

Chronic Lymphocytic Lymphoma / Leukemia Infiltration of Prostate Gland Presenting with Hematuria: A Case Report

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To cite this article:

Ibrahim Hacibey, Esat Kaba, Sule Ozsoy, Emrah Yuruk, Ahmet Yaser Muslumanoglu. Chronic Lymphocytic Lymphoma / Leukemia Infiltration of Prostate Gland Presenting with Hematuria: A Case Report. *International Journal of Clinical Urology*. Vol. 7, No. 2, 2023, pp. 40-43. doi: 10.11648/j.ijcu.20230702.13

Received: March 28, 2023; Accepted: May 2, 2023; Published: July 31, 2023

Abstract: *Objectives:* Primary prostatic malignant lymphoma is an exceedingly rare malignancy, accounting for only 0.09% of all prostate neoplasms and 0.1% of all non-Hodgkin's lymphomas. In this report, we present a case of a 70-year-old male patient who presented with sudden-onset hematuria and was ultimately diagnosed with primary lymphoma of the prostate. *Methods:* The patient presented to a urology outpatient clinic with a 2-week history of gross hematuria but no lower urinary tract symptoms. Digital rectal examination revealed a firm and enlarged prostate, and serum PSA levels were elevated. Ultrasound evaluation, multiparametric prostate magnetic resonance imaging (mp-MRI), and cystoscopy were performed, revealing only a grossly enlarged prostatic median lobe. A systematic transrectal ultrasound (TRUS)-guided prostate biopsy was then performed and confirmed the diagnosis of primary lymphoma of the prostate. *Results & Conclusion:* This case highlights the importance of considering primary lymphoma of the prostate in patients presenting with macroscopic hematuria and an enlarged prostate, even if mp-MRI does not reveal any other abnormalities. Early diagnosis is crucial in such cases, as it allows for prompt initiation of treatment and may improve clinical outcomes. Given the rarity of this malignancy, clinicians must remain vigilant for its possible presentation and include it in the differential diagnosis when appropriate.

Keywords: Prostate, Lymphoma, Hematuria

1. Introduction

Prostate lymphomas are extremely uncommon, and our understanding of them remains largely limited to case reports [1]. Primary prostatic malignant lymphoma represents just 0.09% of all prostate neoplasms and 0.1% of all non-Hodgkin's lymphomas [1-5], and can be classified as either primary or secondary [3, 6]. Due to their rarity, prostate lymphomas are not typically considered in the differential diagnosis of hematuria and prostate enlargement. However, early detection and diagnosis of primary malignant lymphomas of the prostate is crucial, as untreated cases can progress aggressively, and timely chemotherapy has been shown to yield excellent results. In this report, we present a case of a 70-year-old male patient who presented with

macroscopic hematuria and was ultimately diagnosed with atypical B cell lymphoid proliferation of the prostate.

2. Case Report

A 70-year-old male patient who was a current smoker presented to an outpatient clinic with hematuria and lower urinary tract symptoms that had been ongoing for 2 weeks. The patient had no known comorbidities or medication use. During a digital rectal examination, a firm and enlarged prostate was detected. The patient had no family history of prostate cancer, but his prostate-specific antigen (PSA) level was elevated at 8.53 ng/mL (normal range: 0-4 ng/mL). Urinary ultrasonography showed no abnormalities in the kidneys or bladder. Cystoscopy was performed to investigate

the hematuria, which revealed a grossly enlarged median lobe of the prostate, but the bladder appeared normal.

