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Case Report

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Early Surgical Excision Achieving Remission in Cutaneous B-cell Lymphoma

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ABSTRACT

Primary cutaneous diffuse large B-cell lymphoma, leg-type (PCDLBCL-LT), is an uncommon and aggressive form of non-Hodgkin lymphoma with a poor prognosis. We report the case of an 89-year-old woman who presented with a rapidly enlarging cutaneous nodule on her right thigh. The lesion, which appeared 1.5 months earlier, measured 2×2 cm and displayed homogeneous pink, structureless areas with hemorrhagic foci on dermatoscopy. The patient's history included Alzheimer's disease, epilepsy, a congenital solitary kidney, cerebrovascular disease resulting in a bedridden state, and a prior basal cell carcinoma. An excisional biopsy with a 0.5 cm margin was performed for diagnostic and therapeutic purposes. Histopathological analysis revealed diffuse infiltration by large atypical lymphocytes with hyperchromatic nuclei and frequent mitotic figures. Immunohistochemistry showed positivity for cutaneous diffuse-20 (CD20) and B-cell lymphoma-2 (BCL-2), while CD3, CD10, BCL-6, and cellular myelocytomatosis were negative. The Ki-67 proliferation index was notably high (90-95%), confirming the aggressive nature of the lymphoma. Based on these findings, a diagnosis of PCDLBCL-LT was established. Given the patient's advanced age, comorbidities, and the family's preference to avoid systemic therapy, no additional treatments such as chemotherapy or radiotherapy were pursued. The patient remained recurrence-free over a one-year follow-up period.

This case underscores the importance of early recognition of atypical skin lesions in elderly patients and highlights that surgical excision alone may be an effective, minimally invasive treatment option in selected frail individuals. Early intervention not only aids in local disease control but may also help maintain quality of life without the risks associated with aggressive therapies.

Keywords: Early diagnosis, elderly patient, primary cutaneous B-cell lymphoma, surgery-only treatment

Introduction

Diffuse large B-cell lymphoma (DLBCL) is an aggressive subtype of non-Hodgkin lymphoma [1]. Among its variants, primary cutaneous DLBCL, leg type (PCDLBCL-LT), is notable for its aggressive behavior and poor prognosis [2-4]. This report presents a case of an 89-year-old patient who was diagnosed with PCDLBCL-LT following the rapid growth of a cutaneous nodule.

Case Report

An 89-year-old woman presented with a rapidly enlarging nodule on her right upper thigh. The lesion had appeared approximately 1.5 months prior to her visit. Her medical history included Alzheimer's disease, epilepsy managed with valproic acid and quetiapine, a congenital solitary kidney, and severe hearing loss requiring a hearing aid since the age of 35. She had a history of basal cell carcinoma of the nose 15 years earlier and had been bedridden and receiving PEG feeding for the past five years due to cerebrovascular disease.

On physical examination, a 2×2 cm, non-ulcerated, pink, well-demarcated nodular lesion was observed on the mid-right thigh (Figure 1). Dermatoscopic evaluation revealed homogeneous, pink, structureless areas, accentuated skin lines, and hemorrhagic foci (Figure 2). The patient did not exhibit any B symptoms such as fever, night sweats, pruritus, or weight loss. Physical examination revealed no hepatosplenomegaly or lymphadenopathy.

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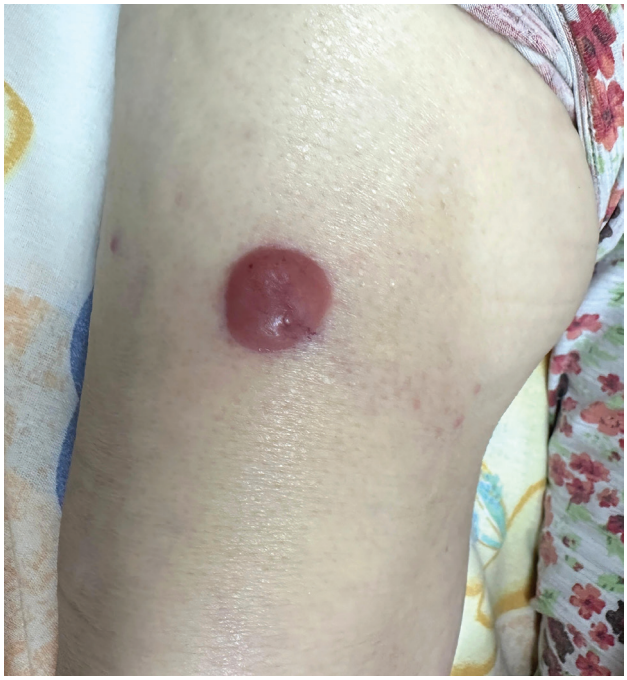

