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Abnormal Abdomen with Renal Lymphoma: A Case Report

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ABSTRACT: Colic abdomen may present as a clinical manifestation of renal lymphoma. Primary renal lymphoma (PRL) is characterized by certain definitions as lymphoma affecting the kidneys with minimal nodal involvement, while other definitions encompass all forms of non-Hodgkin lymphoma (NHL) that originate in the renal area, even when disseminated disease is present, provided the renal component is clinically predominant. PRL can be diagnosed via ultrasound, contrast-enhanced CT, and biopsy. The primary treatment for renal lymphoma is chemotherapy, which is favored over surgery. Furthermore, diagnosing PRL is challenging due to clinical, biochemical, and radiological characteristics. We report A 69-year-old female patient presented with abdominal pain, a tumor in her right abdomen, reduced weight, nausea, vomiting, weakness, and feelings of helplessness. Physicochemical examination revealed anemia and a hard lump in her upper right abdomen. Urinalysis revealed a urinary tract infection. A MST scan revealed right renal lymphoma, non-specific hepatomegaly, and cholelithiasis. The patient was diagnosed with PRL and was initiated on chemotherapy. She is currently under follow-up and is in good health two years post-event. A prompt kidney biopsy offers the most efficient method for confirming the diagnosis. Consequently, prompt recognition of the disease by the clinician enables early diagnosis and appropriate therapy.

1. INTRODUCTION

The abnormal abdomen resulting from chronic colic is a important medical issue, characterized by the presence of both colic and distended abdomens.[1] Colic abdomen is a rare renal lymphoma causing abdominal issues, particularly in patients with colic, and lymphoid neoplasms primarily arising in the kidneys are rare.[2] Accurate diagnosis and differentiation of these lymphomas from non-hematopoietic renal malignancies are essential due to the distinct management approaches required. The distinction between primary and secondary lymphoma of extranodal sites remains a subject of controversy. Primary renal lymphoma (PRL) is characterized by certain definitions as lymphoma affecting the kidneys minimal nodal involvement, while other definitions encompass all forms of non-Hodgkin's lymphoma (NHL) originating in the renal region, even when disseminated disease is present, provided the renal aspect is clinically predominant.[3] About 30% to 60% of patients with advanced NHL have secondary renal involvement.[4] However, PRL is exceedingly uncommon, constituting less than 1% of renal masses and extranodal lymphomas.[5,6] This case presents important questions concerning the management of analogous patients, as the ideal treatment for such individuals remains inadequately defined. This report discusses acute abdomen as a clinical manifestation of lymphoma, a substantial hematological malignancy.

2. CASE REPORT

A 69-year-old female patient reported to our hospital complaining of abdominal pain and a tumor in the right abdomen, reduced weight in the last 3-months unbeknownst to her, nausea, vomiting, weakness, and feelings of helplessness. Physicochemical examination revealed anemia and a hard lump in the upper right abdomen. Urinalysis revealed urinary tract infection with laboratory leukocytes 120.17 (normal range <3), bacteria 2264900 (normal range 120700). Additional positive findings from

the laboratory investigations included a hemoglobin 8.4 (normal range 12–16), leucocytes 14.7 (normal range 4.7–11.3). MST scan of the abdomen reveals axial reformatted sagittal and coronal images with contrast. The findings include right renal lymphoma measuring 9.1 × 11.1 × 11.9 cm, non-specific hepatomegaly without evidence of intrahepatic nodule metastasis, and cholelithiasis measuring 1.5 cm x 1.5 cm with a density of 625 HU. The patient was diagnosed with PRL. The patient was promptly initiated on chemotherapy (CTx) consisting of adriamycin, vincristine, cyclophosphamide, rituximab, and prednisolone. The patient is presently under follow-up and is alive and in wellness two years post-event.

