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**Radiology**

# Perirenal Mass: An Unusual Presentation of Primary Renal Lymphoma

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**Abstract** **Case Report**

Primary renal lymphoma (PRL) is a rare type of Non-Hodgkin's Lymphoma (NHL), with B cell lymphoma being the most common subtype, to date; no more than 100 cases of PRL have been described and less commonly, when the involvement of perirenal space is isolated, without any renal parenchymal infiltration or contiguous abdominal adenopathy. In this article, we report a case of non-Hodgkin's lymphoma (NHL) in 65-year-old man, presented initially for flank pain, fever and unintentional weight loss associated with dysuria and pollakiuria. Abdominal ultrasound revealed a hyperechoic masse of the left perinephric space without focal lesions in the kidneys. The CT scan confirmed the solid character of the perirenal abnormality. No intra or retroperitoneal lymphadenopathy was noted. Biopsy of the left perirenal mass using local anesthesia was performed under ultrasound guidance. The histopathological report was compatible with non-Hodgkin's lymphoma and FDG PET-SCAN confirmed the primary localization of renal lymphoma in the left perinephric space. The aim of this work is to report a new case of primary renal lymphoma, as one of neoplasic causes of perirenal masses, describe the spectrum of imaging findings of these entities and discuss how to differentiate it from other causes of perirenal masses.

**Keywords:** Perirenal mass, primary renal lymphoma.



## INTRODUCTION

Primary renal lymphoma (PRL) is a rare type of Non-Hodgkin's Lymphoma NHL, with B cell lymphoma being the most common subtype; to date, no more than 100 cases of PRL have been described. PRL accounts less than 1% of all renal masses identified [4].

Isolated perinephric lymphoma is a rare presentation of primary lymphoma [6], that make the diagnosis of perinephric lymphoma and its differentiation from other causes of perirenal masses challenging, an awareness of the spectrum of imaging findings can help to differentiate lymphoma from other renal malignancies or non neoplasic disorders [10].

The aim of this work is to report a new case of primary renal lymphoma and to illustrate his radiological features in US and CT.

## CASE REPORT

A 65-year-old man presented initially to the emergency department for flank pain, fever and unintentional weight loss associated with dysuria and pollakiuria with low-grade fever of 20 days duration. There was history of left flank tenderness; Physical examination was unremarkable. Relevant laboratory data included a hemoglobin level of 13 g/dL, serum urea 0,3mg/L, serum creatinine 100 µmol/L and serum protein 72 g/L. Urine examination was normal. Bence-Jones proteins in the urine were not detected.

Because of the clinical finding of left flank tenderness, an ultrasound scan of the abdomen was performed. That revealed hyperechoic masse of the left perinephric space surrounding kidney, without any focal lesions in the kidneys (Figure 1). No focal abnormality was seen in the liver parenchyma. Gallbladder, pancreas and spleen were normal. The kidneys were also normal in size, contours and echogenicity. This warranted further investigation with a CT abdomen and pelvis study which demonstrated an enhancing left perinephric soft tissue density with similar appearing soft tissue encasing the left kidney and retroperitoneal vessels. No intra or retroperitoneal lymphadenopathy was noted (Figure 2).

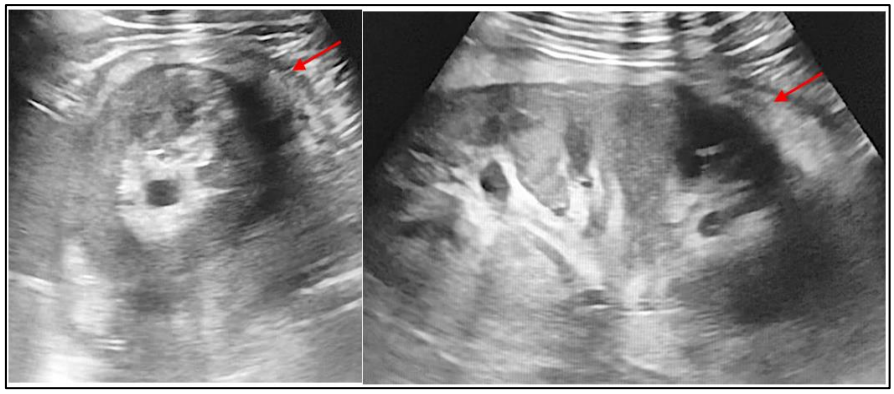

**Figure1: Hyperechoic masse encasing the left kidney (arrow)**

Biopsy of the left perirenal mass using local anesthesia was performed under ultrasound guidance. The histopathological report was compatible with non-Hodgkin's lymphoma.The patient underwent FDG PET scan that confirmed the primary localization of renal lymphoma in the left perinephric space.

