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Case Report

A renal inflammatory myofibroblastic tumor similar to nephrapostasis

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Abstract: Renal inflammatory myofibroblastic tumor (IMT) rarely presents clinically with a picture of nephrapostasis especially in an elderly female patient. A 69-year old woman presented with a 2-month history of left flank pain. Abdominal computed tomography (CT) demonstrated a huge cystic tumor on the left kidney concerning for infection. Under the impression of renal abscess, a laparoscopic renal cyst decortication was performed. Intraoperative frozen sections showed simple renal cyst. However, the postoperative histologic examination showed myofibroblastic spindle cells accompanied by an inflammatory infiltration of plasma cells and lymphocytes, arguing against the diagnosis of a cyst of kidney. Immunohistochemical staining was positive for Vimentin, SMA, CD68, λ chain and κ chain, negative for Desmin, P53, ALK, CK and CD117, confirming the diagnosis of IMT. And the culture of cystic fluid revealed the presence of escherichia coli. Over the course of long-term follow-up after surgery, the patient recovered and did not have recurrence or metastasis.

Keywords: Inflammatory myofibroblastic tumor, nephrapostasis, renal cyst

Introduction

An inflammatory myofibroblastic tumor (IMT) is a benign neoplasm that can affect nearly all parts of the body. IMT is common in the lungs, but it rarely occurs in the kidney [1]. Cystic change in a renal inflammatory myofibroblastic tumor is even rare, especially in an elderly woman. We report one case of renal IMT with its imaging findings similar to cyst of the Kidney. And observation of intraoperative frozen sections allowed us to diagnose it as renal abscess. However, postoperative histologic examination showed cystic IMT, which was confirmed by immunohistochemical staining.

Case report

A sixty-nine-year-old diabetic female with a history of complaint of left flank distending pain for one month visited to the urologist. On history and physical examination, the patient denied hematuria, lower urinary tract symptom or recent weight loss, but a cystic mass was shown in the upper left abdomen with slight tenderness. Laboratory analysis showed nothing abnormal, including the urinary routine examinations. Renal and bladder ultrasound (US) was requested, which showed an abnormal left kidney with a cyst measuring 6.4×5.5×6.0 cm with focal calcification. Computerized tomography (CT) of the abdomen and pelvis confirmed the renal cyst with calcification of the cystic wall. An approximately 6.5×5.5 cm round-like exophytic cyst lesion with sharp margins at the middle of the left kidney was revealed (**Figure 1A**). After contrast enhancement, moderate heterogeneous enhancement was seen in the wall of the cyst (**Figure 1B**). Fat liquefaction image was showed around the lesion, which leading to a suspicion of intratumor infection. The tumor was classified as category III according to Bosniak's classification of renal cystic disease, but the possibility of cyst-associated malignant lesion could not be ruled out. The patient underwent laparoscopic left renal cyst decortication. After the resection of the cyst wall, abscess was showed in the cyst and sent for bacterial cultivation, cyst wall transported to the department of pathology for intraoperative rapidly frozen examination. Histopathological examination showed simple the wall of renal cyst with inflammatory reaction

