Urology Case Reports 17 (2018) 122–124

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Oncology

Mixed epithelial stromal tumor of the kidney: The male case and literature review

Cheng-Keng Chuang [a, c, *], Pai-Yen Pan [b, c], Yuting Kao [a, c], Yi-Chun Chou [a, c], Kwai-Fong Ng [a, c], Li-Jen Wang [a, c], Han-Yu Tsai [b, c], Kun-Han Lee [d]

[a] Chang Gung Memorial Hospital, Taoyuan, Taiwan
[b] Medical Student, School of Medicine, Chang Gung University, Taiwan
[c] Urology, Chang Gung Memorial Hospital, 5, Fushing Street, Kweishan, Taoyuan, Taiwan
[d] School of Medicine, Chang Gung University, Chang Gung Memorial Hospital, 5, Fushing Street, Kweishan, Taoyuan, Taiwan

ARTICLE INFO

Article history:
Received 9 September 2017
Received in revised form
8 November 2017
Accepted 28 November 2017
Available online 31 January 2018

1. Introduction

Mixed epithelial stromal tumor of the kidney (MESTK) is a rare genitourinary tract tumor. It was first presented by Michal and Syrucek in 1998.[1] This tumor is characterized by its composition of both stromal solid areas and epithelial elements. Previous reports showed that MESTK attacks mostly middle-aged peri-menopausal women with estrogen therapy history, which indicates a correlation between MESTK and estrogen.[2] However, rare cases were also reported in men and children.[3] Even though malignant cases are rare, but they have also been reported for both genders. Since 2004, MESTK has been included in the World Health Organization renal tumor classification.

1.1. Case presentation

A 44-year-old male visited our hospital because he accidentally found a large palpable hard mass over his left upper abdominal area. There were no symptoms of hematuria, flank pain, irritable urinary symptoms, bowel habit changes nor any body weight loss. Physical examinations were generally normal except for a palpable (10×10 cm) fixed nontender mass over his left upper quadrant area. Laboratory examinations, including urine analysis, were all normal except for a slight elevation of CA19-9 (47.52 U/mL). The recommended upper limit of normal for CA19-9 is 37 U/mL. The urine cytology showed reactive urothelial cells and neutrophils. He was a hepatitis-B virus carrier, and had smoking and alcohol history. He began taking aspirin since he received left anterior descending coronary artery stenting for anteroseptal myocardial infarction. His mother had breast cancer history.

Abdominal computed tomography showed an 11×15 cm enhanced heterogeneous soft tissue mass with calcification and minimal fatty content; No enlarged lymph nodes were found. The images favored a left renal angiomyolipoma with little fat content, but malignant renal tumor or epithelioid angiomyolipoma (EAML) were also considered. The patient received radical left nephrectomy with no complications. The surgical specimen disclosed a 1076 gm left kidney with the size of $19.5 \times 13.7 \times 11.7$ cm (Fig. 1).

The tumor was in the lower pole and measured $14.5 \times 11.7 \times 10.8$ cm. The capsule was focally hard to peel off. Grossly the tumor was multilobulated with solid and cystic components, foci of hemorrhage and infarction were noted (Fig. 1). Histopathologically the cystic components, which had cysts of varying sizes that are lined with bland flattened cells or hobnail cells (Fig. 2 B). The solid components were composed of cellular spindle or smooth muscle cells with scattered bizarre hyperchromatic cells (Fig. 2 C). Mitotic figures were rarely found.

The immunohistochemical study showed that the spindle stromal cells displayed expression of progesterone, smooth muscle actin and CD34, but was negative for estrogen expression (Fig. 2 D, E, F). The diagnosis of mixed epithelial stromal tumor of kidney was confirmed.

The patient was discharged 8 days after the surgery. Up to the writing of this report, there had been no recurrence and his renal function was normal.

* Corresponding author. Division of Urology, Department of Surgery, Chang Gung Memorial Hospital, Chang Gung University, Taoyuan, Taiwan.
E-mail addresses: chuang89@cgmh.org.tw (C.-K. Chuang), Billpen.tw@hotmail.com (P.-Y. Pan), b0002043@cgmh.org.tw (Y. Kao), ninaychou@gmail.com (Y.-C. Chou), nkf362@cgmh.org.tw (K.-F. Ng), ljw33db@cgmh.org.tw (L.-J. Wang), b9802087@cgmh.org.tw (H.-Y. Tsai), b9905017@cgmh.org.tw (K.-H. Lee).

