

# Prostatic Lymphoma Masquerading as Urinary Retention and Hematuria With Review of Literature

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## Abstract

Lymphomas of prostate are very rare tumors. They are not commonly considered in the clinical and histological differential diagnosis of prostatic enlargement. We report a case of a 49-year-old man who presented to emergency department with several weeks of difficulty in urination, for which he was being treated for benign prostate hyperplasia with no improvement. Computerized tomography scan showed lobulated mass originating from the superior aspect of the prostate with right inguinal lymph node involvement and no distant organ metastatic disease. Prostatic biopsy revealed diffuse large B-cell lymphoma. The patient achieved complete remission after six cycles of rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone chemotherapy regimen. Lymphomas of the prostate should be considered in differential diagnosis of the patient presenting with obstructive lower urinary tract symptoms especially in patients with normal prostatic-specific antigen level and previous history of lymphoma in other sites.

**Keywords:** Prostate; Lymphoma; Non-Hodgkin diffuse-large B-cell lymphoma; Prostate hyperplasia

## Introduction

Primary malignant lymphomas of the prostate account for 0.09% of all prostate neoplasms and 0.1% of all non-Hodg-

kin's lymphomas (NHLs) [1-5]. Lymphoma of the prostate can be primary or secondary [3, 6]. Because of their rarity, they are not commonly considered in the clinical and histological differential diagnosis of prostatic enlargement. Consideration of this differential diagnosis is important, because of their aggressive behavior and poor short-term outcome, and at the same time it can achieve remission with chemotherapy. We report a case of a 49-year-old man diagnosed with NHL of prostate, who was initially treated for benign prostate hyperplasia (BPH) with no improvement in symptoms of obstructive uropathy. Our case report will add to understanding of etiology, pathogenesis, natural history, and treatment of particularly this rare tumor and to the training of potential future investigators.

## Case Report

A 49-year-old man, current smoker, with past surgical history of cholecystectomy, presented with several weeks history of difficulty in urination, as well as dysuria, pelvic pain and occasional hematuria, with subjective fever. He had been treated with tamsulosin and finasteride as an outpatient with minimal relief. Due to persistent pelvic pain and obstructive uropathy, he was admitted to the hospital. On initial evaluation, patient was noticed to have mild suprapubic tenderness and no costovertebral angle tenderness or urethral discharge. Routine laboratory tests were within normal limits except hemoglobin 11.6, prostate-specific antigen (PSA) 0.4 ng/mL and lactate dehydrogenase (LDH) 347. Computerized tomography (CT) scan showed a 7 × 4 cm lobulated mass below the base of the bladder, possibly arising from the superior aspect of the prostate and invading the seminal vesicles. There was right pelvic/inguinal adenopathy with largest node measuring 2 cm posterior to the external iliac vessels and no evidence of distant metastatic disease (Fig. 1). This was further investigated by a prostate biopsy which revealed prostatic tissue with diffuse involvement of sheets of atypical cells with large irregular nuclei, prominent nucleoli numerous mitotic figures with immunohistochemical stains showing the tumor cells positive for CD45<sup>+</sup>, CD20<sup>+</sup>, BCL2<sup>+</sup>, MUM1<sup>+</sup>, while negative for CD10, BCL6, cyclin-D1, PSA, CK903, and P504S, consistent with diagnosis of a diffuse large B-cell lymphoma (DLBCL), activated B-cell type (Figs. 2 and 3). Bone marrow aspirate and biopsy were normal. Our patient was diagnosed with stage IIE bulky NHL of the prostate with low-intermediate risk group as per NCCN-IPI score. He had a

