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# Mixed epithelial and stromal tumor of the kidney: a case of a rare renal tumor presenting in a perimenopausal female

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A 45-year-old female with a history of urinary tract infection presented to our clinic with a left flank pain, fever, and dysuria. Her medical and family history was unremarkable, without a history of hormone therapy. Left pyelonephritis was suspected, and a CT abdomen/pelvis was performed for the diagnosis (Fig. 1).

CT revealed a left multilocular relatively well defined predominantly cystic mass with associated mild heterogeneous, delayed enhancement within the septa and solid component on postcontrast sequences in the lower pole. The mass extends into the renal pelvis and collecting system.

MRI of the abdomen was performed for further evaluation and showed similar findings, including multilocular predominantly cystic mass with thick internal septa. Associated extension into the collecting system and delayed enhancement of septa and solid component was also noted (Fig. 2). Metastatic disease was ruled out. Cystic renal malignancy was suspected, and the patient underwent a left lower pole partial nephrectomy. The surgical margins of the specimen were clear.

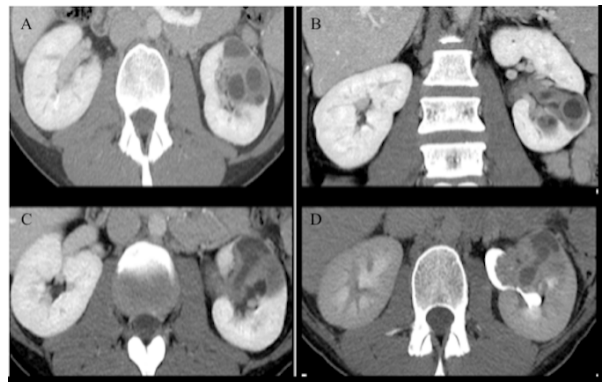


**Figure 1:** Contrast-enhanced computed tomography (CT) scan (postcontrast sequences): a relatively well defined 4.0 x 3.5 cm predominantly cystic mass with associated mild heterogeneous, delayed enhancement within the septa and solid component on postcontrast sequences in the lower pole (A, B, and C). The mass extends into the renal pelvis and collecting system, causing a filling defect on the excretion series (D). The largest septum measures up to 0.9 cm

Immunohistochemical stains revealed that the tumor stromal cells were positive for estrogen and progesterone receptors in the postsurgi-

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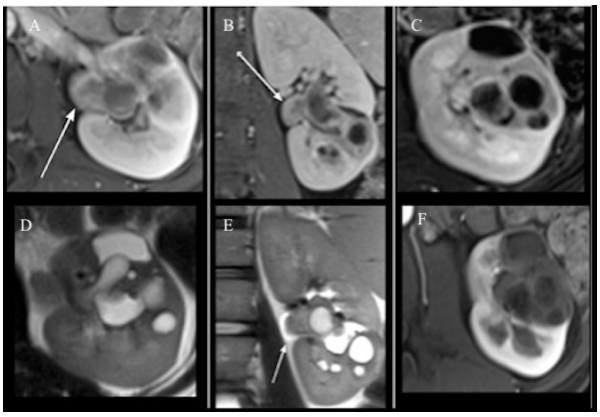


**Figure 2.** Magnetic resonance imaging (MRI) of abdomen and pelvis: Transverse sections show multiloculated predominantly cystic mass with internal thick septa and solid components. Associated extension into the renal pelvis/collecting system (white arrows on A, B, and E) and delayed enhancement of septa and solid component (C and F)

cal specimen, supporting the diagnosis of mixed epithelial and stromal tumor. Microscopically, the tumor was composed of epithelial-lined cysts and stromal spindle cells, which mimic ovarian stroma by expressing estrogen and progesterone receptors. The postoperative course was unremarkable and at the follow-up, with a CT nine months after surgery, the patient was free of recurrence or metastases.

The mixed epithelial and stromal tumor of the kidney (MEST) is a rare and benign renal neoplasm originating from Mullerian-like stromal cells, accounting for 0.2% of all renal cancers [1, 2].

Approximately 100 cases of MEST have been reported in the literature, with the tumor occurring almost exclusively in perimenopausal women [3].

It appears that MEST incidence in perimenopausal women and women taking hormone replacement therapy are significantly correlated, suggesting a hormone-triggered mechanism [3].

Symptoms such as hematuria, flank pain, a palpable mass, or urinary tract infection are the most clinical presentation in the patients.

Generally, metastasis or recurrence of the MEST is not expected. However, MEST demonstrating malignant transformation and metastasis was reported in a few cases. Postoperative follow up of patients is necessary for ruling out the malignant transformation, although it is rare [3].

The tumor typically manifests as a multiloculated cystic renal mass, containing a variable proportion of solid and cystic components, containing internal septa, and showing heterogeneous, delayed enhancement on cross-sectional imaging. Herniation of the tumor into the renal collecting system may mimic urothelial carcinoma [3].

Preoperative diagnosis of MEST is challenging due to the lack of specific clinical aspects. Imaging studies cannot always differentiate MEST from other renal tumors, especially cystic renal carcinoma due to similarity in gross morphology. The definitive diagnosis is generally made by histopathology examination of intraoperative frozen specimens [3].

Top differential diagnosis includes cystic renal cell carcinoma, complex renal cyst, renal abscess, adult cystic nephroma, and multicystic dysplastic kidney.

We highlight the importance of considering MEST, which is rare, recently described, and overall a benign tumor with a good prognosis as a differential diagnosis of a renal multiloculated cystic mass in a perimenopausal woman.

### Conflict of interest

The authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

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