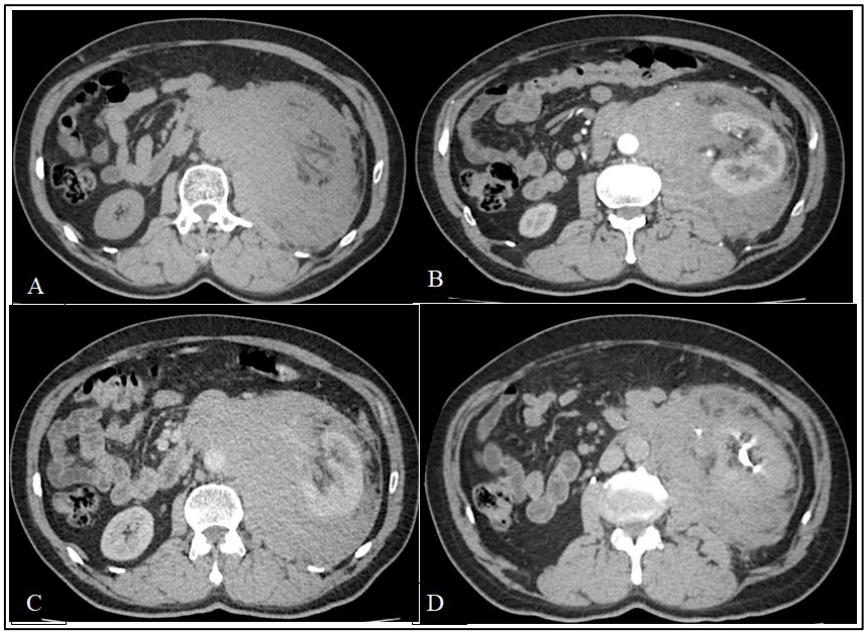


**Figure2: (a) unenhanced CT scan shows a large soft-tissue mass infiltrating the retroperitoneum, encasing the left renal vessels, and extending into the perinephric space (b) and (c) Venous and arterial phase contrast-enhanced CT shows the homogenous and the mild enhancing of the mass encasing the vessels without compression (d)Excretory phase contrast-enhanced CT scan shows the absence of hydronephrosis**

## DISCUSSION

Primary renal lymphoma is a rare disease, constituting only a small percentage of all forms of renal lymphoma with incidence of less than 1% [4]. The etiology of PRL is a debated topic as the kidney is an extranodal organ that lacks lymphatic channels. It is unknown how lymphoma originates in the kidneys but there are several theories that try to explain this phenomenon. Due to the rarity and unclear etiology of PRL, it is often overlooked in the differential for renal masses in favor of more common pathologies such as renal cell carcinoma (RCC), liposarcoma, and non neoplasic causes of perirenal masses [5].

Renal involvement can take the form of diffuse renal infiltration, solitary or multifocal masses, or soft tissue masses within the perinephric space. The perinephric involvement is due to contiguous spread from adjacent retroperitoneal lymph nodes or by extension along the ureter or from the adrenal, or more uncommonly be isolated in the perinephric space [8].

Primary perirenal lymphoma is one of the unsual patterns of renal involvement, CT remains the imaging modality of choice, but US, MRI and PET CT all have important diagnostic implications. Isolated perirenal lymphoma appears typically, at enhanced CT, as a uniformly attenuating rindlike soft-tissue mass around the kidney, homogeneous, hypo vascular, mildly enhancing. The mass may invade or compress the kidney without significantly affecting renal function. In less dramatic cases, findings are limited to thickening of the Gerota fascia or plaques and nodules in the perirenal

space. At US, hypoechoic tissue of variable thickness is seen surrounding the kidney [4]. At CT the enhancement may be more heterogeneous than that encountered [2]. At MRI, the masses have an intermediate signal on both T1- and T2-weighted images, although a high T2 signal may occur occasionally. It has restricted diffusion, in keeping with small round blue-cell tumors encountered elsewhere [4].

The findings of thickened Gerota's fascia and rind like densities in the perinephric space can be observed in other neoplasic and non-neoplastic diseases [10] as well as in lymphoma, such as sarcoma arising from the renal capsule and extending to the perinephric with liposarcoma being the most common subtype, characterized by demonstrating fat attenuation on CT and following fat signal on MRI. Renal adenocarcinomas and most frequently the clear cell variant, are common in kidneys, but a perinephric pattern of spread is seen only occasionally [3], they are typically hyper vascular and shows heterogeneous enhancement at computed tomography (CT) and magnetic resonance imaging (MRI) [7]. Some benign conditions such as perinephric hematoma, retroperitoneal fibrosis, amyloidosis, extramedullary hematopoiesis and Erdheim-Chester disease [11] can also present as a perinephric masse, However, when the renal lesions noted above are associated with retroperitoneal adenopathy, evidence of involvement at other sites such as the spleen or distant nodal stations should also alert the radiologist to the diagnosis of lymphoma [3].

The features that can help to differentiate it from the homogeneity of the masse, the absence of calcification and necrosis and the key imaging feature suggesting the diagnosis is that despite often bulky disease that encases vessels and ureter, lymphoma usually does not produce obstruction or significant stenosis [1].

Primary renal lymphoma was reported to be associated with a poor prognosis. However, early diagnosis and chemotherapy may improve renal function and may improve 5-year survival rates [9].

Because of overlap in imaging findings among diverse perirenal lesions, fine-needle aspiration biopsy is necessary to establish the diagnosis of lymphoma and avoid unnecessary nephrectomy but also for typing lymphoma when the diagnosis is made [4].

## CONCLUSION

The diagnosis of perinephric lymphoma and its differentiation from other causes of perirenal masses can be challenging, an awareness of the spectrum of imaging findings can help to differentiate lymphoma from other renal malignancies or non neoplasic disorders. In this case radiologist should recommend imaging- guided percutaneous biopsy for diagnostic confirmation to avoid unnecessary nephrectomy.

However, an imaging pattern–based approach may facilitate the diagnosis and optimal management of perirenal tumors and pseudo tumors.

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