Figure 1. Macroscopic view of the lesion showing a painless, pink-colored, well-demarcated nodule on the lower leg

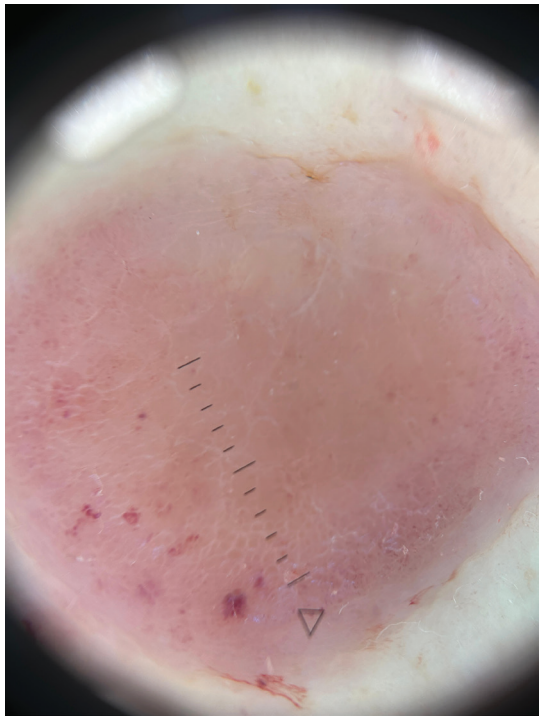

Figure 2. Dermoscopy of the lesion demonstrating homogeneous pink, structureless areas with accentuation of skin lines and focal hemorrhagic spots

Based on the clinical and dermatoscopic findings, the differential diagnosis included B-cell lymphoma, amelanotic malignant melanoma, and pseudolymphoma.

Because of the patient's advanced age, bedridden status, and limited access to healthcare, an excisional biopsy with a 0.5 cm surgical margin was performed for diagnostic and therapeutic purposes.

Histomorphological examination revealed a preserved epidermis and a diffuse lymphocytic infiltration, composed of atypical large cells, within the dermis. These cells exhibited hyperchromatic nuclei, prominent nucleoli, and frequent atypical mitotic figures. In the initial immunohistochemical panel, leukocyte common antigen (LCA) was used to highlight the lymphoid infiltrate, and cytokeratin 20 (CK20) was applied to exclude Merkel cell carcinoma. LCA was diffusely positive, while CK20 was negative.

In the subsequent panel, CD3 showed positive staining in reactive T-cells, whereas the neoplastic cells demonstrated strong positivity for CD20 and BCL-2. CD10, cellular myelocytomatosis, synaptophysin, and BCL-6 were negative. Although BCL-6 expression may be seen in PCDLBCL, it was absent in this case. The Ki-67 proliferation index was remarkably high (90-95%), consistent with a highly proliferative phenotype (Figure 3A-D).

Collectively, these histopathological and immunohistochemical findings confirmed the diagnosis of PCDLBCL-LT.

Following the diagnosis, the patient was referred to the hematology department for further evaluation and management. Given her general condition, comorbidities, family's reluctance to pursue aggressive treatment, and her bedridden state, the hematology team decided to forgo further interventions, such as positron emission tomography imaging or systemic chemotherapy.

The patient provided written informed consent for the publication of all clinical details and associated images in this report.

Discussion

PCDLBCL-LT is a rare and aggressive form of primary cutaneous B-cell lymphoma [1]. Large case series have reported a median age at diagnosis ranging from 70 and 76 years, indicating that the disease predominantly affects elderly individuals but rarely extends into the very advanced age group. For example, in a clinicopathologic analysis of 60 patients with PCDLBCL-LT, most were in their seventh decade of life, and only a limited number were older than 85 years [5].

A small number of case reports describing patients aged 90 years or older have been documented, suggesting that presentations at extremely advanced ages are uncommon. Therefore, an 89-year-old patient can reasonably be considered among the oldest reported cases of PCDLBCL-LT in the literature [6].

Histopathologically, PCDLBCL-LT is characterized by a diffuse lymphocytic infiltrate in the dermis. Tumor cells typically express CD20 and BCL-2, while T-cell markers (such as CD3) and germinal center markers (CD10, BCL-6) are usually negative [7]. A high Ki-67 proliferation index (90-95%) further supports its aggressive nature [3]. The absence of systemic involvement is a key feature that distinguishes primary cutaneous lymphomas from systemic lymphomas with secondary skin involvement [1]. Early diagnosis plays a vital role in improving treatment response and reducing relapse risk in such aggressive lymphomas.

