International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Unusual Presentation of Diffuse Large B-Cell Lymphoma: A Case of Abdominal Wall Involvement in an Elderly Patient

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Abstract: ***Involvement of the abdominal wall by lymphoma is rare and often misdiagnosed because of its nonspecific clinical presentation. We report the case of an 80-year-old woman who presented with a rapidly enlarging subcutaneous abdominal mass, initially presumed to be a soft tissue abscess. Imaging was inconclusive, and a surgical biopsy was performed. Histopathological and immunohistochemical studies revealed Diffuse large B-cell lymphoma (DLBCL). Despite the diagnosis, the patient experienced a rapid clinical decline, precluding systemic therapy. Given the rarity of abdominal wall involvement in non-Hodgkin lymphoma and its potential for misdiagnosis, this case reinforces the need for heightened clinical suspicion and timely intervention in atypical soft tissue masses.***

Categories: Soft Tissue Tumors, Extranodal Lymphoma

Keywords: Diffuse large B-cell lymphoma, extranodal lymphoma, abdominal wall mass, non-Hodgkin lymphoma, diagnostic delay

1. Introduction

Non-Hodgkin lymphoma (NHL) represents a diverse group of lymphoid malignancies accounting for approximately 4% of all cancers worldwide [1]. While most NHLs arise within lymph nodes, up to 30–40% present in extranodal locations, with the gastrointestinal tract, skin, and central nervous system being the most common sites [2,3]. Primary involvement of the abdominal wall or soft tissues remains exceedingly rare, and few cases have been documented in the literature. Such atypical presentations challenge diagnosis, especially when they resemble common surgical conditions, such as soft-tissue sarcomas, abscesses, lipomas, or hernias [4–6]. Early recognition is crucial, as delayed diagnosis can result in rapid clinical deterioration and poor outcomes.

We report the case of an eighty-year-old woman who presented with a progressively enlarging mass in the anterior abdominal wall. Imaging revealed a well-defined lesion located within the deep subcutaneous tissue of the anterior abdominal wall, with no evidence of intra-abdominal extension on imaging. An excisional biopsy and immunohistochemistry confirmed the diagnosis of Diffuse large B-cell lymphoma (DLBCL), a subtype of non-Hodgkin lymphoma.

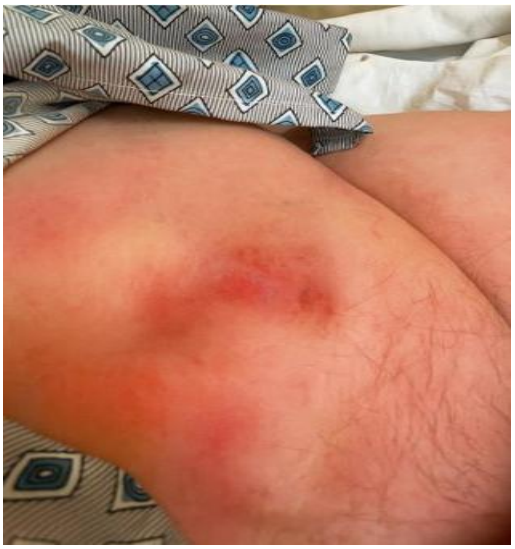
Unfortunately, the patient experienced rapid clinical deterioration and passed away before systemic treatment could be initiated. This case underscores the importance of including lymphoma in the differential diagnosis of soft tissue masses in atypical locations and highlights the potential consequences of diagnostic and therapeutic delays.

2. Objective

This case report aims to highlight the diagnostic challenges and clinical implications of an uncommon presentation of diffuse large B-cell lymphoma involving the abdominal wall.

3. Case Presentation

An 80-year-old Hispanic woman was admitted to our hospital with deterioration of general condition, high-grade fever, and a one-week history of swelling, erythema, and increased skin temperature over a palpable mass in the left flank. (Figure 1.) (Figure 1. Photography taken at Emergency Room, observing a marked erythema and localized inflammation visible on the thigh, with areas of diffuse redness and central darkening suggestive of skin and soft tissue involvement.)



