Myxoma of the Kidney Associated with Hemorrhage

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Abstract Myxomas are relatively rare tumors and most of them occur in the heart, skin, and soft tissues and bones. Renal myxomas are extremely rare neoplasms and very few cases have been reported in the literature. A review of medical literatures reveals no previous description of renal myxoma complicated with extensive areas of hemorrhage. So, we report such a case in a 43-year-old female. She had a left renal mass incidentally discovered during ultrasonography at a regular health checkup, and further computed tomography scan showed 4.9×3.1 cm mass with circular septal enhancement and ill-defined margin with the left psoas major muscle. Radical nephrectomy was performed because of suspected malignant renal tumor. Postoperative histopathology of resected specimen revealed the typical appearance of a myxoma associated with extensive hemorrhage.

Keywords Renal myxoma · Complication · Hemorrhage · CT · Treatment

Introduction

Myxoma was first described by Virchow in 1863 and was considered benign fibroblastic tumor. Myxoma may occur in a variety of tissues, but renal myxoma is an extremely rare

entity. Due to its rarity, renal myxoma is often mistaken for other malignant lesions. The differential diagnosis of myxoid tumors of the kidney includes many other benign and malignant soft tissue lesions that exhibit prominent secondary myxoid features. Therefore, it is vitally important to distinguish renal myxoma from the malignant neoplasms having secondary myxoid features in the kidney. Only 13 cases have been reported in English literature till date. The present article reports an additional case of renal myxoma, different from the reported cases earlier, as it was associated with extensive hemorrhage.

Case Report

A 43-year-old female was admitted to our hospital because she had a left renal mass incidentally discovered during ultrasonography (USG) at a regular health checkup. Her previous medical history was unremarkable. Physical examination detected no palpable mass in the abdomen. The only abnormal laboratory finding was urinalysis with minimal red blood cell. Tumor markers including CEA, AFP, CA125, and CA199 were within normal limits. Abdominal computed tomography (CT) scan indicated the presence of a round, ill-demarcated, inhomogeneous lesion located in the mid-upper portion of the left kidney. After intravenous contrast, a lesion measuring 4.9×3.1 cm was seen with circular septal enhancement and ill-defined margin with the left psoas major muscle (Fig. 1). There were no enlarged perirenal or paraaortic lymph nodes, and the rest of the abdominal organs appeared to be normal. Bone scan and chest CT scan showed no evidence of distant metastasis. Intraoperatively, a mass originating from mid-upper posterolateral aspect of the left kidney partially adhering to psoas major muscle was seen. Radical nephrectomy was performed because of suspected malignant renal tumor. On

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Fig. 1 Contrast-enhanced CT scan of the abdomen showing heterogeneous mass with septal enhancement

sagittal cut surface, a well-circumscribed mass measuring 4.9×3.1 cm with multiple hemorrhagic cysts and scattered yellowish tissue was noted in the middle-upper portion of the left kidney (Fig. 2). Histopathological examination revealed the typical appearance of a myxoma associated with extensive hemorrhage, which was composed of large amounts of myxoid material containing a few uniformly scattered spindle cells and patchy red blood cell aggregation (Fig. 3). Postoperative course was uneventful, and the patient was discharged from hospital on the ninth day and remained free of disease on the 2 years follow-up.

Discussion

Myxoma was described first by Virchow in 1863 [1–4], and Stout established the basic histological criteria for its diagnosis in 1948 [3]. Myxoma was considered a benign fibroblastic tumor because its cellular components are devoid of pleomorphism and nucleoli, and mitotic features are not evident. Myxomas can be located in the skin, soft tissue, bone, juxta-articular space, sinusoidal cavity, maxillary

Fig. 2 Cut surface of resected specimen showing a well-circumscribed mass with multiple hemorrhagic cysts and scattered yellowish tissue

Fig. 3 Histopathological examination showing typical appearance of a myxoma containing myxoid material, scattered spindle cells, and hemorrhage

antrum, and in various organs or viscera [3]. Organ myxoma may be observed in the eye, heart, ovary, and kidney. The histogenesis of renal myxoma remains unclear. Some authors have considered it to be a degenerative change found in adipose tissue in brown atrophy of the heart or similar to the myxoid changes in uterine leiomyoma. The others have believed that the uniform cellular component throughout the lesion supports a neoplastic nature rather than a regressive change within a preexisting tumor. The cellular origin of the tumor has been contemplated to be primitive mesenchymal cell with fibroblast-like features [3]. Including our case, only 14 cases have been reported till date. Except for our case, the data of 13 cases are listed in Table 1. So far, no specific clinical presentations have been documented for renal myxoma due to limited study. Myxoma has not been situated in classification of mesenchymal tumor of the kidney in the textbooks yet.

