointestinal tract, and occasionally involving the skin, presenting with features resembling other dermatological conditions, posing challenges to diagnosis.

Case Report: This article presents a case of a 69-year-old man that consulted for a scapular lesion that was misdiagnosed as an infected epidermal cyst and subsequently developed a scapular ulcerated lesion. Pathological analysis revealed extensive dermal infiltration by a diffuse lymphoproliferative lesion. Immunohistochemical analysis confirmed the diagnosis of DLBCL with BCL6 rearrangement. Further imaging studies revealed systemic involvement and the final diagnosis was DLBCL, activated cell subtype. The patient responded well to R-CHOP chemotherapy, achieving a complete response within four months.

Conclusion: We describe a case of systemic DLBCL initially presenting as a solitary skin lesion in which histological examination confirmed DLBCL diagnosis. We would like to emphasize the need for a comprehensive evaluation in atypical dermatological cases and the importance of considering rare cutaneous presentations of systemic lymphomas and conducting a thorough diagnostic workup to ensure proper treatment.

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Received Date: *01 May 2024*
Accepted Date: *29 May 2024*
Published Date: *04 Jun 2024*

Citation:
Arévalo-Ortega I, Martínez-Peña N, Lobato-Izagirre A, Gainza Apraiz I, Sánchez Diez A, Izu-Belloso R. Secondary Cutaneous Diffuse Large B-Cell Lymphoma: A Rare Presentation with Systemic Implications. Oncol Case Report J. 2024; 7(1): 1062.

ISSN: 2641-9173

Introduction

Diffuse Large B-Cell Lymphoma (DLBCL) is the predominant type of non-Hodgkin's lymphoma, representing 25% to 30% of cases. While often emerging as new tumors in lymph nodes or other sites like the axilla and abdomen, DLBCL can initially involve extranodal organs, including the gastrointestinal tract and occasionally the skin. The atypical presentation of cutaneous lesions may complicate diagnosis, with histology being an accurate diagnostic tool.

Case Presentation

We present the case of a 69-year-old man who consulted at primary care unit for a scapular lesion that was diagnosed as an infected epidermal cyst and was drained and treated with antibiotics. Three months later the patient consulted at the emergency department with a scapular ulcerated lesion measuring 7 cm × 5 cm with raised purplish borders (Figure 1). General surgery department performed a debridement of the lesion and samples were collected for analysis at the pathological anatomy laboratory. Histological analysis showed extensive dermal infiltration by a diffuse lymphoproliferative lesion consisting of sheets of cells with large, finely vacuolated eosinophilic cytoplasm and enlarged nuclei. Severe nuclear pleomorphism and frequent mitoses were also described (Figure 2). On immunohistochemical analysis the B-lymphocyte markers CD20 and CD79a were positive and in situ hybridisation techniques were positive for BCL6 rearrangement (Figure 3).

These results suggested the diagnosis of Diffuse Large B-Cell Lymphoma (DLBCL). Although the immunophenotype and molecular profile were more characteristic of cutaneous involvement by a systemic lymphoma, the option of a primary cutaneous lesion cannot be histopathologically ruled out, so an extension study was performed. A PET-TC was performed showing hypermetabolic left axillary adenopathies (SUVmax 18.8) (Figure 4). The histology of the ultrasound-guided needle core biopsy evidenced DLBCL infiltration of the axillary lymph nodes.

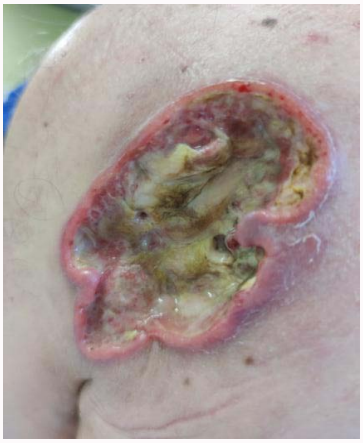


Figure 1: 7 cm × 5 cm ulcerated lesion on the left scapular region.