Her medical history included type 2 diabetes mellitus, hypertension, and chronic kidney disease on hemodialysis. Ten years prior, she had undergone a right partial mastectomy for breast cancer. She also had a documented allergy to ciprofloxacin.

Initial clinical assessment and imaging suggested a superficial soft tissue infection, with the first radiologic impression being a possible abscessed lipoma. However, additional imaging revealed further soft tissue involvement extending to the retromammary space, raising suspicion of systemic disease.

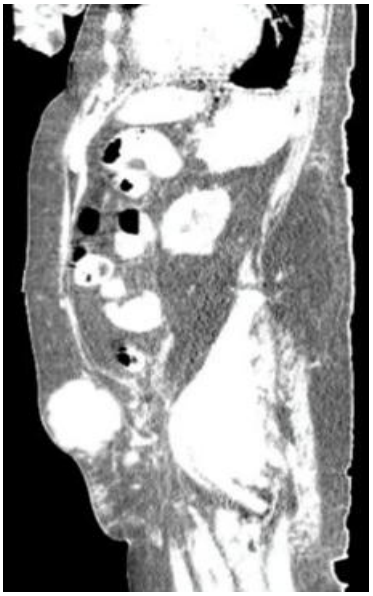


Figure 2

(Figure 2. Sagittal CT scan demonstrating a well-defined, hyperdense lesion in the lower left abdominal wall, causing anterior displacement of adjacent subcutaneous tissue without evidence of infiltration into nearby structures.)

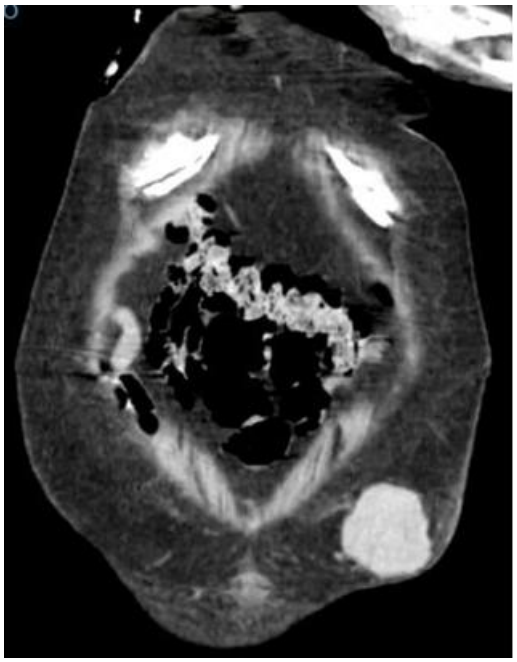


Figure 3

(Figure 3. Coronal CT scan demonstrating the same lesion in the left abdominal wall, depicting its vertical extent in the coronal plane with preservation of adjacent deep structures.)

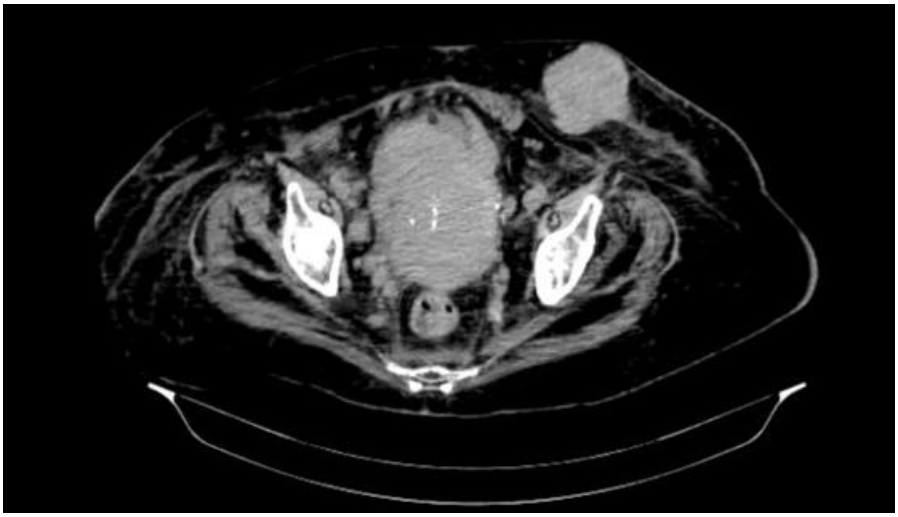
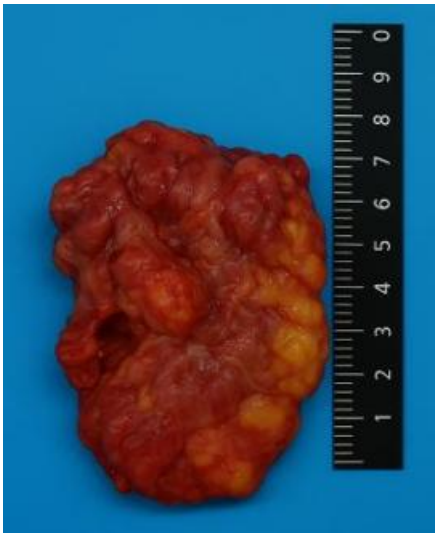


