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# Diffuse Large B-Cell Lymphoma Presenting as an Isolated Inguinal Mass in a 19-Year-Old Male Patient

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## Abstract

Diffuse large B-cell lymphoma (DLBCL) is an aggressive form of non-Hodgkin lymphoma that predominantly affects older adults and commonly presents with progressive lymphadenopathy or extranodal disease. Although DLBCL can occur at any age, presentation in adolescence and early adulthood is uncommon. We report the case of a 19-year-old male patient who presented with a three-month history of a painless, progressively enlarging left inguinal mass. He had no constitutional B symptoms, and routine blood investigations were within normal limits. Imaging demonstrated a heterogeneous left groin lesion, and core biopsy established the diagnosis of DLBCL. This case highlights the importance of considering lymphoma in the differential diagnosis of a persistent or enlarging groin mass, even in a young patient without systemic symptoms or abnormalities on routine blood investigations.

**Categories:** Hematology, General Surgery, Oncology
**Keywords:** diffuse large b-cell lymphoma, dlbcl, germinal center type, inguinal lymphadenopathy, inguinal mass, lymphoma diagnosis, non-hodgkin lymphoma, young adult

## Introduction

Diffuse large B-cell lymphoma (DLBCL) is the most common subtype of non-Hodgkin lymphoma and comprises a heterogeneous group of aggressive B-cell malignancies [1]. It predominantly affects older adults and typically presents with progressive lymphadenopathy, extranodal disease, or both [2]. Individuals younger than 20 years account for approximately 1.3% of new DLBCL cases reported in Surveillance, Epidemiology, and End Results (SEER) data [3].

This report details the presentation, diagnostic assessment, treatment, and outcome of a 19-year-old male patient with DLBCL who presented with an isolated inguinal mass without B symptoms or abnormalities on initial routine blood investigations. The report highlights the importance of considering lymphoma in the differential diagnosis of a persistent, progressively enlarging inguinal mass in a young patient, even in the absence of systemic symptoms.

## Case Presentation

A 19-year-old male patient presented with a three-month history of a painless, progressively enlarging swelling in the left groin. There was no history of trauma, and he had previously received a course of oral antibiotics in primary care without improvement. He reported no B symptoms, including fever, night sweats, or unexplained weight loss. His past medical history was unremarkable.

On examination, a firm, non-tender, mobile, and irreducible mass measuring approximately 5 × 6 cm was palpable in the left inguinal region, with normal overlying skin. Routine blood investigations performed at the initial consultation were within normal limits.

Computed tomography (CT) demonstrated a 6.4 × 5.1 cm heterogeneous superficial soft tissue lesion in the left groin extending to the skin surface, with surrounding low-volume reactive lymph nodes and fat stranding (Figure *1*). The radiological differential diagnosis included an inflamed sebaceous cyst, hematoma, and inflammatory conditions such as Kimura disease.

**FIGURE 1: Axial CT Image Demonstrating the Left Inguinal Mass**

Axial CT image demonstrating a large superficial soft tissue mass in the left inguinal region, measuring approximately 6 cm in maximal dimension.

CT: computed tomography

Core biopsy of the left inguinal lymph node demonstrated effacement of the normal architecture by a diffuse infiltrate of medium-to-large atypical lymphoid cells with vesicular nuclei, focally prominent nucleoli, and moderate amounts of cytoplasm. Immunohistochemistry demonstrated a B-cell phenotype, with tumor cells positive for CD20, CD10, BCL6, and BCL2 and a high proliferative index (MIB-1 approximately 70%). Staining for MUM1, CD30, and EBER was negative. Subsequent RNA sequencing identified a BCL2::IGH fusion. Integrated specialist hematopathology assessment concluded that the findings were consistent with DLBCL, germinal center type. However, MYC rearrangement status and whether a follicular lymphoma component had been excluded were not documented in the available reports.

Following the initial biopsy, assessment by hematology identified an elevated lactate dehydrogenase (LDH), although the numerical value and laboratory reference range were unavailable in the records reviewed.

Baseline fluorodeoxyglucose positron emission tomography-computed tomography (FDG PET-CT) demonstrated a 5.7 cm FDG-avid left inguinal mass extending to the skin surface (maximum standardized uptake value (SUVmax): 21.8). Additional PET-avid skin lesions in the right anterior chest wall and right axilla were biopsied and showed no evidence of lymphoma involvement. Physiological brown fat uptake limited assessment for small-volume lymphadenopathy in the neck and thorax, although no gross nodal disease was identified. The maximum recorded lesion diameter was 6.4 cm on the preceding CT.

Bone marrow aspirate and trephine biopsy demonstrated no evidence of lymphoma involvement, and cerebrospinal fluid analysis was negative for malignant cells. The indication for cerebrospinal fluid assessment and whether flow cytometry was performed could not be established from the available records. The inguinal lesion was documented histologically as a nodal mass, and the treating team classified the disease as stage IA DLBCL. The documented International Prognostic Index (IPI) score was 1, attributable to elevated LDH.

Screening for HIV, hepatitis B, and hepatitis C was negative before commencing rituximab-containing chemotherapy. Sperm cryopreservation was completed before chemotherapy. The patient subsequently received three cycles of rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP) chemotherapy followed by proton beam therapy (PBT) to the left inguinal region. No interim PET was performed. The radiotherapy dose, fractionation, and rationale for selecting proton over photon therapy were unavailable in the records reviewed.