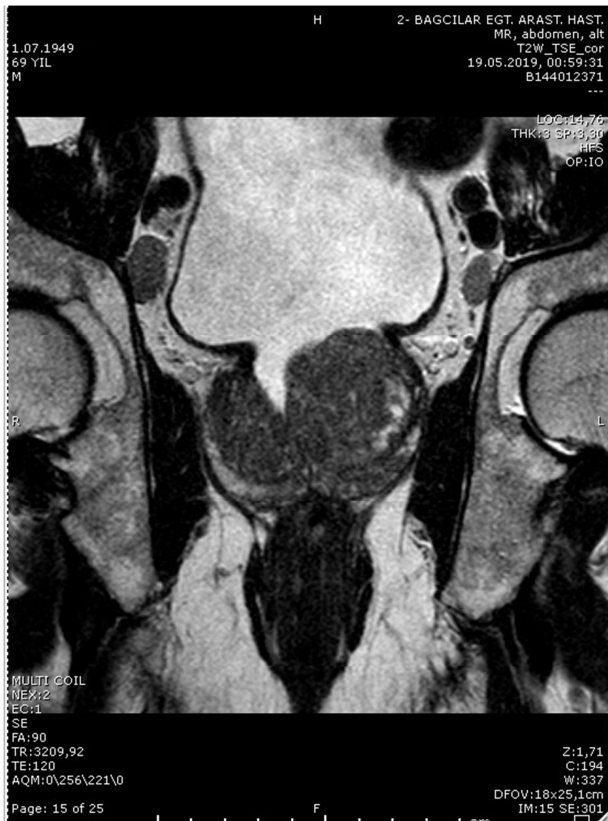


Figure 1. mp-MRI: Bilateral iliac lymph node enlargement and hypointense PI-RADS III lesion in left peripheral zone of prostate.

2.1. Radiological Findings

A computed tomography (CT) urography scan was conducted to determine the cause of the hematuria, which revealed left-sided mesenteric lymphadenopathy, while the bilateral ureters and bladder appeared normal. Multiparametric prostate magnetic resonance imaging (mp-MRI) demonstrated bilateral iliac lymph node enlargement and a PI-RADS III lesion in the left peripheral zone of the prostate (as shown in Figure 1). Following this, a prostate biopsy was performed.

2.2. Pathological Findings

2.2.1. Macroscopically Features

A total of twelve transrectal core needle biopsies were taken from various areas of the prostate gland. The length of the obtained tissues ranged from 0.6 mm to 1.9 mm.

2.2.2. Histopathological and Immunohistochemical Features

The histopathological examination of the prostate tissue revealed significant infiltration of heavily uniform small atypical lymphoid cells, which were obliterating the normal gland architecture. The immunostaining results were positive for CD45, CD20, CD5, and CD79a, indicating Chronic Lymphocytic Lymphoma (as shown in Figures 3, 4, 5, and 6).

3. Discussion

Prostate cancer is the most prevalent cancer among men, and ductal adenocarcinoma accounts for over 90% of all prostate malignancies. Other subtypes, such as Basaloid and adenoid cystic carcinoma, Sarcomatoid carcinoma, and Small-cell carcinoma, account for only 5-10%. Primary lymphomas of the prostate are extremely rare tumors (Figure 2). Nearly all patients diagnosed with primary or secondary prostatic lymphoma exhibit symptoms of lower urinary tract obstruction. Furthermore, it is challenging to differentiate clinically between prostate adenocarcinoma and benign prostatic hyperplasia (BPH), which also presents with lower urinary tract obstruction signs and symptoms. Consequently, it is not typically included in the differential diagnosis [4, 7].

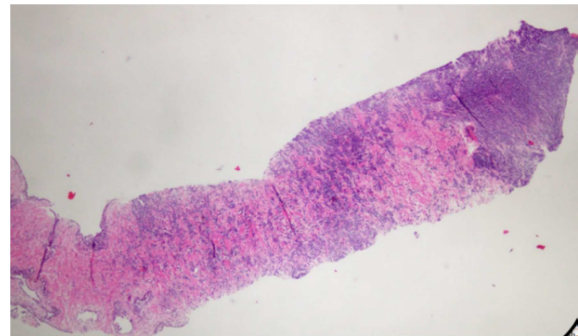


Figure 2. Prostate gland infiltration by mononuclear cells.

The diagnosis of primary prostatic malignant lymphoma is often made in older men, with an average age of 62 at the time of diagnosis [3]. In about 20% of cases, PSA levels are elevated, but in most cases, they are within normal limits. On digital rectal examination, the prostate may feel significantly enlarged, nodular, or firm. Our patient presented with extremely enlarged prostate and urinary obstruction symptoms. Although CT and MRI scans are not specific for diagnosis, they can help determine the stage of the disease.

The diagnosis of non-Hodgkin lymphoma (NHL) is usually confirmed through histopathological examination of needle core biopsies of prostate tissue obtained through transrectal ultrasound, as in the case of our patient. The most common type of NHL affecting the prostate is diffuse large B-cell lymphoma, but other subtypes such as small lymphocytic lymphoma, follicular lymphomas, Burkitt's lymphomas, mucosa-associated lymphoid tissue (MALT) lymphomas, and mantle cell lymphomas have also been reported. In patients with primary prostatic lymphoma, the tumor originates in the prostate gland and is not accompanied by lymph node, blood, liver, or spleen involvement. The diagnosis criteria for primary prostatic lymphoma, according to Bostwick et al, were used in a retrospective review of 62 cases. This review found that 73% of patients with primary prostate lymphoma developed extraprostatic disease 1 to 59 months after diagnosis [1, 6, 9-12].