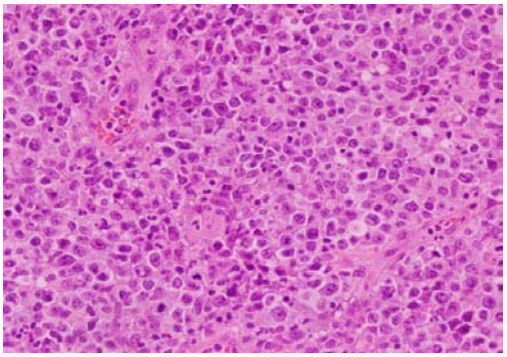


Figure 2: Histopathological image, hematoxylin eosin staining at 40x magnification. Extensive dermal infiltration by a diffuse lymphoproliferative lesion. Cells exhibit large, finely vacuolated eosinophilic cytoplasm and enlarged nuclei with severe nuclear pleomorphism and frequent mitoses.

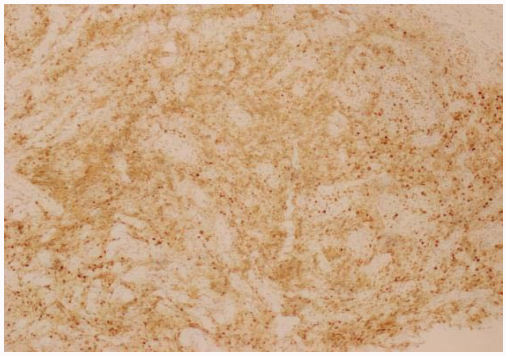


Figure 3: Histopathological image, Immunohistochemical expression of Bcl6 at 10x magnification.

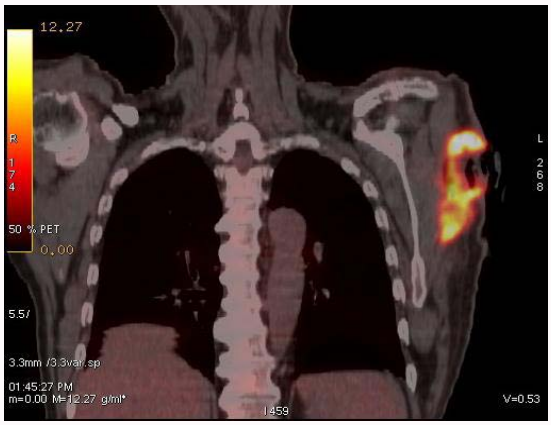


Figure 4: PET-TC. Hypermetabolic left axillary adenopathy's and cutaneous scapular lesion.

The final diagnosis was established as DLBCL, activated cell subtype with BCL6 rearrangement, stage II-E (localized involvement of an extranodal site or organ and one or more lymph node regions on the same side of the diaphragm). The International Prognostic Index (IPI) was 1 and NCCN-IPI was 2 (low intermediate risk). Treatment with R-CHOP was initiated, achieving a complete response and resolution of the skin lesion within 4 months. The progress of the skin lesion can be seen in the Figures 4-9.

Discussion

Cutaneous B-cell lymphomas represent a group of lymphomas whose primary site is the skin. They are defined as malignant lymphomas confined to the skin at presentation after complete staging procedure [1]. However, skin can also be the site of secondary involvement by extracutaneous B-cell lymphomas as it is shown in our case.

Diffuse Large B Cell Lymphoma (DLBCL) is the most common lymphoma, accounting for about 25% to 30% of all the non-Hodgkin's lymphomas. Patients most often present with a rapidly growing tumor mass in single or multiple, nodal or extranodal sites [2]. Immunophenotypically, all DLBCLs express B-cell markers, and other markers are expressed in a variable proportion of tumors (Bcl-6 in 60% to 90%, MUM-1 in 35% to 65%, and Bcl-2 in 50%) [3].