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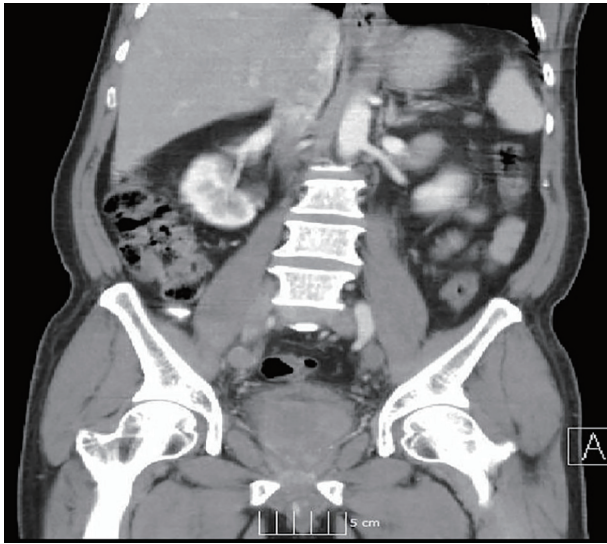
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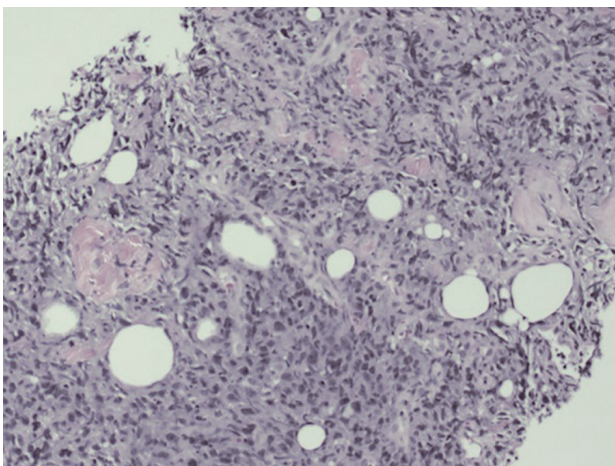
**Figure 1.** A 7 × 4 cm lobulated mass below the base of the bladder, arising from the superior aspect of the prostate and invading the seminal vesicles.

normal echocardiogram and negative hepatitis panel. The patient was subsequently started on chemotherapy with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone) regimen. Patient symptoms improved with chemotherapy. After completing six cycles of chemotherapy, patient had a positron emission tomography (PET) scan reporting no hypermetabolic disease and remains in remission and will be followed up closely.

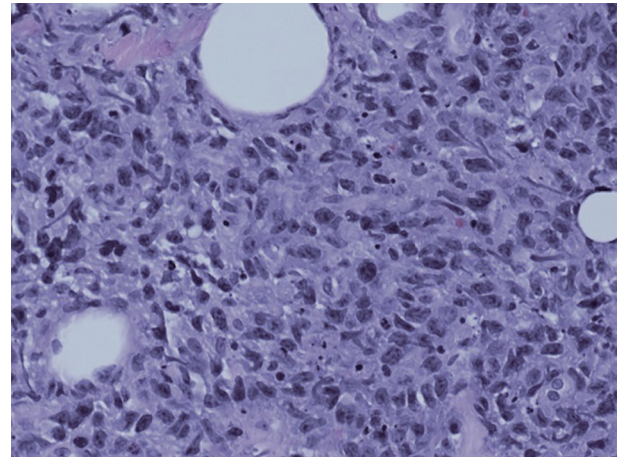
**Discussion**

Prostate cancer is the most frequently diagnosed cancer in men accounting for 28% of new cases and 10% of cancer-related deaths in the US [7, 8].

Adenocarcinoma is the most common prostatic malig-



**Figure 2.** Prostate biopsy: low power view of the prostate core showing a diffuse proliferation of atypical pleomorphic cells.



**Figure 3.** Prostate biopsy: high power (× 40) view showing cellular pleomorphism and nuclear karyorrhexis.

nancy, representing over 95% of all prostate cancers [9]. The primary lymphoma of prostate is a rare condition. It is difficult to distinguish clinically from benign prostatic hyperplasia and adenocarcinoma of prostate which also presents with signs and symptoms of lower urinary tract obstruction. So, it is generally not included in differential diagnosis. These patients tend to be elderly with a mean age of 60 years [3, 6, 10]. Most cases of NHLs affecting the prostate are DLBCL, but primary prostatic small lymphocytic lymphoma, follicular lymphomas, Burkitt lymphomas, mucosa-associated lymphoid tissue (MALT) lymphomas, and mantle cell lymphomas have also been reported [2, 3, 6, 10-14]. Our patient had DLBCL.