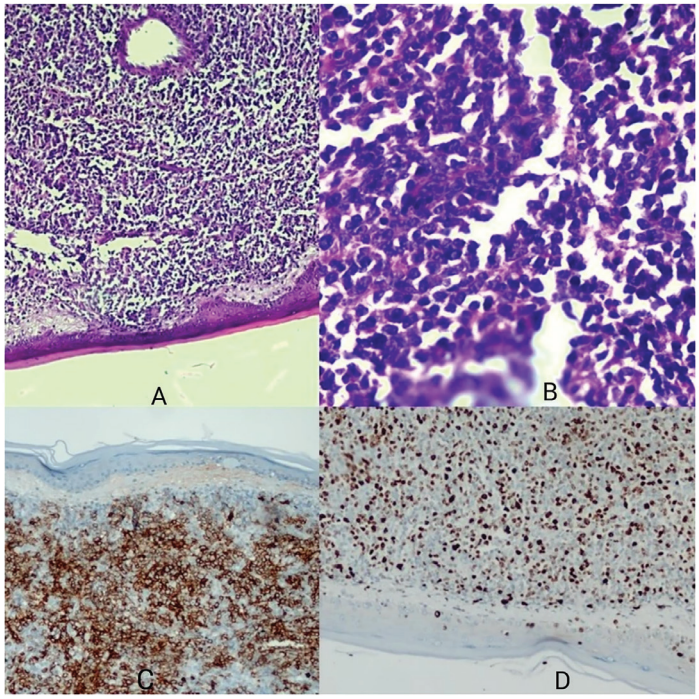

Figure 3. (A) Diffuse infiltration of large atypical lymphoid cells in the dermis (H&E, ×10), (B) atypical lymphocytes with hyperchromatic nuclei and prominent nucleoli (H&E, ×40), (C) positive staining of large neoplastic B cells with CD20, (D) high Ki-67 proliferation index in tumor cells
CD: Cutaneous diffuse

Current international guidelines from the European Organization for Research and Treatment of Cancer and the International Society for Cutaneous Lymphomas recommend systemic chemoimmunotherapy, most commonly rituximab combined with CHOP-based regimens, as the preferred first-line treatment for PCDLBCL-LT due to its aggressive biological behavior and high relapse rate [8].

Radiotherapy may be used as an adjunctive modality in patients with localized disease; however, surgery alone is generally not considered a curative approach in standard treatment algorithms because of the systemic relapse potential of the disease [9].

Although surgical excision is frequently performed as a diagnostic procedure, complete remission achieved with surgery alone has only rarely been described in the literature. In most reported cases, patients subsequently receive systemic therapy or radiotherapy due to the aggressive nature of the disease [10].

However, in this case, the patient's advanced age, Alzheimer's disease, immobility, and multiple comorbidities rendered aggressive therapies too risky [11]. Nevertheless, prompt surgical excision of the lesion shortly after clinical presentation (within 1.5 months) played a key role in achieving local control and preventing recurrence [11]. A conservative approach consisting of surgical excision alone was adopted in accordance with the patient's and family's preferences, resulting in a recurrence-free course over one year of follow-up. Although there are limited reports of surgical excision being curative on its own, this case highlights that, particularly in frail patients, early diagnosis and timely intervention can help balance disease control with quality of life [12].

From a molecular perspective, recent studies have shown that PCDLBCL-LT frequently harbors mutations in the *MYD88* and *CD79B* genes, which are involved in the activation of the NF-κB signaling pathway and may contribute to the aggressive biological behavior of the disease. MYD88 mutations have been reported in approximately 60-75% of cases, while CD79B mutations occur in nearly half of patients [13].

Genetic analysis of these mutations has been proposed as a useful tool for understanding disease pathogenesis and identifying potential therapeutic targets; however, molecular testing is not routinely performed in all reported cases due to technical and resource limitations. Genetic analysis was not performed, which represents a limitation of the study.

In cases diagnosed at an early stage, complete excision of the lesion may reduce the risk of local recurrence and delay the need for systemic treatment. As observed in this patient, rapid histopathological evaluation and individualized treatment planning are essential.

This case demonstrates that PCDLBCL-LT can occur even at a very advanced age and that early diagnosis combined with minimally invasive approaches can positively influence prognosis. Treatment decisions should not only consider the patient's physiological capacity and comorbidities but also emphasize the importance of timely diagnosis and intervention in achieving recurrence-free survival.

Ethics

Informed Consent: The patient's data used in this study have been fully anonymized, and no identifiable information is included. Therefore, consent to publish is not required.

Footnotes

Financial Disclosure: The author declared that this study received no financial support.

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