In our case, the patient was admitted with hematuria that had been persisting for 2 weeks. Further evaluation was carried out by cystoscopy, imaging and, finally, tissue biopsy.

On cystoscopy and CT scan, the greatly enlarged median lobe of the prostate revealed a prostatic mass with right inguinal lymphadenopathy. Based on the results of prostate biopsy and the absence of evidence of distant metastases without bone marrow involvement, we made the diagnosis of primary NHL of the prostate (stage IIE).

There is currently a lack of clear guidelines regarding the management of a rare type of tumor known as primary NHL of the prostate. Treatment options for this condition typically involve surgical intervention, chemotherapy, and/or radiotherapy. However, a retrospective analysis of 62 patients conducted by Bostwick *et al.* revealed a discouraging 5-year survival rate of only 33%, with no notable distinctions observed between patients with primary or secondary prostate lymphoma [3]. Despite these findings, more recent case studies have demonstrated promising outcomes when utilizing chemotherapy regimens based on rituximab or doxorubicin [4, 8, 11, 13].

4. Conclusion

Clinical misdiagnosis of primary NHL of the prostate is a common occurrence, particularly in elderly patients. This is due to the fact that the symptoms of the disease can present similarly to those of prostate adenoma or prostate cancer. In such cases, hematuria and any PSA level may rarely be indicative of prostate lymphoma, which highlights the need for accurate diagnosis by surgeons and pathologists to ensure the appropriate management of these patients.

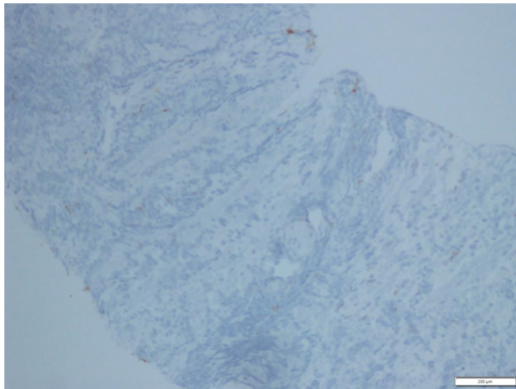


Figure 3. CD3x200 there was no positivity with Tcell markers.

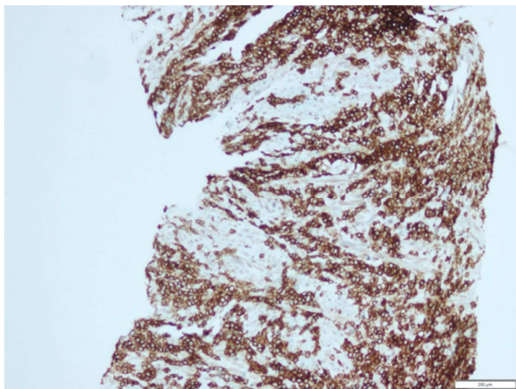


Figure 4. CD20x200 diffuse positivity of the atypical lymphocytic cells.

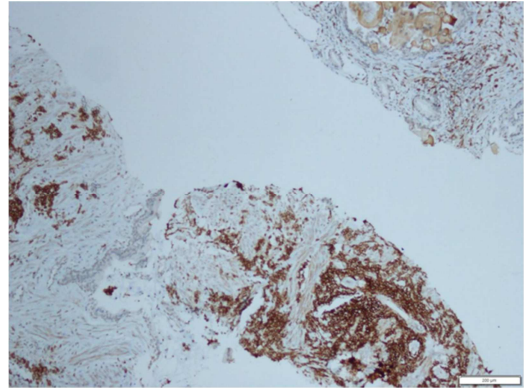


Figure 5. CD79ax200 diffuse positivity of the atypical lymphocytic cells.

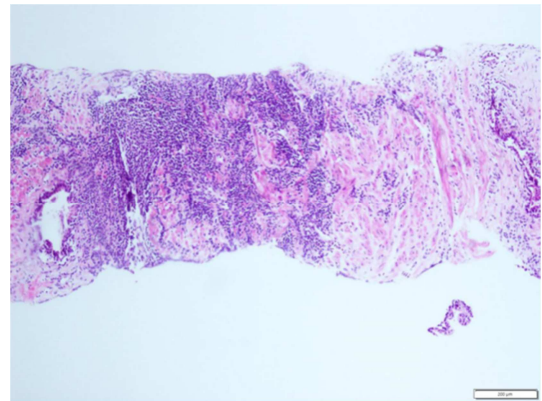


Figure 6. H&E x100 atypical lymphocytic infiltration.

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