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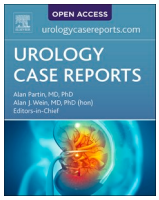

Oncology

Mixed epithelial and stromal tumor of the kidney: A case report in elderly male patient

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ABSTRACT

Mixed epithelial and stromal tumor (MEST) is very rare neoplasm of the kidney, commonly affecting women at menopausal age. MEST is usually considered a benign tumor with low risk of local recurrence or distance metastases. Our case presents a case of a 66 years old male patient with a complex cystic lesion of the left kidney incidentally diagnosed on urinary tract computerized scan (CT) performed for other reasons. The patient underwent a radical nephrectomy. The pathology report came back as MEST of the kidney. The present case report highlights the asymptomatic presentation of MEST as a benign renal masses.

1. Introduction

Mixed epithelial and stromal tumor (MEST) is very rare tumor of the kidney,[1] with around 100 cases having been described in the literature.[2]

It has been classified as a renal tumor by World Health Organization (WHO) since 2004.[3] Unlike our case, MEST is most commonly diagnosed in women.[1,4] As hormones considered as a risk factor for this tumor, most of MEST were related to women with background of prolonged estrogen therapy. Like renal tumor, asymptomatic presentation is a common clinical presentation of MEST.[1,5] Imaging studies including ultrasound or CT scans usually reveal a cystic lesion containing soft tissue components with Bosniak classification between 3 or 4.[6] Current treatment strategy is based on surgical operation.

We present a case of MEST in a 66-year-old male who presented with an asymptomatic left complex cystic renal mass.

2. Case presentation

66 years old male patient, presented to urology clinic complaining frequency of urination and weak urinary flow. Patient had a medical background history of hypertension, diabetes mellitus type 2,ischemic heart disease with previous one stent insertion and left renal stone treated before by extra-corporal shock wave lithotripsy (ESWL). Physical examination and digital rectal examination(DRE) were unremarkable. Laboratory investigations including complete blood count (CBC), kidney function test (KFT), urine analysis and prostate specific antigen (PSA) all were within normal range. As a part of diagnostic evaluation patient presenting compliant, urinary tract ultrasound performed showing (left renal complex cystic lesion). To investigate this lesion more, urinary tract CT scan was requested which showed (left renal cystic lesion about 3*3.5*3.5 CM, with irregular outline and internal

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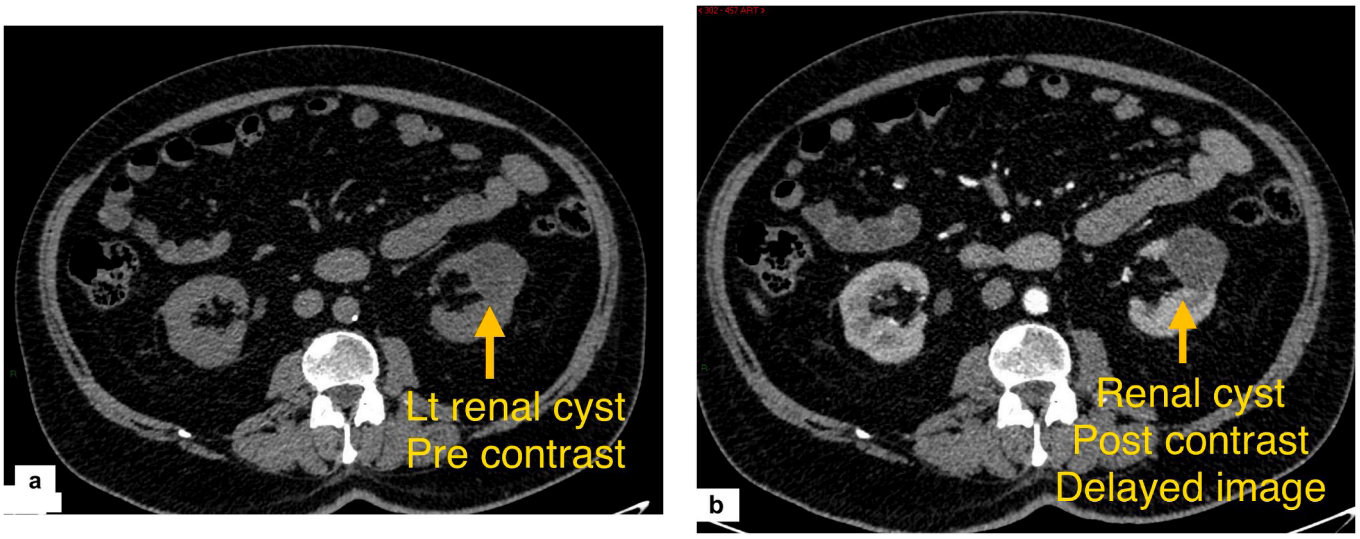