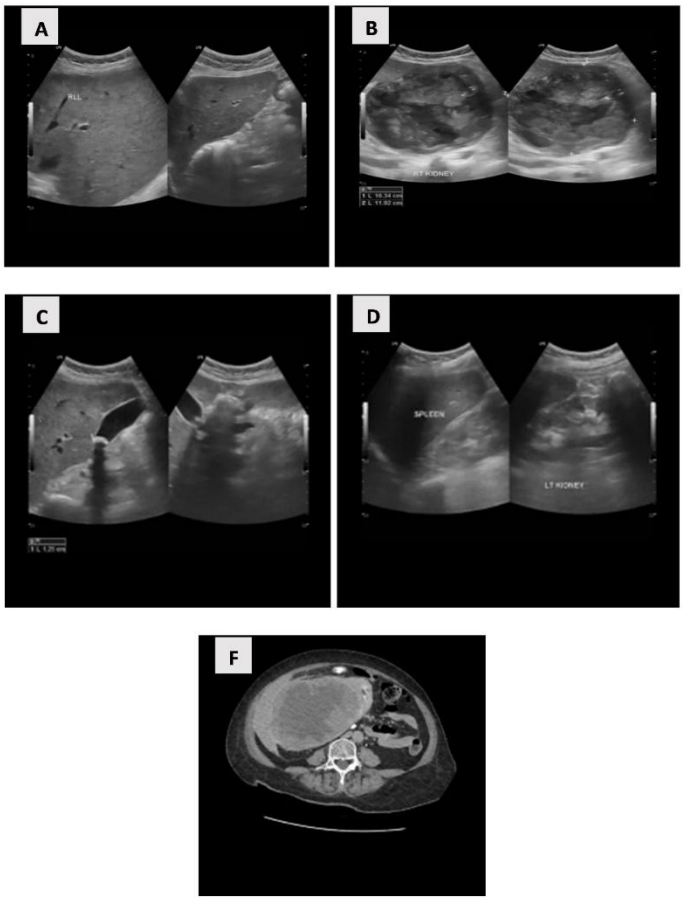

Figure 1. USG and Ct scan abdomen with contras. A. Hepatomegaly, B. Right ren with Renal lymphoma, C. cholelithiasis, D. Spleen and left kidney, F. Renal lymphoma

3. DISCUSSION

Colic abdominal pain may be a clinical symptom of renal lymphoma. Lymphoma is a prevalent hematological malignancy observed globally, characterized by the malignant transformation of lymphoid cells inside lymphoid organs. The underlying cause of the acute abdomen may stem from various pathophysiological processes, including intussusception and ischemia.[7–9] The primary pathophysiology of infarction is the direct vascular engagement combined with athrombotic event triggered by malignancy.[10] In cases of intussusception, a malignant lesion may serve as the initial catalyst for its development. The specified lymphoma lesion typically manifests in the small intestine region.[6]

The precise aetiology of PRL remains contentious, given that the kidney is an extranodal organ and lacks the lymphoid tissue commonly associated with such conditions. The perirenal adipose tissue or a lymphoid-rich capsule around the kidney are thought to be the genesis of PRL, which thereafter infiltrates the renal parenchyma.[11] Lymphocytes are believed to be the potential causative factor in areas of chronic renal inflammation. These lymphocytes are similar to extranodal mucosa-associated lymphoid tissue lymphomas, which affect non- lymphoid tissues, such as the epidermis and breast.[12]

PRL is a condition primarily affecting middle-aged individuals, typically presenting after 40, but case reports show it can also affect patients as young as 21. Immunocompromised patients typically manifest at earlier age.[2] PRL exhibits a higher prevalence in males, with an estimated male-to-female ratio ranging from 1.6:1 to 2:1. PRL often manifests asymptomatically and demonstrates normal renal function.[13] The primary symptoms include pain and fever, although it can also manifest as palpable abdominal mass, flank/abdominal discomfort, malaise, exhaustion, night sweats, hypertension, renal failure, proteinuria, gross hematuria, fever, or weight loss. The most common symptom in adults between the ages of 18 and 50 is flank or stomach discomfort, which occurs in 62% of cases. Conversely, fever is the predominant symptom in individuals under 18 years of age, manifesting in 56% of cases. In patients aged over 50, gross hematuria and weight loss are the most frequently reported symptoms, each present in 37% of cases. PRL lacks distinct clinical features and may occasionally resemble renal metastases, renal abscess and renal cell carcinoma (RCC).[14]

Primary and secondary renal lymphoma (SRL) share similar imaging characteristics, but SRL is linked to extensive extrarenal disease. Radiologically, the tumor's radial development pattern is shown as an expansile mass, which can result in either a single (10%–25%) or multiple (50%–60%) kidney involvement.[14] Direct renal infiltration resulting from adjacent retroperitoneal lymphadenopathy is the second most common pattern, observed in 25%–30% of patients.[15] Nephromegaly is caused by the infiltrative tumor development pattern, but the normal renal morphology is maintained due to diffuse renal infiltration.[16] This pattern occurs in 20% of instances, impacts both kidneys, and typically manifests as acute renal insufficiency. Isolated perirenal lymphoma, defined by the lack of infiltration into the renal parenchyma, represents a rare subtype, comprising 10% of cases, and is not found in other genitourinary organs.[15] Renal lymphoma mostly affects the peripelvic region, renal sinus, and renal collecting system, exhibiting atypical imaging characteristics such as minimal dilatation of the collecting system in comparison to renal pathology and encasement of renal vasculature.[14]

