MAR Pathology and Clinical Research (2025) 2:5

Case Report

Diffuse Large B cell Lymphoma Mimics as Renal Cell Carcinoma: Rare Presentation of Primary Renal Lymphoma – A Case Report with Review of Literature

Debaditya Samanta[1], Debojyoti Ghosh[2*]

1,2. Department of Histopathology, Oncquest Laboratories Ltd, Kolkata, West Bengal, India.

[*]**Correspondence to:** Debojyoti Ghosh, A1, Department of Histopathology, Oncquest Laboratories Ltd, Kolkata, West Bengal, India.

Copyright

Received: 21 March 2025

Published: 26 March 2025

Abstract:

Primary renal lymphoma is extremely rare and accounts for 0.22% of localized tumor of kidney. Clinical and radiologically they mimic as renal cell carcinoma. Diffuse large B cell lymphoma is the predominant in this category. Histological and immunohistochemical examination is mandatory for confirmation of the diagnosis. Primary renal lymphomas show dismal prognosis compared to renal cell carcinoma. Thus, careful and prompt diagnosis is required in these cases. We report a case of diffuse large B cell lymphoma presented as left renal lower pole mass in a 60 years old male patient.

Key words: *primary renal lymphoma, diffuse large B cell lymphoma*

Introduction

Renal involvement in lymphoma is commonly seen in the presence of widespread nodal or extra nodal lymphoma. This is classified as secondary involvement of renal lymphoma (SRL). Lymphoma may involve the kidneys de novo, alone, without evidence of disease elsewhere, but in rare circumstances; this presentation is termed primary renal lymphoma (PRL).[1] In total, the origin of primary extra nodal lymphoma within the genitourinary tract itself is extremely rare. Among these organs, testicular primary lymphoma is the most common type. Conversely, those originating from the kidney, the bladder and the prostate cumulatively account for less than 0.5% of all tumors affecting these three organs.[2,3] An analysis of SEER data (1998–2015) also showed that primary extra nodal lymphomas of the testis, kidney, urinary bladder, and prostate accounted for 3.04%, 0.22%, 0.18%, and 0.01%, respectively, of all localized tumours in those organs.[4] Nearly all primary genitourinary tract lymphomas are B-lineage non-Hodgkin lymphomas, with diffuse large B-cell lymphoma being the most common subtype in the entire group.[5]

We report a case of left renal lower pole mass diagnosed as diffuse large B cell lymphoma.

Case Report

A 60 years old male presented with complaints of painless hematuria for last one month. CT scan revealed mass lesion at left kidney lower pole. Provisional diagnosis of renal cell carcinoma was made and CT guided core biopsy was done for histopathological confirmation. On histology it was a poorly differentiated

malignancy arranged in sheets. These neoplastic cells exhibit round to oval nuclei with moderate pale eosinophilic to clear cytoplasm. Initially provisionally differentials of renal cell carcinoma with clear cell morphology were made. A panel of immunohistochemistry was done.