Fig. 1. Imaging evaluation of renal pathology.
1a (left): Computed tomography (CT) scan of the abdomen in the coronal plane, demonstrating a left renal cyst with peripheral calcification, indicative of a benign process.
1b (right): Axial post-contrast CT image obtained during the delayed phase, highlighting a renal cyst with no significant enhancement, consistent with a simple cyst.

nodular calcification, with enhancement more than 15 hounsefield unit compared to pre-enhancement phase),figure (1a and 1b). Result was discussed with patient and plan was to go for radical nephrectomy (as intraoperatively lesion was invading collecting system) which was performed and patient recovery after operation was uneventful. Histopathology report came back as mixed epithelial and stromal tumor, figure (2a,2b and 2c).

Informed written consent was obtained from the patient to report this case.

3. Dicussion

MEST is a very rare neoplasm of the kidney.[7] The majority of diagnosed tumors occurred in women at menopausal age and only a few cases have been reported in men, as in our case.[8,9] with a female affected ten times more than male.[4,6] According to literature, age of diagnosis varied from 17 to 78 years old and most commonly being in 5th decade.[5,8] MEST appears to be more common in women and men with a history of hormonal treatment, reflecting the possibility of sex hormones in the etiology of these tumors.(4).

Like renal tumors, the clinical presentation of MEST may include flank pain, blood in urine, urinary tract infections and abdominal mass.[5] However, about 25 % of patient diagnosed with MEST were asymptomatic and tumor diagnosed incidentally on abdominal imaging.[3]

MEST usually presents as unilateral and solitary kidney lesions. Usually the tumor is well-demarcated,.[8]triphasic CT scan commonly reveals complex cystic lesions, described as III or IV in the Bosniak classification, with solid components and contrast enhancement.[9]

Histopathology characteristics show a tumor with cystic and solid components. While the cystic component is more apparent in adult nephroma, the components of MEST are mainly stromal.[6] The microscopic appearance of both stromal and epithelial is highly variable. The spindle-shaped stromal cells may have hyperchromatic nuclei with scant cytoplasm and sometimes vesicular nuclei with rich cytoplasm. The stromal component can vary in terms of cellularity, which is higher if adjacent to cystic components, but may also be lower. The regions with high cellularity may occasionally resembling ovarian stroma.[1,4] On the other hand, epithelial component may comprise of small glands or branching tubular structures with cuboid or hobnail cells lining.[4]

After staining, nearly 90 % of spindle-shape stromal cells demonstrate positive immunohistochemistry staining for smooth muscle actine, desmin, ER and PR. Positive staining for CD-34, CD-10 and WT1 occurs in about 50 % of cases. The epithelial component stains positive for epithelial markers: PAX8 and GATA3.[8]

Although very rare malignant transformation have been reported in the literature The majority of MESTs are benign lesions, showing no recurrence nor distant metastases.[6] including transformation into papillary renal cell carcinoma, sarcoma, rhabdomyosarcoma or chondrosarcoma.[4]