The first diagnostic criterion for primary prostatic lymphoma was established by Bostwick et al, which includes symptoms attributable to prostatic enlargement, the prostate as the predominant site of involvement, and the absence of involvement of liver, spleen, or lymph nodes within 1 month of diagnosis [3]. However, primary prostatic lymphoma develops extra-prostatic involvement over course of disease [3, 6]. Bostwick et al’s retrospective case study found 73% of patients with primary prostatic lymphoma developed extra-prostatic disease between 1 and 59 months after diagnosis [3]. These tumors have similar presenting complaints and clinical findings to BPH and primary prostatic adenocarcinoma, including urgency, frequency, occasional hematuria, and acute retention [3, 6, 11, 15-20]. This makes consideration and evaluation of these neoplasms challenging given the relative prevalence of the aforementioned clinical entities in elderly patient.

In our case, patient presented with obstructive uropathy symptoms and was initially treated with tamsulosin and finasteride for BPH with a poor therapeutic response culminating in further evaluation with imaging, and ultimately tissue biopsy. CT scan revealed prostatic mass with right inguinal lymphadenopathy. Based on the prostate biopsy results and no evidence of distant metastases found, with no bone marrow involvement, we made diagnosis of primary NHL of the prostate (stage IIE).

There are no clear guidelines to the management of this rare tumor. The treatment modalities for primary NHL of the prostate include surgery, chemotherapy and/or radiotherapy [3,

6, 11, 12, 15, 16, 18-24]. The 5-year survival was only 33% in the retrospective review of 62 patients by Bostwick et al with no significant differences between patients with primary or secondary prostatic lymphoma [3]. However, more recent case studies have reported good outcomes with rituximab or doxorubicin based chemotherapy regimen [4, 7, 10, 12, 13, 15, 17, 19-21, 23-32]. In case review of primary lymphoma of prostate in 23 Japanese patients, Nihon et al reported 11 out of 16 cases that received chemotherapy alone or associated with other treatments had a full response, whereas three of five cases treated with radiotherapy or radical prostatectomy had evidence of disease progression and died [26]. Our patient was treated with R-CHOP chemotherapy regimen. Patient achieved remission after completion of six cycles of chemotherapy. Thus, this further supports R-CHOP treatment for DLBCL of prostate.

## Conclusion

In conclusion, the clinical misdiagnosis of this rare tumor is common, particularly in the elderly patients because of similar presentation to BPH or prostatic cancer. Thus, the lymphoma of the prostate must be included in differential diagnosis of the patient presenting with obstruction of the lower urinary tract especially in patients with enlargement of the gland with normal PSA level and previous history of lymphoma in other sites. Lack of response to initial medical treatment should prompt early prostate gland biopsy. Complete remission can be achievable if we diagnose and treat early before progression of disease to other organs and lymph nodes.

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## Disclosures

We confirm that this work is original. The case report was presented as a poster at American College of Physicians Internal Medicine Meeting on May 6, 2016 in Washington, DC. It has not been published elsewhere nor accepted for publication elsewhere excepted above mentioned poster presentation. All authors have read the manuscript and have approved this submission. Maimonides Medical Center IRB/Research Committee has provided permission to publish this case report.

## Consent

Written informed consent was obtained from the patient for

publication of this case report and any accompanying image.

## Conflicts of Interests

Authors disclose no potential conflicts of interest.

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## Author Contributions

PS, TGLT, JG, SM, ABC, and WS designed the case report, acquired and interpreted the data and wrote first draft of this case report. All authors contributed to intellectual context and approved the final manuscript.

## Abbreviations

NHL: non-Hodgkin's lymphomas; PSA: prostatic-specific antigen; CT: computerized tomography; LDH: lactate dehydrogenase; PET: positron emission tomography; R-CHOP: rituximab, cyclophosphamide, doxorubicin, vincristine and prednisone; MALT: mucosa-associated lymphoid tissue; DLBCL: diffuse large B-cell lymphoma; BPH: benign prostate hyperplasia

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