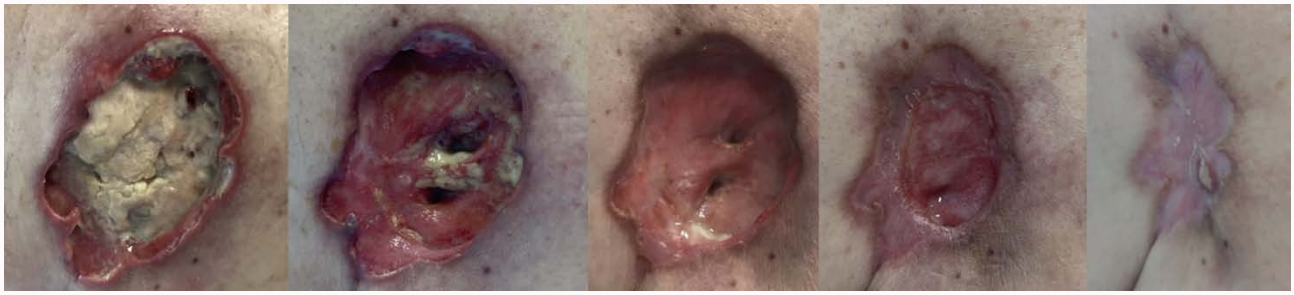
The most characteristic presentation of DLBCL is as a new-onset tumor in one or more lymph node regions or in any other location (most commonly axillary and abdominal areas). The onset of lymphoma may be accompanied by general and non-specific symptoms such as weakness, lack of appetite, malaise, depression, or insomnia.

In about one third of patients, DLBCL initially affects organs outside the lymphatic system. The most frequent are in the gastrointestinal tract, with the main location being the stomach, although the skin can also be affected [4].

The treatment for DLBCL is chemotherapy. The CHOP regimen has been the mainstay therapy for several decades. The addition of the anti-CD20 monoclonal antibody (rituximab) to CHOP (named as R-CHOP) has led to a marked improvement in survival [5]. The patient in this report responded well to R-CHOP and achieved complete response after 4 cycles [6].

The differential diagnosis is with Primary Cutaneous DLBCL and Leg-Type Lymphoma (PCDLBCL-LT), which presents as single or multiple violaceous plaques, typically on the lower limbs. It mainly affects elderly patients and has a female predominance. Both have similar immunohistochemical markers, so the definitive diagnosis is based on the presence or absence of extracutaneous involvement in the extension study at the time of diagnosis.

Some studies showed that although skin lesion characteristics did not differ significantly, extensive cutaneous lesions were more often observed in secondary cutaneous DLBCL compared with DLBCL, leg type. Secondary cutaneous DLBCL was more commonly associated



Figures 5-9: Evolution of lesions after 4 cycles of R-CHOP.

with an advanced stage and higher International Prognostic Index score than DLBCL, leg type. DLBCL, leg type demonstrated a better survival outcome than secondary cutaneous DLBCL. The multiplicity of skin lesions and time-point of cutaneous involvement were associated with prognosis in secondary cutaneous DLBCL. Survival outcomes and prognostic factors differ depending on the primary tumor site of cutaneous DLBCL [7].

Conclusion

In conclusion, we report a case of systemic DLBCL who presented with a skin lesion without other signs or symptoms. Histology allowed a correct diagnosis as a DLBCL. Imaging test allowed showing systemic involvement; therefore, the implementation of an adequate treatment allowed a complete response of the lymphoma and a complete resolution of the cutaneous lesion. One particularly interesting aspect of this case was the presence of a solitary lesion that clinically resembled a pyoderma gangrenosum.

Acknowledgment

We would like to express our gratitude to Pathological Anatomy and Hematology Service of Basurto University Hospital for their invaluable contributions in the treatment of the patient. We extend our heartfelt thanks to Dr. Izu for her unwavering persistence in encouraging us to publish our reports. We appreciate her commitment to enhancing our academic and professional growth.

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