

Accidental finding of renal myxoma and a literature review

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Abstract

We present the case of a middle-aged Chinese woman who presented as asymptomatic; however, we found an irregular right renal mass in this patient. She underwent partial nephrectomy after comprehensive evaluation, and she was finally diagnosed with renal myxoma according to pathological and immunohistochemical studies. Myxomas are rare, benign, soft-tissue tumors that mainly occur in the heart and skin, although various anatomical locations have been described. The kidneys are a rare location of myxoma; thus, renal myxomas may easily be misdiagnosed. To date, approximately 17 cases of renal myxoma have been reported in the English literature since 1968. All the patients in these cases underwent nephrectomy as treatment, and were disease-free on follow-up. Postoperative pathology facilitates a decisive diagnosis that differentiates benign from malignant myxoma, which is vital for the following treatment and prognosis.

Key words: kidney; myxoma; neoplasm; urology

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Case Report

A 45-year-old woman was hospitalized because of a right renal area mass that was incidentally discovered using abdominal plain and enhanced computed tomography (CT) at her routine health examination. She had no significant past, present, or family history, and her general and systemic examination results were normal. The laboratory examination results, including biochemical and hematological investigations, urinalysis, coagulation, cortisol, and aldosterone, were within normal limits. CT of the abdomen (Fig. 1) demonstrated a low-density mass (52 mm × 44 mm) in the right renal area. After comprehensive condition assessment, case discussions, and receipt of informed consent of the patient, laparoscopic exploratory surgery was performed to verify the actual location of the mass. During the exploratory operation, the mass was found to be located in the right renal upper pole, and laparoscopic right partial nephrectomy was finally performed. The specimen was sent for histopathological and immunohistochemical

examinations. The slice surface of the tumor showed a pale yellow, soft, and translucent texture with an intact capsule. Microscopically, the tumor was composed of a large amount of myxoid material and showed scattered distribution of spindle cells and nuclear staining with a wavy pattern (Fig. 2). The results of immunohistochemical analysis showed that the cells stained strongly positive for cluster of differentiation (CD)34 and smooth muscle actin; weakly positive for CD68 and DOG-1; cytokeratin, S-100, B-cell lymphoma-2, and CD99 staining yielded negative results.

According to the histological and immunohistochemical results, renal myxoma was the final pathologic diagnosis. The patient had an uneventful hospital course, and was discharged on the 15th postoperative day.

Discussion

Myxomas are benign neoplasms derived from connective tissue, consisting chiefly of polyhedral and stellate cells that are loosely embedded in a soft mucoid

Table 1 Summary of 17 case reports of renal myxoma

Publish Year	Author	Symptoms	Age/Sex	Site	Size (cm)	Imaging Examination	Treatments
1968 ^[5]	Appel <i>et al</i>	Hematuria for 2 months	No / No	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
1973	Shenansky <i>et al</i>	Hematuria for 6 months	62 / Male	Right renal 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
1994	Melamed <i>et al</i>	Renal colic	52 / Female	Left renal lower pole	7	Not available	Nephrectomy
1994	Melamed <i>et al</i>	Symptomless	68 / Female	Right renal upper pole	10	Not available	Nephrectomy
1995	Kundu <i>et al</i>	Hypochondrium mass for 2 months	36 / Male	Left renal parenchymal mass	28	Intravenous urography: huge mass in the left renal area without any dye excreting from the left kidney USG: solid mass (echoic) in the left kidney	Nephrectomy
2005	Val-Bernal <i>et al</i>	Symptomless	37 / Male	Right renal capsule	Diameter: 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
2006	Owari <i>et al</i>	Symptomless	62 / Male	Right renal middle portion	Diameter: 8	CT : well-defined mass MRI: T1WI —homogeneous low signal intensity T2WI —heterogeneous high signal intensity	Nephrectomy
2007	Nishimoto <i>et al</i>	Symptomless	36 / Male	Left renal lower pole	9 × 7 × 6	CT: low density, slightly enhanced on contrast MRI: T1WI —low signal intensity T2WI: high signal intensity T1C+Gd—homogeneous enhancement	Nephrectomy
2007	Bolat <i>et al</i>	Symptomless	27 / Female	Left renal lower pole	15 × 14 × 7	MRI: well-defined semisolid/semicystic mass T1WI: homogeneous low signal intensity T2WI: heterogeneous high signal intensity	Nephrectomy
2010 ^[6]	Cao Dianbo <i>et al</i>	Symptomless	43 / Female	Left renal mid-upper portion	4.9 × 3.1	MSCT: abnormal density mass, 20–40 HU. Edge enhancement	Nephrectomy
2010 ^[7]	Hakverdi <i>et al</i>	Lower urinary tract infection	59 / Male	Right upper pole	Diameter: 6	USG: well-defined mass CT: low density mass	Nephrectomy
2012 ^[8]	Yildirim <i>et al</i>	Dysuria, urinary obstruction and flank pain	82 / Male	Left renal sinus	Diameter: 9	USG: solid, heterogeneously echogenic CT : low density mass	Nephrectomy
2013 ^[9]	Abhishek Shah <i>et al</i>	Symptomless	43 / Female	Left renal mid-upper portion	4.9 × 3.1	CT: round, ill-demarcated, inhomogeneous lesion; Intravenous contrast: circular septal enhancement and ill-defined margin	Nephrectomy
2014 ^[2]	Gomez-Gonzalez C <i>et al</i>	Renal insufficiency	29 / Female	Left kidney interpolar region	Diameter: 4.4	MRI: cystic lesion T1WI: low intense mass T2WI: hyperintense mass	Nephrectomy
2015 ^[4]	Kamlesh S. Suthar <i>et al</i>	right side dull-aching abdominal pain	48 / Female	Right kidney mid and lower pole	6.7 × 6.1 × 7.4	USG : ill-defined hypoechoic mass; CT: hypodense well defined mass with exophytic component	Nephrectomy
2017 ^[3]	Somuah Tenkorang <i>et al</i>	right dull flank pain	50 / Female	Right kidney mid-portion	4×3.5	CT : hypodense well-defined mass; slightly enhanced after intravenous contrast measuring 61 HU	Nephrectomy
2017 ^[10]	Parth Thakker <i>et al</i>	abdominal pain	55 / Female	Right kidney upper pole	Diameter: 1.7	CT: hypodense exophytic lesion MRI: Exophytic mass T1WI&T2WI: hypointense mass	Nephrectomy