Treatment was generally well tolerated, with localized adverse effects from radiotherapy, including reduced hair growth and local discomfort, both of which subsequently improved. Following treatment, the patient reported a return to his baseline functional status with good energy levels. End-of-treatment

PET, performed after completion of both R-CHOP chemotherapy and proton beam therapy, demonstrated complete metabolic remission. Follow-up in the lymphoma clinic was planned for five years to monitor for disease recurrence and potential long-term treatment-related complications.

## Discussion

The clinical characteristics and outcomes of DLBCL in adolescents and young adults have been investigated in previous studies. A retrospective study of 798 patients with DLBCL identified 42 (5.3%) patients aged 16-39 years. Their clinical characteristics were similar to those of patients aged 40 years and older, while progression-free and overall survival were comparable to those aged 40-60 years. Clinical stage was the only independent prognostic factor identified in the adolescent and young adult group on multivariate analysis [4]. In the present patient, baseline PET-CT identified additional skin lesions requiring investigation before the extent of disease could be established. Biopsies of both lesions and bone marrow assessment were negative for lymphoma. The treating team classified the disease as stage IA, with a documented IPI score of 1 attributable to elevated LDH.

Groin swellings have a broad differential diagnosis, with hernias and enlarged lymph nodes among the most common causes [5]. Inguinal lymphadenopathy may occur secondary to infectious or malignant disease, and its assessment should consider the location, duration, distribution, and characteristics of the lymphadenopathy, together with associated systemic symptoms and relevant clinical history [5,6]. In this case, progressive enlargement over three months and the absence of improvement following antibiotics warranted further assessment despite the absence of B symptoms and normal routine blood investigations at the initial consultation.

DLBCL presenting as an inguinal mass has previously been reported. Kinet et al. described a 73-year-old man presenting with a left groin swelling that was initially suspected to represent a recurrent inguinal hernia. Histopathological examination subsequently demonstrated DLBCL [7]. This highlights the importance of considering lymphoma in the differential diagnosis of groin swelling and undertaking a thorough clinical examination. The present case reinforces this clinical lesson in a younger patient.

Definitive diagnosis of DLBCL requires adequate tissue sampling for morphological and immunophenotypic assessment. Excision biopsy is generally considered the preferred initial diagnostic procedure when non-Hodgkin lymphoma is suspected because it allows assessment of tissue architecture and provides sufficient material for immunophenotypic and molecular studies [8]. Core needle biopsy may be considered when the risks of surgical excision outweigh its potential benefits [8]. In this patient, core biopsy enabled morphological, immunophenotypic, and molecular assessment. Integrated specialist review reported findings consistent with DLBCL, germinal center type, and RNA sequencing identified a BCL2::IGH fusion. However, MYC rearrangement status and whether a follicular lymphoma component had been excluded were not documented in the available reports.

Limited-stage DLBCL generally encompasses stage I and II disease and accounts for approximately 25%-30% of DLBCL at presentation [9]. Treatment is given with curative intent, with rituximab-containing immunochemotherapy, most commonly R-CHOP, forming the basis of treatment [9]. R-CHOP comprises rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone or prednisolone. The patient received three cycles of R-CHOP followed by proton beam therapy to the left inguinal region. Sperm cryopreservation was completed before chemotherapy.

The FLYER trial demonstrated that four cycles of CHOP combined with six administrations of rituximab were non-inferior to six cycles of R-CHOP in younger patients with favorable-prognosis aggressive B-cell lymphoma, supporting treatment reduction in appropriately selected patients [10]. This regimen differs from the three cycles of R-CHOP followed by radiotherapy received by the present patient. The S1001 trial demonstrated favorable outcomes using PET-directed treatment in non-bulky limited-stage DLBCL, with five-year progression-free and overall survival rates of 87% and 89%, respectively [11]. No interim PET was performed in this case; therefore, the patient's treatment differed from the PET-directed strategy evaluated in S1001. The radiotherapy dose, fractionation, and rationale for selecting proton over photon therapy were unavailable in the records reviewed, limiting discussion of the treatment decision. Complete metabolic remission was documented on end-of-treatment PET after completion of both chemotherapy and proton beam therapy, and the patient reported a return to baseline functional status.

This case highlights the importance of considering DLBCL in a young patient presenting with an isolated inguinal mass, even without B symptoms or abnormalities on initial routine blood investigations. Persistent or progressively enlarging groin masses warrant appropriate assessment regardless of age. Further investigation should be guided by clinical examination and imaging findings, with tissue sampling considered when lymphoma or another malignancy is suspected.

## Conclusions

This case highlights the importance of considering diffuse large B-cell lymphoma (DLBCL) in the differential diagnosis of persistent or progressively enlarging inguinal masses, even in young patients without B

symptoms or abnormalities on initial routine blood investigations. Although benign and surgical conditions are more common causes of groin swelling, appropriate imaging, timely tissue diagnosis, and accurate staging are essential to establish the diagnosis and guide management.

Following three cycles of R-CHOP chemotherapy and proton beam therapy to the left inguinal region, the patient achieved complete metabolic remission on end-of-treatment PET imaging and returned to his baseline functional status. Five-year follow-up in the lymphoma clinic is planned to monitor for disease recurrence and potential long-term treatment-related complications.

# 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.

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## Disclosures

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