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A Rare Prostate Pathology: Mantle Cell Lymphoma: A Case Report and Literature Review

Prostatın Nadir Bir Patolojisi: Mantle Cell Lenfoma: Bir Vaka Sunumu ve Literatür Taraması

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Abstract

Primary or secondary lymphoma of the prostate is a rare condition. Mantle cell lymphoma (MCL) represent 4-9% of all lymphomas. Prostate involvement with MCL is very rare, with only 11 reported cases up to now. Here we present a case with lower urinary tract symptoms and prostate-specific antigen (PSA) elevation diagnosed with MCL of the prostate. Prostate biopsy was performed in a 70-year-old patient due to increased PSA. After the pathology result was reported as prostatic MCL, imaging studies and sampling of additional pathological specimens were performed for staging. An improvement was observed in the urinary system complaints of the patient who started chemotherapy regimen. While prostatectomy was performed in some of the prostatic MCL cases reported previously, in some, no additional treatment was required after chemotherapy. Our case is the only prostatic MCL case with elevated PSA levels, but did not receive the diagnosis of prostate cancer. Physicians should keep in mind that, prostatic MCL can present with nonspecific symptoms. Staging should be performed in patients whose histopathologic diagnosis is lymphoma of the prostate so as to determine appropriate treatment options.

Keywords: mantle cell lymphoma, prostate, lymphoma, biopsy, diagnosis

Öz

Primer ve sekonder prostat lenfomaları nadir görülen hastalıklardır. Lenfomaların %4-9'unu Mantle cell lenfoma (MCL) oluşturmaktadır. MCL'nin prostat tutulumu oldukça nadir görülen bir hastalıktır ve şimdiye kadar yalnızca 11 vaka rapor edilmiştir. Bu yazıda alt üriner sistem semptomları ve prostat spesifik antijen (PSA) yüksekliği ile başvuran ve prostatik MCL tanısı alan bir vakayı sunmaktayız. Yetmiş yaşındaki hastaya PSA yüksekliği nedeniyle prostat biyopsisi uygulandı. Patoloji sonucunun prostatik MCL ile uyumlu olarak raporlanması sonrası evreleme için görüntülemeler ve ek patolojik örneklemeler yapıldı. Kemoterapi tedavisine başlanan hastanın üriner sistem şikayetlerinde düzelme izlendi. Daha önce rapor edilen prostatik MCL vakalarının bir kısmında prostatektomi uygulanmıştır, bir kısmında ise kemoterapi sonrası ek tedavi gerekmemiştir. PSA yüksekliği olan ancak prostat kanseri tanısı almayan tek prostatik MCL vakası bizim vakamızdır. Hekimler prostatik MCL vakalarının non-spesifik semptomlarla başvurabileceğini akılda tutmalıdır. Prostat patolojisi lenfoma olarak sonuçlanan hastalarda uygun tedavi seçeneklerinin belirlenmesi için evreleme yapılması gereklidir.

Anahtar kelimeler: mantle hücreli lenfoma, prostat, lenfoma, biyopsi, tanı

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Introduction

Lymphoma of the prostate, either primary or secondary is a rare condition. Prostatic involvement by lymphoma has been reported in less than 200 cases [1]. Mantle cell lymphoma (MCL) represents 4-9% of all lymphomas. Waldeyer's ring, bone marrow, peripheral blood, liver and the digestive tract, are commonly involved by MCL [2]. Prostatic involvement is very rare, with only 11 reported cases [3-12]. Here we describe a case presented with lower urinary tract symptoms (LUTS) and prostate-specific antigen (PSA) elevation, diagnosed with MCL of the prostate and literature review.

Case Presentation

A 70-year-old male with no known medical history presented with LUTS (frequency, dysuria and nocturia), and on physical examination no pathology was detected except that the prostate was firm and moderately enlarged. PSA was 8.2 ng/dL, and urinalysis was normal. Urinary ultrasound showed prostate measuring 120 cc. Uroflowmetry trace was consistent with obstruction, and Qmax was 7.2ml/s, so he was started on alpha-blocker regimen. He underwent prostate biopsy. During histopathologic examination of prostate biopsy specimens diffuse atypical lymphoid infiltration has been widely observed among cells of benign prostatic hyperplasia. The cells were observed to have partially large transparent cytoplasm and fine chromatin structure. Ki-67 index was up to 20% in the same areas. Tissue staining was strongly positive for CD20, CD5, Cyclin, CD79a, Bcl-6, and Pax-5, with rare areas positive for CD3 and CD43 consistent with MCL **(Figure 1,2)**. Then, the patient received a hematology consultation. Whole body CT-scans were obtained which revealed right pleural effusion requiring thoracentesis. No lymphadenopathy or spleenomagaly was detected. Cytology was consistent with low-grade B-cell lymphoma. Bone marrow biopsy report was consistent with MCL. He was treated with systemic chemotherapy regimen (cyclophosphamide, doxorubicin, vincristine, prednisolone) per oncology clinic. In follow-up, patient experienced complete resolution of LUTS.