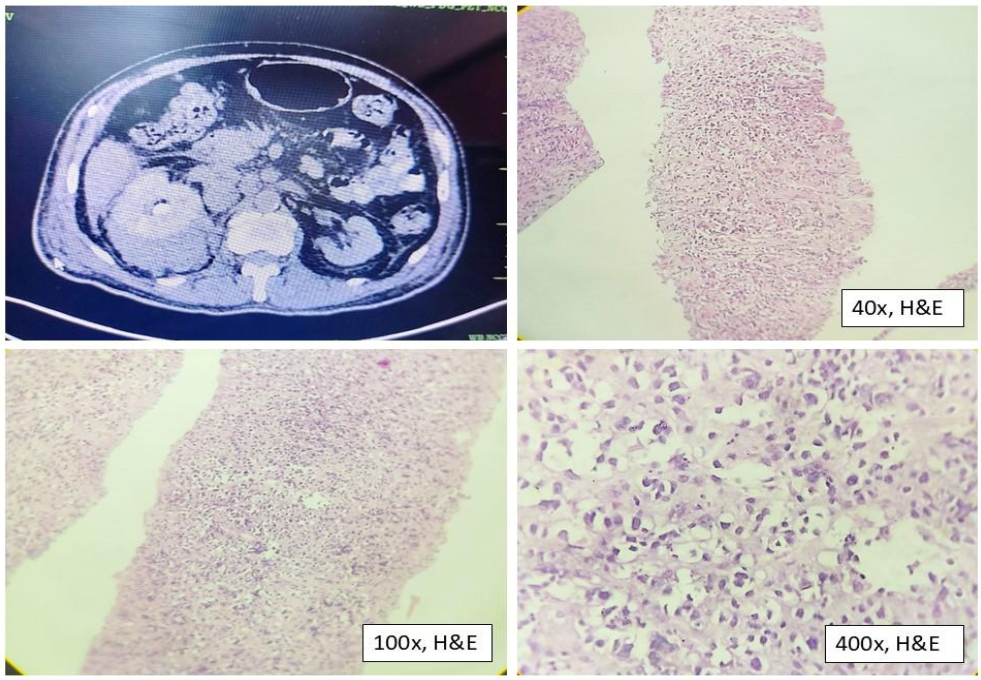

Fig 1

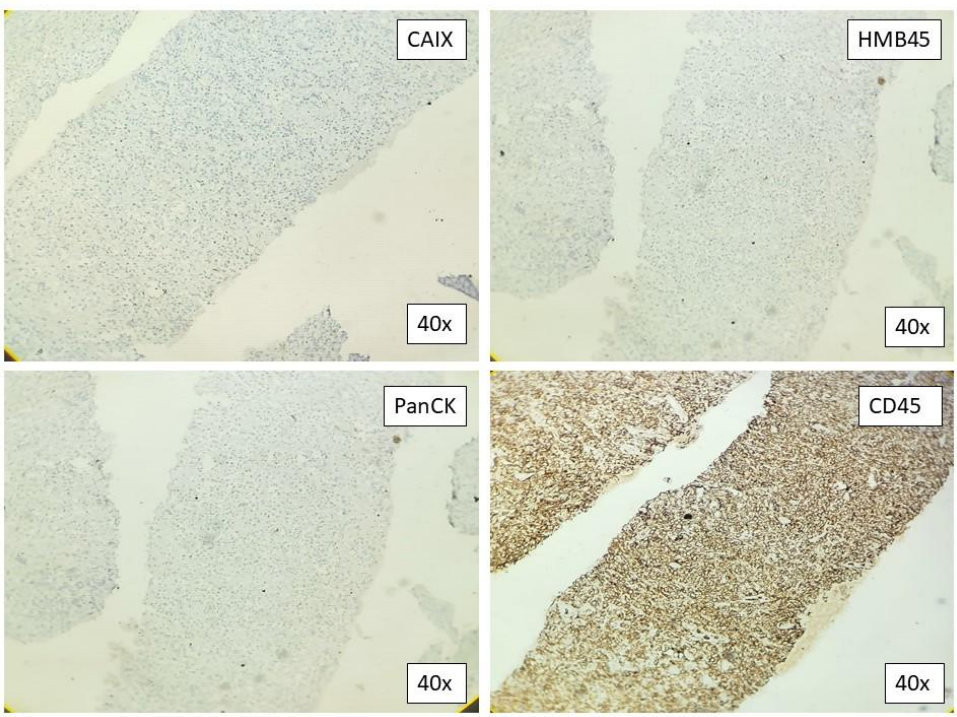

Fig 2

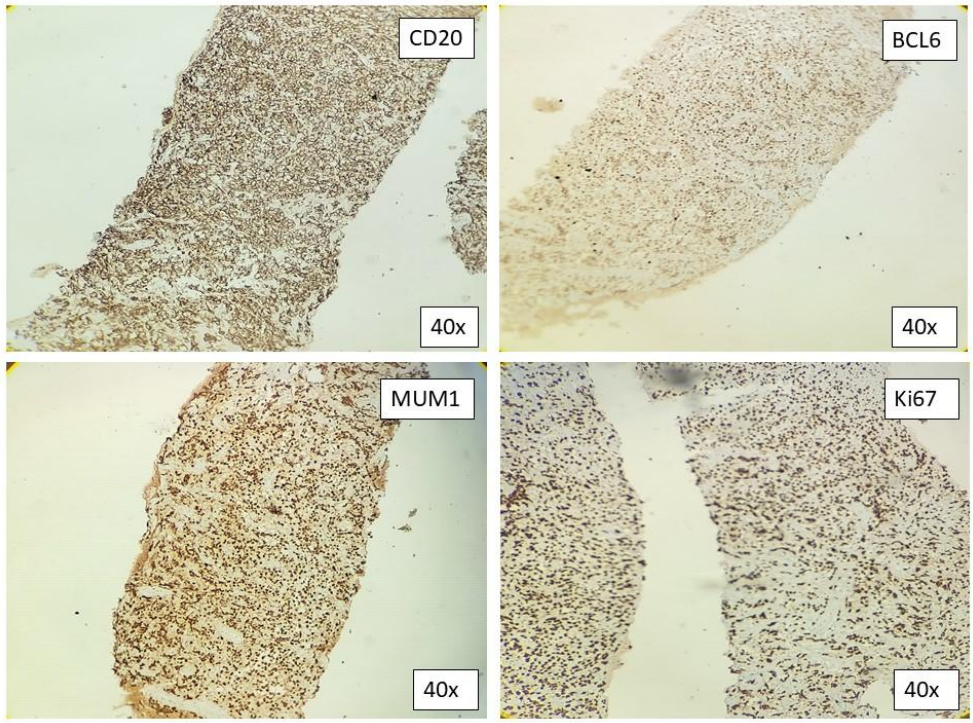

Fig 3

Table 1: Panel of immunohistochemistry

Marker	Clone	Interpretations
CAIX	EP161	Negative
HMB45	HMB-45	Negative
PanCK	AE-1/AE-3	Negative
CD45	PD7/26/16	Diffuse strong positive
CD20	L26/L26	Diffuse strong positive
BCL6	EP278	Diffuse strong positive
MUM1	EP190	Diffuse strong positive
Ki67	EP5	90%

CAIX came negative and with this morphology to rule out angiomyolipoma we did HMB45. It also came negative. At this point we again went back for basic marker and did PanCK and CD45. CD45 came strong

diffuse positive. Thereafter CD20, BCL6 and MUM1 came positive with high Ki67 index around 90%. Thus, diagnosis of high grade B cell lymphoma favoring diffuse large B cell lymphoma was made.

Discussion

Primary renal lymphoma is extremely rare and a thorough review of these cases has been lacking in the literature. Either case series or reports have been described only.

It is difficult to diagnose this entity by imaging studies alone due to its non-specific manifestations and can be roughly divided into multiple renal masses, solitary masses, renal invasion from contiguous retroperitoneal disease, perirenal disease and diffuse renal infiltration.[6] On histological examination particularly in core biopsies it is difficult because of its rarer presentation. It can mimic renal cell carcinomas it morphological presentation.

In a study done by Stephanie D Schniederjan et al. in 2009 of 40 cases showed 26 as primary genitourinary lymphoma. They showed mean age at diagnosis was 56 years and among renal, bladder, and ureter lymphomas, a male predominance was noted (1.6:1). The subtypes of the lymphoid neoplasms observed were diffuse large B-cell lymphoma (17 cases, 43%); Burkitt lymphoma, extranodal marginal zone lymphoma, SLL/CLL, and follicular lymphoma (4 cases, or 10% each).[5]

Longwen Chen et al. in the year 2013 reported collective 14 cases of renal lymphoma over the twenty seven years and most of them were B cell lymphoma.[7]