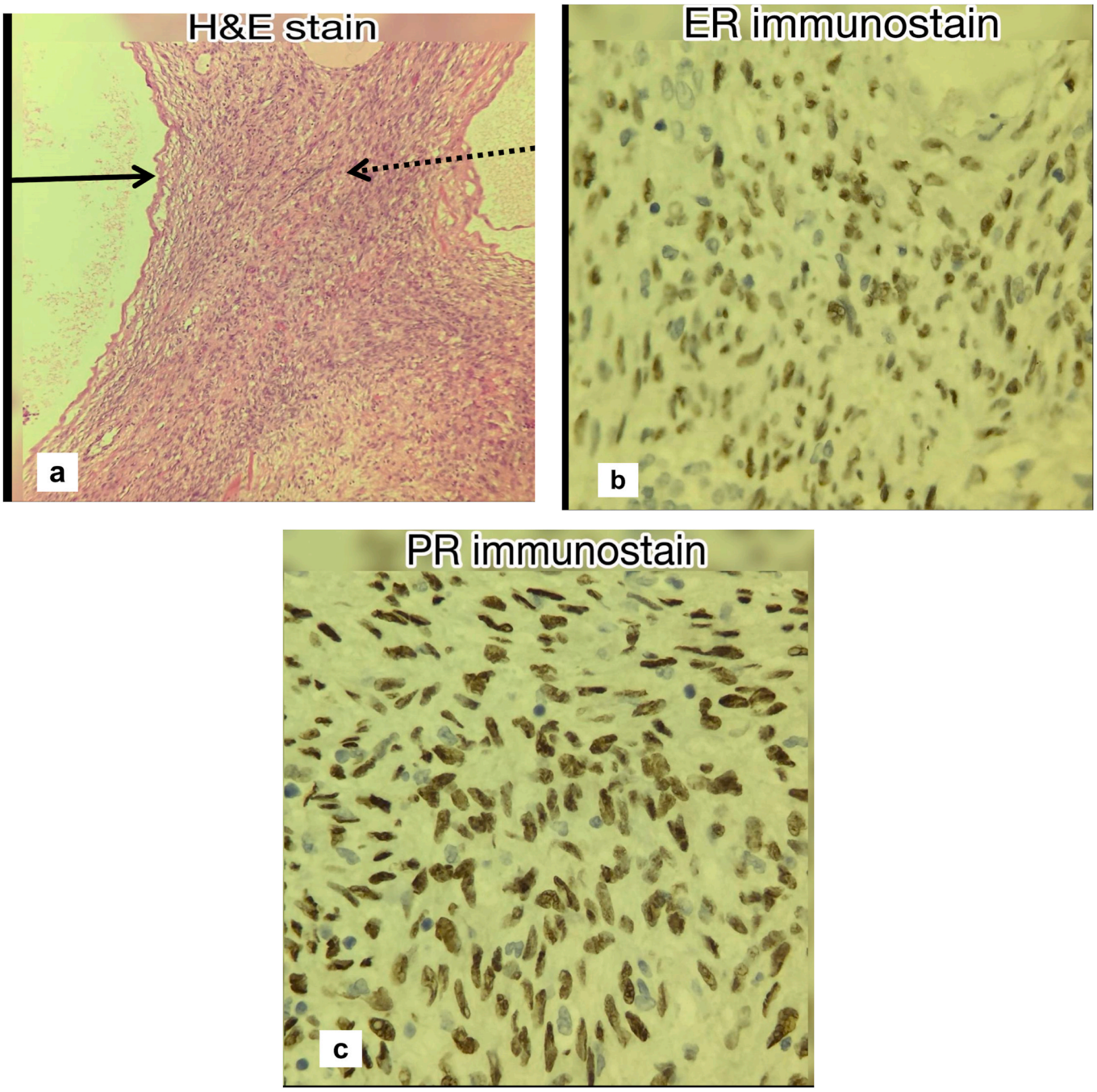

Fig. 2. Comparative immunohistochemical analysis of the cancer tissue sections.
2a (left): Hematoxylin and Eosin (HE) staining highlights the general morphology of the cancerous tissue, showcasing the cellular and structural composition, straight arrow shows attenuated cells lining the cystic structure, dotted arrow shows spindle cell stromal component
2b (center): Estrogen Receptor (ER) staining reveals the presence of ER-positive cells, indicated by the dark staining within the nuclei, suggesting the ER status of the tumor.
2c (right): Progesterone Receptor (PR) staining identifies PR-positive cells, with the intensity of the staining providing insight into the PR status. The sequential representation of HE, ER, and PR staining facilitates a comprehensive understanding of the tumor's pathological characteristics and hormone receptor status, which are crucial for determining appropriate therapeutic strategies.

4. Conclusion

MEST of the kidney is a rare neoplasm. Although local recurrences and malignant transformations have been reported It is considered a neoplasm of benign character. Although rare, it must be in mind in the differential diagnosis of complex cystic lesion on CT or ultrasound.

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Patient consent

The patient provided written informed consent.

CRediT authorship contribution statement

Mohammad Al-zubi: Writing – original draft, Data curation. **Mohammad A. Kraishan:** Resources. **Bilal H. Abu Zaied:** Writing – review & editing. **Thaher Salman:** Formal analysis, Conceptualization. **William GH. Maaiah:** Validation, Software. **Omar R. Atoom:** Writing – review & editing, Validation.

Declaration of Competing interest

The authors declare that they have no competing interests.

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