Discussion

The first study on prostatic involvement by lymphoma was made by Bostwick [13] in 1985 with a retrospective study of 13 cases, and it was emphasized that prostatic involvement by lymphoma should also be kept in mind in patients presenting with LUTS. Bostwick has set some criteria for the differentiation between primary, and secondary prostatic lymphoma. According to Bostwick's primary/secondary prostate lymphoma criteria; primary prostatic lymphoma will be diagnosed only if the following criteria are fulfilled: 1) primary symptoms are attributable to prostatic enlargement; 2) the major bulk of disease is localized to the prostate; and 3) lymph nodes, liver or spleen are not involved within 1 month of diagnosis. When previously reported cases are evaluated, 8 patients had secondary prostatic lymphoma and 3 cases had primary prostatic lymphoma **(Table 1)**. Our case is the fourth primary prostatic MCL case. Notably,

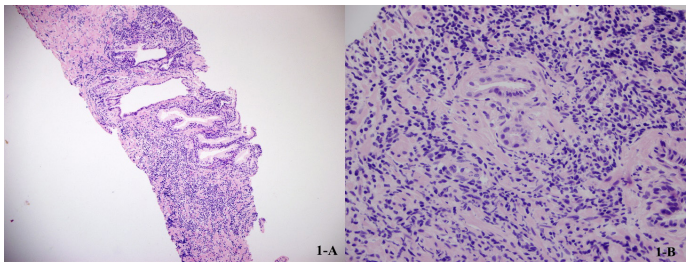

Figure 1. In prostate needle biopsy, small to medium- sized atypical lymphoid cells that efface the prostatic glands in some areas and show infiltration in a diffuse pattern around the glands in some areas are observed (H-E x100, H-E x400)

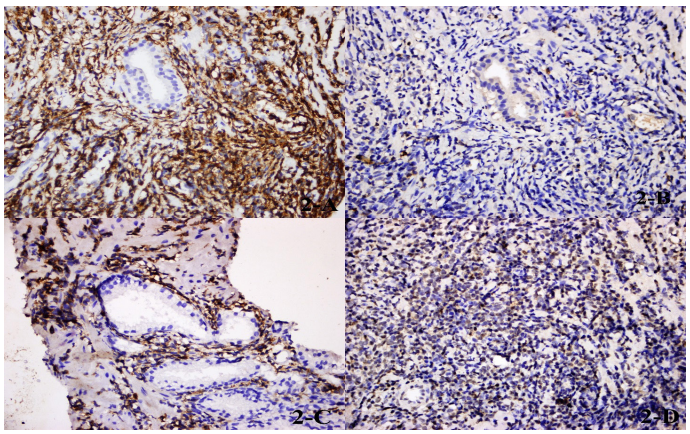

Figure 2. Immunohistochemical staining was commonly positive for CD20 in atypical lymphoid infiltration around the prostatic glands (2A, x400), whereas very rare lymphoid cell staining was detected with CD3 (2B, x400). Atypical lymphoid cell infiltration showed significantly positive staining with CD5 (2C, x400) and Cyclin-D1 (2D, x400)

the youngest of the patients was 59 years old. Lymphoma and prostate cancer are two common malignancies in elderly men. Three subtypes of MCL have been defined as classical, pleomorphic and blastoid. In our case, we observed "classical variant MCL" consisting of a monomorphic centrocyte-like atypical lymphocytes invading the prostate tissue with a diffuse growth pattern. This variant has a better prognosis than the blastoid/pleomorphic variant [14].

Prostatic involvement by MCL was reported for the first time in 2003 by Chim et al., (3), then ten more cases were reported in the literature. PSA elevation was noted in 3 cases with prostate cancer. In contrast, our case is the only prostatic MCL presenting with PSA elevation with no underlying prostate cancer. Prostatectomy was performed in 6 cases, obstructive symptoms resolved after chemotherapy in 3 cases, and sufficient information about the treatment of 2 cases were not available. LUTS is a common presenting symptom, and PSA elevation is not commonly seen. Our case contributes to the literature with its atypical presentation secondary to a rare prostatic pathology.

In some studies, a link was found between chronic lymphocytic leukemia, MCL, head and neck squamous cell carcinoma, bladder cancer and prostate cancer and a genetic basis was shown [15]. In this review, prostatic MCL- prostate adenocancer association was present in 3 patients [9,10,12] and MCL- bladder cancer association in 1 patient [6].