A greyscale ultrasonography examination usually shows hypoechoic renal lymphoma.[15] It may occasionally present as anechoic, resembling a cystic renal lesion. The tumor is hypovascular, exhibiting minimal internal vascularity as observed through color imaging.[17] Doppler ultrasound assessment, diffuse renal hypertrophy may also be observed. This imaging method is useful for assessing patients with renal insufficiency and providing real-time imaging guidance for percutaneous renal biopsy since it exhibits sensitivity and specificity of 90%–100% for cancer diagnosis. Although ultrasound is typically the primary imaging modality, further assessment with CT or MRI is necessary due to its nonspecific imaging characteristics.[18]

Contrast-enhanced CT serves as a sensitive and effective imaging modality for the detection, characterization, and staging of renal lymphoma.[19] This method is utilized to delineate the scope of extrarenal disease, evaluate therapeutic response, and monitor renal lymphoma.[20] Renal lymphoma is generally categorized as a hypovascular tumor, characterized by reduced enhancement compared to the normal renal cortex. In contrast-enhanced CT imaging, it is most effectively visualized during the portovenous/nephrographic phase.[21] Chemotherapy is the primary treatment for renal lymphoma.[22] Nephrectomy and isolated radiotherapy have been occasionally reported as treatment options for PRL. Nonetheless, the impact of surgery or radiotherapy in PRL remains underexplored on a broader scale, with current understanding primarily derived from case reports, case series, and literature reviews. Chemotherapy is utilized for the treatment of PRL, while surgical intervention has demonstrated excellent outcomes in patients.[23] The survival rate showed no improvement with the application of radiotherapy. PRL, despite its historical poor prognosis, can be improved with timely appropriate treatment and identification, leading to a 40% to 50% 5-year survival rate.[13]

Histological type, stage, therapy options, and patient age determine lymphoma prognosis. Marginal zone lymphoma exhibits a 1-year relative survival rate of 94% and a 5-year rate of 87%, indicating a more favorable prognosis compared to T cell or NK cell lymphoma subtypes, which demonstrate a survival rate of only 51%.[24] Patients treated with chemotherapy and surgery had a mean survival duration of 49.4 months, while those treated with chemotherapy alone had a mean survival time of 15.8 months.[25] Patients aged 18–50 years exhibited survival rates of 62.8 months, while those over 50 years had rates of 48.2 months.[13] In contrast, patients aged 0–18 years demonstrated a survival rate of 17.6 months The average survival time for bilateral renal lymphoma was 21 months, while it was 68 months for unilateral renal lymphoma. Reduced survival time and accelerated disease progression are correlated with younger age and bilateral PRL.[26] In patients with primary renal lymphoma, chemotherapy should be combined with surgery, radiation, or other treatments. Lesion diameters exceeding 10 cm, extensive renal infiltration, and renal hilum involvement were associated with poor prognosis.[27] Renal involvement at initial diagnosis is associated with a reduced prognosis and an increased risk of central nervous system relapse.

Renal function improvements have been observed within 2 to 4 weeks following chemotherapy.[28] In summary, lymphoma is a rare diagnosis with varied radiological manifestations, presenting two main challenges for radiologists. The initial challenge involves distinguishing renal lymphoma from RCC, while the subsequent challenge pertains to differentiating between PRL and SRL. Histopathology, recognized as the definitive diagnostic method, can distinguish between renal lymphoma and RCC but cannot discriminate between PRL and SRL.[14] Certain imaging-based diagnostic criteria for primary renal lymphoma, particularly the lack of extrarenal visceral or nodal involvement, can reliably distinguish primary from SRL. Radiologists must recognize both typical and unusual renal lymphoma imaging characteristics, follow PRL diagnostic criteria, and advocate image-guided percutaneous biopsy for pathological confirmation to avoid unnecessary nephrectomy. Timely diagnosis and appropriate management are associated with positive outcomes.

This literature review exhibited multiple limitations. All follow-up data were sourced from various article references, resulting in differing follow-up periods. Further studies are necessary to evaluate the prognosis of the disease. Pathological diagnosis is crucial for the early identification of PRL. In cases where PRL presents with bilateral and diffuse patterns, as observed here, diagnosing based on clinical and biochemical characteristics can be challenging, since PRL may clinically resemble refractory medical renal disease. Therefore, any radiologic or clinically suspected lymphoma would need to be confirmed by a kidney biopsy. A biopsy is crucial after diagnosing renal lymphoma, particularly PRL, to initiate timely treatment and enhance the likelihood of a cure in patients. Furthermore, kidney biopsy is essential for confirming the specific subtype of lymphoma, thereby facilitating the application of appropriate treatment.

4. CONCLUSION

Various base metal alloys that are often used in porcelain fused to metal with some limitations that exist from fifteen literatures This case reports presented the abdominal abnormality in this case is chronic colic abdomen. Abdominal colic caused by PRL. PRL predominantly impacts middle-aged individuals, with the typical age of onset being over 40 years. This research requires other supporting examinations such as biopsy. The primary treatment for PRL is chemotherapy, which is preferred over surgery. However, no improvement in survival rates was observed with the use of radiotherapy.

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