This table is reorganized and supplemented from the case report published by Abhishek Shah *et al*^[9]

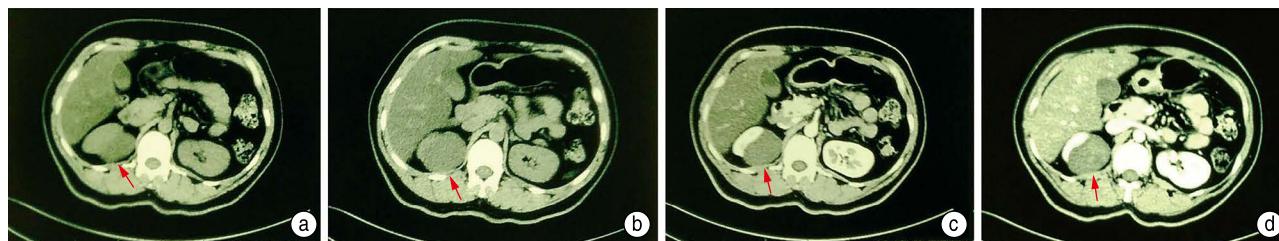


Fig. 1 (a) CT showed a low-density mass (52 mm × 44 mm) can be found in the right adrenal area (the position of the arrow indicating). The edge of the mass was clear and closely related with the right adrenal and right kidney; (b, c and d) The CT scan value is 18 HU, and a contrast-enhanced scan showed progressive enhancement. CT, computed tomography

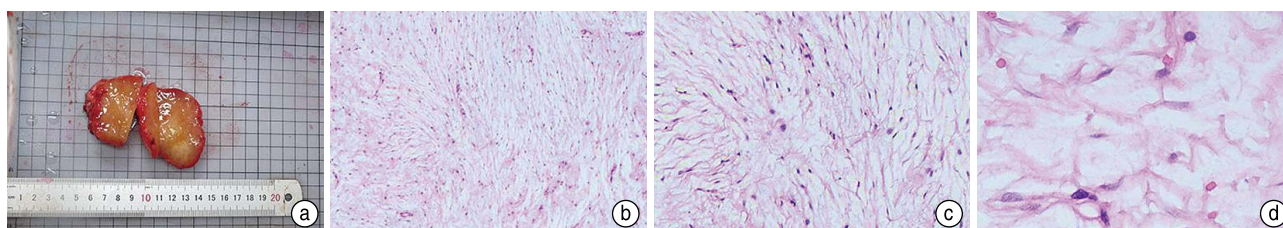


Fig. 2 (a) Pale yellow tumor (7 × 5 × 3 cm), with soft and translucent texture slice surface and intact capsule; (b) HE staining × 40; (c) HE staining × 100; (d) HE staining × 400. Large amount of myxoid material, scattered distribution of spindle cells, nuclear staining with a wavy pattern, and a small number of collagen fibers between the tumor cells were observed

matrix, thereby resembling primitive mesenchymal tissue. They occur frequently intramuscularly, so they may be mistaken for sarcomas. Myxomas are rare, benign, soft-tissue tumors that mainly occur in the heart and skin, although various anatomical locations have been described for these tumors [1].

The kidneys are a rare location of myxomas; thus, renal myxomas may easily be misdiagnosed. Differential diagnoses should be made considering other possible renal benign mesenchymal tumors, such as leiomyomas, hemangiomas, lymphangiomas, neurofibromas, solitary fibrous tumors, schwannomas, and glomus tumors. Furthermore, renal myxomas should also be differentiated from other benign and malignant mesenchymal tumors with myxoid transformation, considering myxoid neurofibromas, myxoid leiomyomas, myxolipomas, and the myxoid variant of malignant fibrous histiocytomas [2].

The kidneys are an unusual location of myxoma; to date, approximately 17 cases of renal myxoma have been reported in the English literature since 1968. Except for our case, the data of 12 cases were summarized in a case report in January 2013, and 5 more cases have been reported since 2013. We reorganized the data of these 17 cases in Table 1. Documented cases of this tumor have shown no difference between men and women; most of the reported patients were asymptomatic and diagnosed incidentally, and few patients had abdominal pain [3].

Radiological methods like ultrasonography, CT, and magnetic resonance imaging are helpful in diagnosis and

management. Due to the suspicion of malignancy in these tumors, radical nephrectomy is usually performed, like in our case [4].

Renal myxoma is a benign tumor and usually an incidental finding. Radiographic studies play an important role in differential diagnosis, while also providing reference values in choosing surgical procedures and accurate positioning during the surgery. The postoperative pathology facilitates a decisive diagnosis that differentiates benign from malignant myxoma, which is vital for the following treatment and prognosis.

Conflicts of interest

The authors indicated no potential conflicts of interest.

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