USG can be used for initial investigation, but CT scan and magnetic resonance imaging have been shown to be more promising in diagnosing this disease. The disease has variable features including ours in myxoma associated with hemorrhage, which was seen with obscure hyperdensity in nonenhanced CT scan. This hyperdensity, a sign of suspected renal cancer, perplexes our diagnostic thought before operation. In combination with postoperative histopathological outcome, multiple cystic structures with mildly enhanced wall are strongly diagnostic clues for myxoma after a careful evaluation on a thin-sliced contrast-enhanced CT images and its reconstructed images. On magnetic resonance imaging of the reported cases, it is mostly demonstrated as semisolid/semicystic mass occupying the kidney. It was homogeneous low signal intensity on T1 and heterogeneous high signal intensity on T2-weighted pulse

Table 1 Clinicopathologic data of 11 cases of renal myxoma

Serial no.	Authors	Age/sex	Presenting symptoms	Location/site	Size (cm)	Imaging findings	Treatment	Outcome/follow-up
1.	Appel et al. [6]	No/no	Hematuria for 2 months	Right parapelvic	8	Excretory urogram—a mass in the upper pole, compressing and obstructing the upper calyceal system Renal angiogram—entirely avascular space occupying lesion in the upper central portion, lesion seemed clearly to be cystic	Enucleation of mass	7th postoperative follow-up, excretory urogram showed improvement of the right upper pole collecting system
2.	Shenansky et al. [7]	62/male	Hematuria for 6 months	Right lower pole	4	Excretory urogram—right kidney mass with medial displacement of inferior calyx and infundibulum confirmed by retrograde pyelography Arteriography—splaying of the inferior pole vessels within the right kidney but no abnormal vasculature	Nephrectomy	The patient recovered without incident
3.	Melamed et al. [5]	52/female	Renal colic	Left lower pole	7	NA	Nephrectomy	NA
4.	Melamed et al. [5]	68/female	Asymptomatic	Right upper pole	10	NA	Nephrectomy	NA
5.	Kundu et al. [8]	36/male	Hypochondrium mass for 2 months	Left renal parenchymal mass	28	Intravenous urography—huge mass in the left renal area without any dye excreting from the left kidney Ultrasonography—solid mass (echoic) in the left kidney	Nephrectomy	Disease free till the reporting of the case
6.	Val-Bernal et al. [9]	37/male	Asymptomatic	Right renal capsule	6	Abdominal echography and CT—a solid low density mass in the medium segment of the right kidney. The mass intruded into the perirenal tissue	Nephrectomy	Disease free in 8 months follow-up
7.	Owari et al. [4]	62/male	Asymptomatic	Right kidney—middle portion	8	CT—well-defined mass MRI—T1W1—homogeneous low signal intensity T2W1—heterogeneous high signal intensity	Nephrectomy	Disease free in 13 months follow-up
8.	Nishimoto et al. [10]	36/male	Asymptomatic	Left lower pole	9	CT—low density, slightly enhanced on contrast MRI—T1W1—low signal intensity T2W1—high signal intensity	Nephrectomy	The patient recovered without incident.
9.	Bolat et al. [3]	27/female	Asymptomatic	Left lower pole	15	T1C ⁺ Gd—homogeneous enhancement MRI—well-defined semisolid/semicystic mass T1W1—homogeneous low signal intensity T2W1—heterogeneous high signal intensity	Nephrectomy	Disease free in 1 year follow-up
10.	Hakverdi et al. [1]	59/male	Lower urinary tract infection	Right upper pole	6	USG—well-defined mass CT—low density mass	Nephrectomy	No follow-up
11.	Yildirim et al. [2]	82/male	Dysuria, urinary obstruction and flank pain	Left renal sinus	9	USG—solid, heterogeneously echogenic CT—low density mass	Nephrectomy	No follow-up

Two more case reports of renal myxoma by Nishimoto et al. [11] and Koike et al. [12] are not mentioned in the above table due to inaccessibility of the full text
 NA not available due to inaccessibility of the full text (The patient's information in no. 3 and 4 is acquired from other article mentioned), No not mentioned in the article

sequences. On gadolinium enhancement image, it may present with homogeneously enhanced mass. But due to its cost and availability, it is limited to certain centers only. Although imaging investigations provide some valuable information [5], almost all the reported cases are definitively diagnosed based on the pathological result of radical nephrectomy. Till now, all the cases except one underwent nephrectomy. In our opinion, under imaging guidance, percutaneous biopsy could be a better option in future to save the kidney, as the tumor is benign. Three-dimensional, volume-rendered CT integrates all of the necessary information previously obtained by conventional CT, angiography, venography, and pyelography into a single preoperative test, allowing better operative planning with maximal preservation of unaffected parenchyma in the remnant kidney.

It is essential to distinguish renal myxoma from other tumors exhibiting prominent secondary myxoid features. They are composed of perineurioma, myxoid neurofibroma, myxoid leiomyoma, myxolipoma, and myxoid variants of malignant fibrous histiocytoma, leiomyosarcoma, rhabdomyosarcoma, and extraskeletal chondrosarcoma [1, 3]. Tumor enucleation of renal myxoma would be enough whenever condition permits and overall prognosis of this disease is good.

Conflict of Interest No conflict of interest is declared by authors.

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