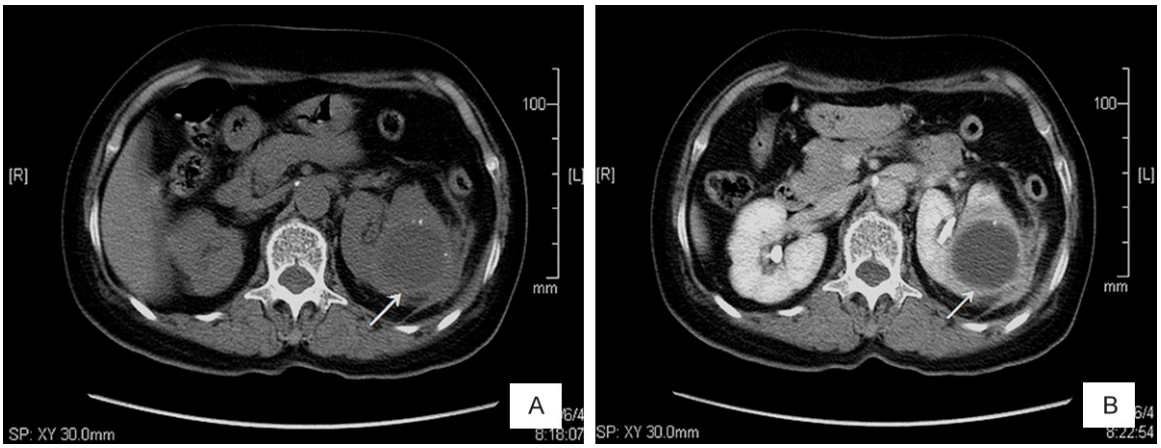

Figure 1. A. CT of the abdomen showed a renal exophytic cyst with sharp margins measuring about 6.5×5.5 cm. B. After contrast enhancement, the wall of the cyst showed moderate heterogeneous enhancement.

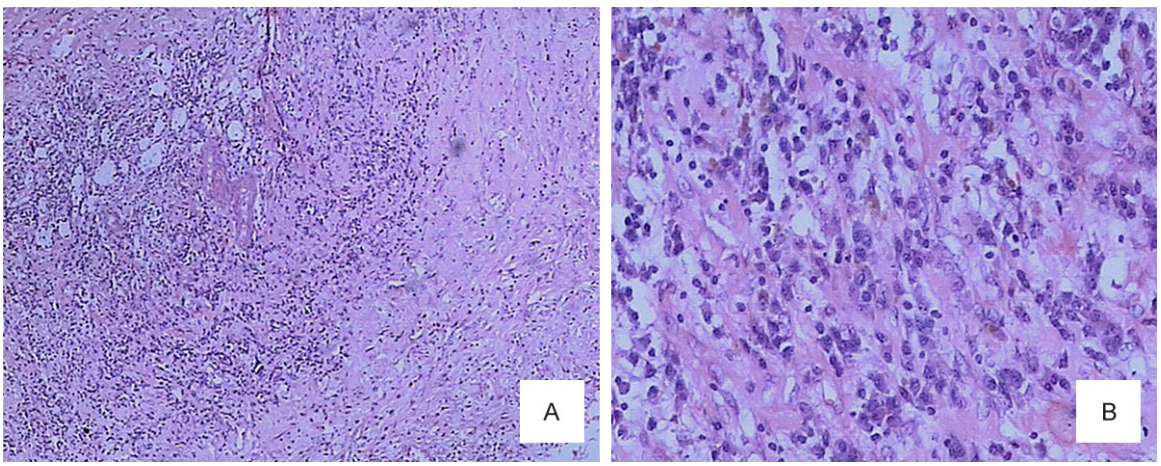

Figure 2. Histology showed a proliferation of spindle cells and a large inflammatory infiltration (A×4; B×20).

with no obvious malignant cells. A week later, postoperative pathology denied cyst, showing a proliferation of spindle cells and a large inflammatory infiltration of predominantly plasma cells and lymphocytes with mono-nucleus (**Figure 2**). Immunohistochemical staining was positive for Vimentin (**Figure 3A**), SMA (**Figure 3B**), CD68 (**Figure 3C**), κ chain (**Figure 3D**) and λ chain, negative for Desmin, P53, ALK, CK and CD117, supporting for a diagnosis of inflammatory myofibroblastic tumor. And the culture of abscess showed the presence of escherichia coli. With a follow-up of a year and five months, the patient remained asymptomatic with no recurrence or metastasis.

Discussion

An IMT as a lung lesion was first reported in 1973. The lung is the main invasion site, but urinary system rarely occurs. IMTs develop commonly in children and young female adults, the occurrence in elderly patients are extremely rare [2]. According to the location of the tumor, clinical presentation is variable. These nonspecific symptoms can include fever, flank pain or palpable abdominal mass, and it may be combined that laboratory findings are nonspecific such as iron deficiency anemia [3]. Our case of IMT mimicking nephrapostasis is the first report in elderly female. These lesions generally have been identified on imaging studies via US, CT and/or MRI, which are non-specific, and the preoperative exclusion of malignancy in these lesions is not easy [4].