In conclusion, physicians should keep in mind that prostate lymphoma is rare, however it can present with nonspecific symptoms. Pathologists should be careful as lymphocyte

Table 1. Mantle cell lymphoma cases with prostate involvement

	Age	Primary (P)/ Secondary (S)	Case	Method of Diagnosis	Treatment	PSA	Prostate cancer (Yes/ No)
Chor S. Chim et al. 2003	73	S	A 73-year-old man presented to the emergency department with acute urinary retention. There were no systemic symptoms. Physical examination revealed generalized lymphadenopathy. Prostate biopsy was performed and pathology result was compatible with the prostate involvement of MCL.	Biopsy	Chemotherapy (cyclophosphamide, vincristine, procarbazine, and prednisolone)	-	No
Peiguo G. Chu et al. 2005	65	S	A 65-year-old male was already diagnosed with MCL. Prostate biopsy was performed and pathology result was compatible with the prostate involvement of MCL. There was no pathology other than axillary lymphadenopathy on the physical examination.	Biopsy	Adequate information on treatment has not been provided	-	No
	80	S	A 80-year-old male was already diagnosed with MCL. Due to LUTS, TUR-P was performed and pathology result was consistent with prostate involvement of MCL.	TUR-P	TUR-P	-	No
John D. Coyne et al. 2012	60	S	A 60-year-old male presented with LUTS and recurrent urinary tract infection. He was already diagnosed with MCL. Prostate biopsy was performed and pathology result was compatible with the prostate involvement of MCL.	Biopsy	Adequate information on treatment has not been provided	-	No
Binghai Chen et al. 2012	83	P	An 83-year-old male presented with LUTS. Cystoscopy revealed a moderately large prostate and bladder tumor size of 4x3 mm. TUR-P and TUR-B was performed and TUR-P pathology was consistent with prostate involvement of MCL. TUR-B pathology results was unclear due to the small size of the tumor specimen.	TUR-P	TUR-P	3,2ng/ml	No
Alberto Gurioli et al. 2013	83	P	An 83-year-old male was admitted to the emergency department because of gross hematuria. TVP was performed and pathology result was compatible with the prostate involvement of MCL.	TVP	TVP	-	No
Abuhjar Abdussalam et al. 2013	82	S	An 82-year-old male presented with increasing symptoms of bladder outlet obstruction. TUR-P was performed and pathology result was compatible with the prostate involvement of MCL	TUR-P	TUR-P	2,4ng/ml	No
Ashish. B. Rajput et al. 2014	74	S	A 74-year-old male presented with elevated PSA level and an enlarged prostate on digital rectal examination. Prostate biopsy was performed due to elevated PSA level. The pathology result was compatible with the prostate involvement of MCL.	Biopsy	Chemotherapy (bendamustine-rituximab)	17.16ng/ ml	Yes
Ivan Petković et al. 2016	64	S	A 64-year-old male initially presented with fatigue, splenomegaly, and bicytopenia. Prostate biopsy was performed due to elevated PSA level. The pathology result was compatible with the prostate involvement of MCL.	Biopsy	Chemotherapy (Cyclophosphamide, doxorubicin, vincristine, prednisolone)+Androgen Deprivation Therapy	52ng/ml	Yes
Preston A. Milburn et al. 2017	59	S	A 59-year-old male was referred by his primary care provider for progressive LUTS. Holmium laser enucleation (HoleP) was performed and pathology result was compatible with the prostate involvement of MCL.	HoleP	HoleP	1,2ng/ml	No
Eliška Tvrdíková et al. 2019	64	S	A 64-year-old male presented with increased PSA level. Prostate biopsy was performed and prostatic adenocarcinoma was detected. The patient had no systemic symptoms and no lymphadenopathy, splenomegaly or metastasis was observed in the imaging. MCL accompanying prostatic adenocarcinoma was detected in the final pathology of the patient who underwent RRP.	RRP	RRP	5,9ng/ml	Yes
Selman Unal et al. 2020*	70	P	A 70-year-old male with no known medical problem presented with LUTS and on digital rectal examination his prostate was firm and moderately enlarged. Prostate biopsy was performed due to elevated PSA level. The pathology result was compatible with the prostate involvement of MCL.	Biopsy	Chemotherapy (Cyclophosphamide, doxorubicin, vincristine, prednisolone)	8,2ng/ml	No

MCL: mantle cell lymphoma; LUTS: lower urinary tract symptoms; TUR-P: transurethral resectin of prostate; TUR-B: transurethral resectin of bladder; HoleP: Holmium laser enucleation of prostate; RRP: radical retropubic prostatectomy; TVP: transvesical prostatectomy; *: this case

infiltrates seen in prostate samples are possible signs of prostate lymphoma other than prostatitis. Staging should be performed in patients whose histopathologic diagnosis is lymphoma of the prostate so as to determine appropriate treatment options.

Ethics Committee Approval: N / A.

Informed Consent: Informed consent form was obtained from the patient for this case report.

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