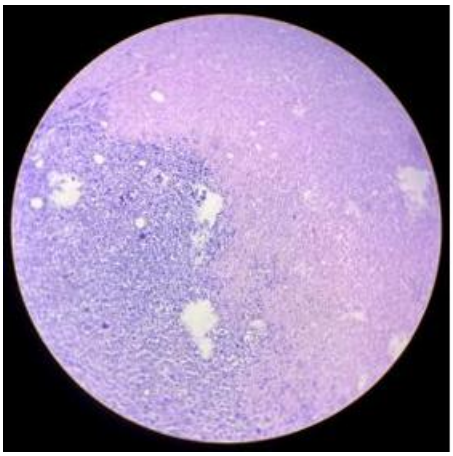
Figure 4

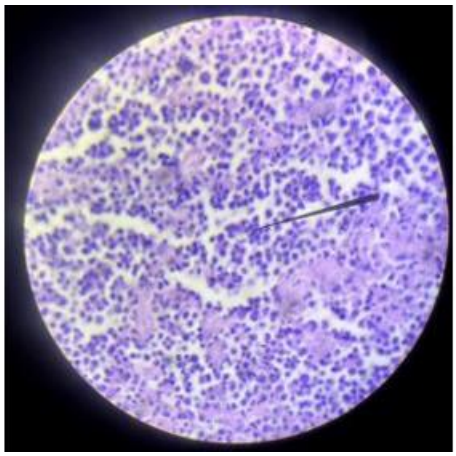
(Figure 4. Axial CT scan showing the same well-defined, hyperdense lesion in the left abdominal wall subcutaneous tissue, adjacent to but not infiltrating the underlying muscular plane.)

Due to its superficial and accessible location, an excisional biopsy was performed. Although a core needle biopsy is typically preferred for suspected lymphomas, surgical excision was deemed appropriate in this context due to diagnostic uncertainty and the need to exclude alternative soft tissue neoplasms. (Figure 5.) (Figure 5. Macroscopic view of the resected specimen. The lesion appears well-circumscribed and encapsulated.)



The patient presented no further bleeding from the surgical wound, and dressings were replaced daily. Nonetheless, she continued hemodynamically unstable and was diagnosed with hospital-acquired pneumonia. Her clinical condition continued to deteriorate despite supportive care with antibiotics and vasoactive agents. Oncological treatment was not initiated due to her condition, and the immunohistochemical analysis was still pending. On the twentieth day of hospitalization, she died due to complications of pneumonia.





Histopathological examination of the surgical specimen demonstrated diffuse infiltration by large atypical lymphoid cells with prominent nucleoli and high mitotic activity. (Figure 6. Figure 7.)

(Figure 6 & Figure 7: Hematoxylin and eosin (H&E) staining at low magnification showing diffuse infiltration of the soft tissue by large atypical lymphoid cells, replacing normal architecture in a sheet-like growth pattern.)