Aetiopathogenesis is not clear yet, which is likely to be multifactorial, including infection, vascular causes and autoimmune disorders. However, the ALK gene fusion has been identified,

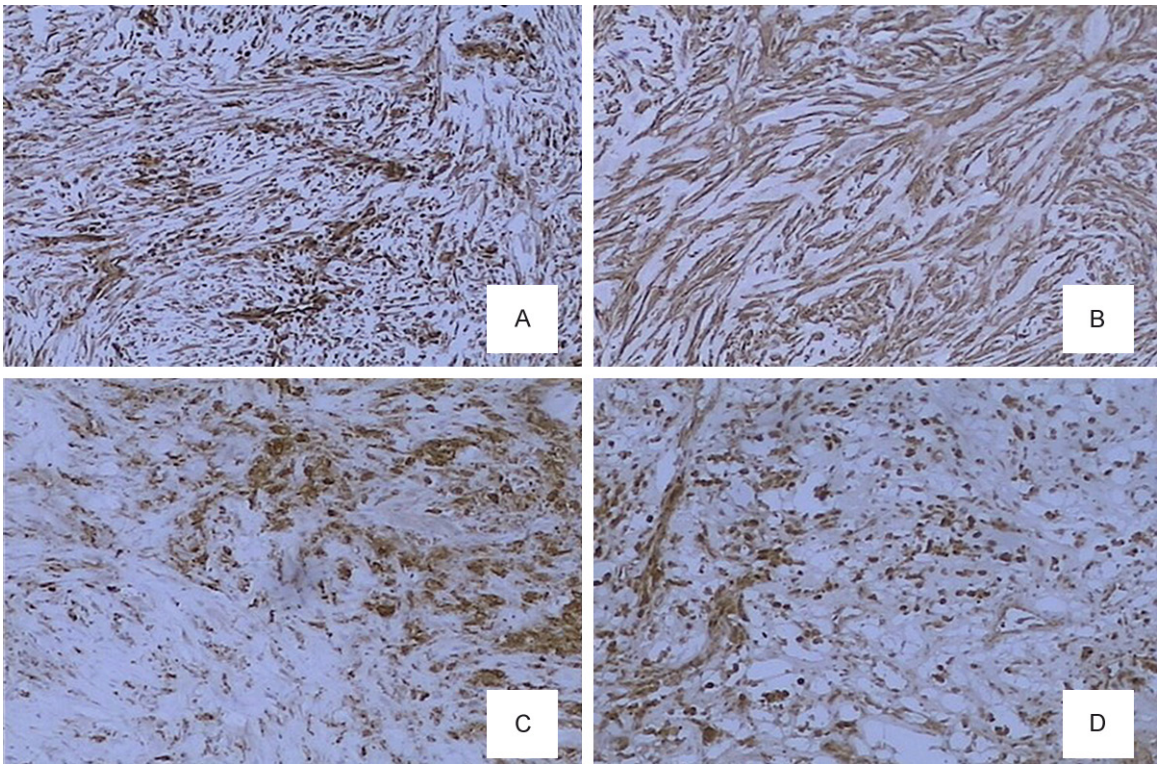

Figure 3. Immunohistochemical staining was positive for Vimentin (A×10), SMA (B×10), CD68 (C×10) and κ chain (D×10).

allowing an improved recognition of the pathogenesis of IMT from the genetic aspect [5]. Histopathologically, IMT characteristically consists of spindle cells with an infiltration of plasma cells, lymphocytes and eosinophils. Due to nonspecific clinical or imaging symptoms, diagnosis can only be achieved by surgical biopsy [6]. In our case, cyst wall was sent for intraoperative rapidly frozen pathological examination, and diagnosis was simply the wall of renal cyst with inflammatory infiltration. Postoperative histopathology and immunohistochemistry support for a diagnosis of renal inflammatory myofibroblastic tumor with cystic change, reflecting the limitation of frozen pathological examination.

Treatment modalities include surgery, high-dose steroids, irradiation and chemotherapy. Spontaneous regression may occur in some cases of IMT [7]. Surgical resection is the mostly preferred treatment, including nephrectomy and conservative surgery of the lesion [8]. The outcomes of renal IMT are generally benign with no recurrence reports [9], leading to the choice of partial cystectomy or partial nephrectomy which is a sufficient treatment. Although rare, renal IMT should be kept in mind in the differential diagnosis of a solitary renal mass with cystic change in an elderly woman.

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Disclosure of conflict of interest

None.

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