A literature review of primary renal lymphoma was published by Xiaodong Chen et al. in the year 2016. They reviewed 49 cases published in literature and showed male predominance and diffuse large B cell lymphoma as the most common diagnosis. They also found that It appears that younger patients and bilateral primary renal lymphoma results in a shorter survival time and more rapid progression of the disease.[8]

A population-based analysis focusing on primary extranodal lymphomas of genitourinary tract done by Carlotta Palumbo et al. and published in 2019 showed primary genitourinary lymphoma rates are extremely low and on the decrease in kidney and prostate but stable in testis and bladder. Relative to primary genitourinary tumors, lymphomas are associated with worse cancer specific mortality for testis and renal but not for bladder and prostate, even after adjustment for other-cause mortality.[9]

Chemotherapy is the most common and main stray of treatment for primary renal lymphomas. This treatment generally includes 6–8 cycles of a cyclophosphamide, hydroxydaunorubicin, oncovin and prednisone (CHOP) regimen, or on the basis of this aforementioned plan, is combined with rituxan for cluster of differentiation

(CD)20-positive NHL, in order to improve the patient's survival time to 5 years. However, the prognosis remains largely unknown. The 1-year mortality rates of can be as high as 75%.[10]

In our case the patient was diagnosed as diffuse large B cell lymphoma and currently is on CHOP regimen chemotherapy and recovering well with no local recurrence.

Conclusion

In conclusion, the patient in the present study presented as left renal lower pole mass. The mass was initially suspected as renal cell carcinoma and, subsequently was diagnosed with diffuse large B cell lymphoma. Despite rarity of the disease, lymphomas should always be kept in the differential diagnosis for unusual renal or perirenal masses. As the prognosis dismal, prompt diagnosis can help for better evaluation and treatment.

References

[1]. Bokhari MR, Rana UI, Bokhari SRA. Renal Lymphoma. 2023 Jul 10.

[2] Cheah C.Y., Wirth A., Seymour J.F. Primary testicular lymphoma. Blood. 2014;123:486–493.

[3] Vannata B., Zucca E. Primary extranodal B-cell lymphoma: current concepts and treatment strategies. Chin Clin Oncol. 2015;4:17.

[4] WHO Classification of Tumours Editorial Board. Urinary and male genital tumours [Internet]. Lyon (France): International Agency for Research on Cancer; 2022.

[5] Schniederjan SD, Osunkoya AO. Lymphoid neoplasms of the urinary tract and male genital organs: a clinicopathological study of 40 cases. Mod Pathol. 2009 Aug;22(8):1057-65.

[6] Cohan RH, Dunnick NR, Leder RA, Baker ME. Computed tomography of renal lymphoma. J Comput Assist Tomogr. 1990;14:933–938.

[7] Chen L, Richendollar B, Bunting S, Campbell S, Zhou M. Lymphomas and lymphoproliferative disorders clinically presenting as renal carcinoma: a clinicopathological study of 14 cases. Pathology. 2013 Dec;45(7):657-63.

[8] Chen X, Hu D, Fang L, Chen Y, Che X, Tao J, Weng G, Ye X. Primary renal lymphoma: A case report and literature review. Oncol Lett. 2016 Nov;12(5):4001-4008.

[9] Palumbo C, Mazzone E, Mistretta FA, Knipper S, Tian Z, Perrotte P, Montorsi F, Shariat SF, Saad F, Simeone C, Briganti A, Antonelli A, Karakiewicz PI. Primary lymphomas of the genitourinary tract: A population-based study. Asian J Urol. 2020 Oct;7(4):332-339.

[10] Porcaro AB, D'Amico A, Novella G, Curti P, Ficarra V, Antoniolli SZ, Martignoni G, Matteo B, Malossini G. Primary lymphoma of the kidney. Report of a case and update of the literature. Arch Ital Urol Androl. 2002;74:44–47.