Immunohistochemical analysis confirmed the diagnosis of diffuse large B-cell lymphoma (DLBCL), with neoplastic cells showing strong positivity for CD20, BCL6, BCL2, and MUM1. The Ki-67 proliferation index was markedly elevated, indicating high proliferative activity.

4. Discussion

The involvement of deep subcutaneous tissue in our patient's presentation is anatomically consistent with the lymphatic drainage of the abdominal wall. Unlike superficial lymphatics, which drain above the umbilicus to the axillary nodes and below the umbilicus to the superficial inguinal nodes, the deep abdominal lymphatic channels follow the inferior epigastric and circumflex iliac vessels. These channels converge toward the external iliac and subsequently the para-aortic nodes, providing a plausible route for lymphoma spread and nodal involvement in this case. [7] This anatomical correlation explains the distribution of nodal disease in our patient.

Extranodal involvement occurs more frequently in non-Hodgkin lymphomas (25–40%) than in Hodgkin lymphomas (1%) [8]. Among extranodal lymphomas, the most common histological subtypes are diffuse large B-cell lymphoma (DLBCL) and mucosa-associated lymphoid tissue (MALT) lymphoma [9]. The gastrointestinal tract is the most frequently affected site (40%), followed by the head and neck region (14%), skin (7%), central nervous system (6–7%), bone (5%), and lungs (2%). [10]. However, virtually any organ can be involved, and the variable aggressiveness of each tumor subtype contributes to the wide spectrum of imaging appearances.

DLBCL is the most common subtype of non-Hodgkin lymphoma (NHL), accounting for approximately one-quarter of all NHL cases and representing the majority of extranodal presentations [11]. It typically presents as symptomatic nodal enlargement in the neck or trunk, although extranodal disease is also common [12]. Approximately one-third of patients present with "B" symptoms, such as unexplained fever, night sweats, or weight loss. [13] Morphologically, DLBCL is characterized by sheets of large malignant B cells with prominent nucleoli, basophilic cytoplasm, a diffuse growth pattern, and a high proliferative fraction [14]. Despite the identification of over 150 recurrently mutated genetic drivers, the clinical relevance of specific genetic subgroups remains

unclear, and most cases are classified as "not otherwise specified" (NOS). [15]

Timely diagnosis through clinical, laboratory, imaging, and histopathological assessments, allows for therapeutic approaches at better stages and better outcomes, although they are aggressive neoplasms with a poor overall prognosis.

This heterogeneity, combined with the tumor's ability to arise in almost any anatomical site, underscores the diagnostic challenges posed by rare presentations such as primary involvement of the abdominal wall, as observed in our patient.

A thorough history and physical examination, combined with awareness of risk factors are essential for a presumptive diagnosis from primary health care, which can be completed in hospital care.

5. Conclusions

This case illustrates the diagnostic and therapeutic challenges of diffuse large B-cell lymphoma presenting as an uncommon abdominal wall mass, especially in patients with multiple comorbidities. A lack of information on this condition in the Latin American population is remarkably present, and given the importance of this pathology, it is difficult to diagnose it on time, especially when it presents in a complicated manner.

Early recognition and prompt multidisciplinary management are crucial to improving outcomes. The diagnosis, treatment, and prognosis of patients with B-cell non-Hodgkin lymphoma are seriously altered when nosocomial infections are present, as occurred in this patient, with the definitive diagnosis being made later after immunohistochemical and pathology studies.

Additional information

Author Contributions
All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work

Concepts and design: Cynthia Lorena Nava Palomo, Gerardo Dávila Guzmán, Valeria Leal Isla Flores, Yosira Guadalupe López

Acquisition, analysis or interpretation of data: Cynthia Lorena Nava Palomo

Drafting of the manuscript: Cynthia Lorena Nava Palomo, Gerardo Dávila Guzmán, Valeria Leal Isla Flores

Critical review of the manuscript for important intellectual content: Cynthia Lorena Nava Palomo, Gerardo Dávila Guzmán, Valeria Leal Isla Flores, Yosira Guadalupe López

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