https://doi.org/10.1016/j.eucr.2017.11.025

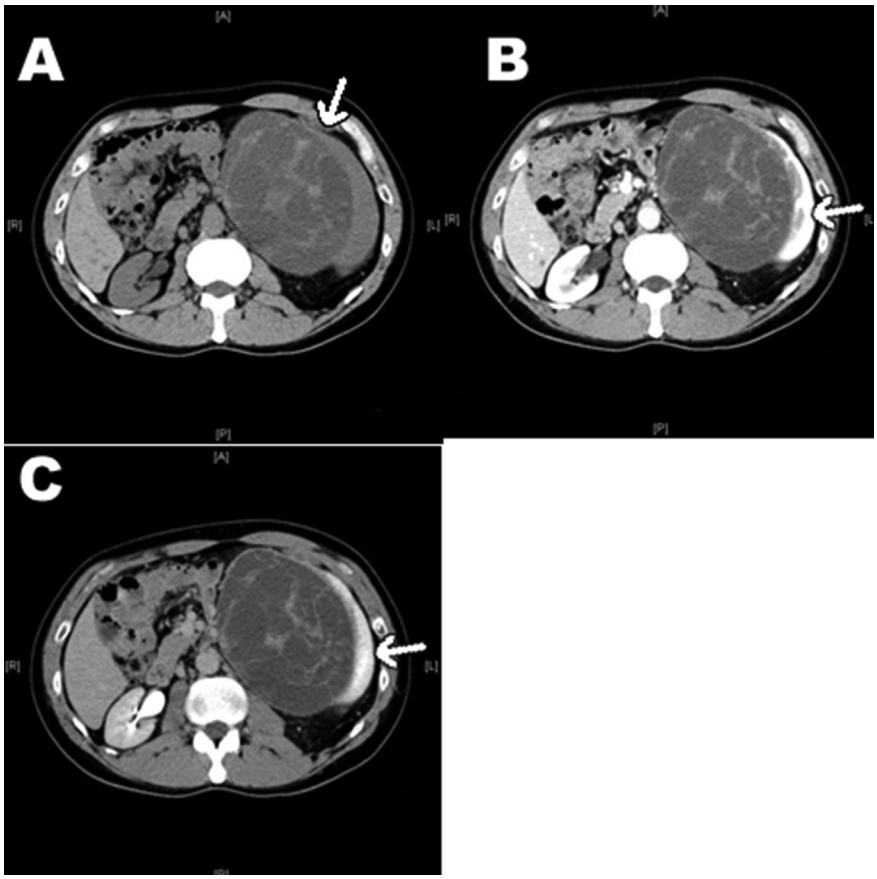

Fig. 1. Abdominal computed tomography showed the tumor (white arrow) had heterogeneous soft tissue with calcification and multiple septa in non-enhanced phase (A). The solid part had enhancement in arterial phase (white arrow) (B) and in secretary phase (white arrow) (C).

2. Discussion

The most common clinical presentations of MESTK are palpable mass, flank pain, hematuria or urinary tract infection-like symptoms in female patients. Our patient is a middle-aged male presented with an incidentally found abdominal mass, and without urinary or abdominal symptoms. He had no hormone therapy in the recent 2 years. Like most of the MESTK cases, he was identified incidentally.

The mean tumor size at primary diagnosis is about 6 cm in diameter. In almost all reported cases, MEST has behaved in a benign fashion following surgical resection.

MESTK has been reported as a well-circumscribed multi-septate cystic mass with solid components and thick or thin septa on both the CT and MR imaging.[4] It is difficult to distinguish MESTK from multilocular renal cell carcinoma. The diagnosis of MESTK usually depends on histological characteristics and immunohistochemical (IHC) staining of the tumor. Of MESTK, 62% estrogen receptor and 85% progesterone receptor were expressed in the stromal component.[5] Focal progesterone receptor was expressed in malignant MESTK but estrogen receptor was negative expression in almost all malignant cases.[5] Mesenchymal markers such as vimentin, CD 34, and desmin were positive in stromal cells. Additionally, CD10, calretinin, and inhibin are expressed in some of the MESTK cases.[5] Furthermore, bcl-2 and CD99 were expressed in another case. In our case, the tumor expressed markers for progesterone, smooth muscle actin and CD34, but not for estrogen.

Surgical treatment was necessary due to the difficulty in determining its malignant status and the uncertainty of its malignant potential and probabilities. Percutaneous tumor biopsy or intraoperative frozen pathology could be considered, especially if renal function is poor. If no malignant tissue was found, then nephron-sparing surgery (NSS) may be considered.

3. Conclusion

MESTK is a benign renal tumor with malignant potential, mostly found by clinical features. In a recent study, most were incidental findings. IHC staining may aid in the diagnosis of this rare tumor which stain positively for progesterone, smooth muscle actin and CD34, but negative for estrogen. Urologist should keep in mind that patients receiving hormonal therapy have a higher risk of developing cystic renal tumor, irrespective of their gender.

4. Informed consent

Permission for publication and informed consent from the patients has been documented in the paper.

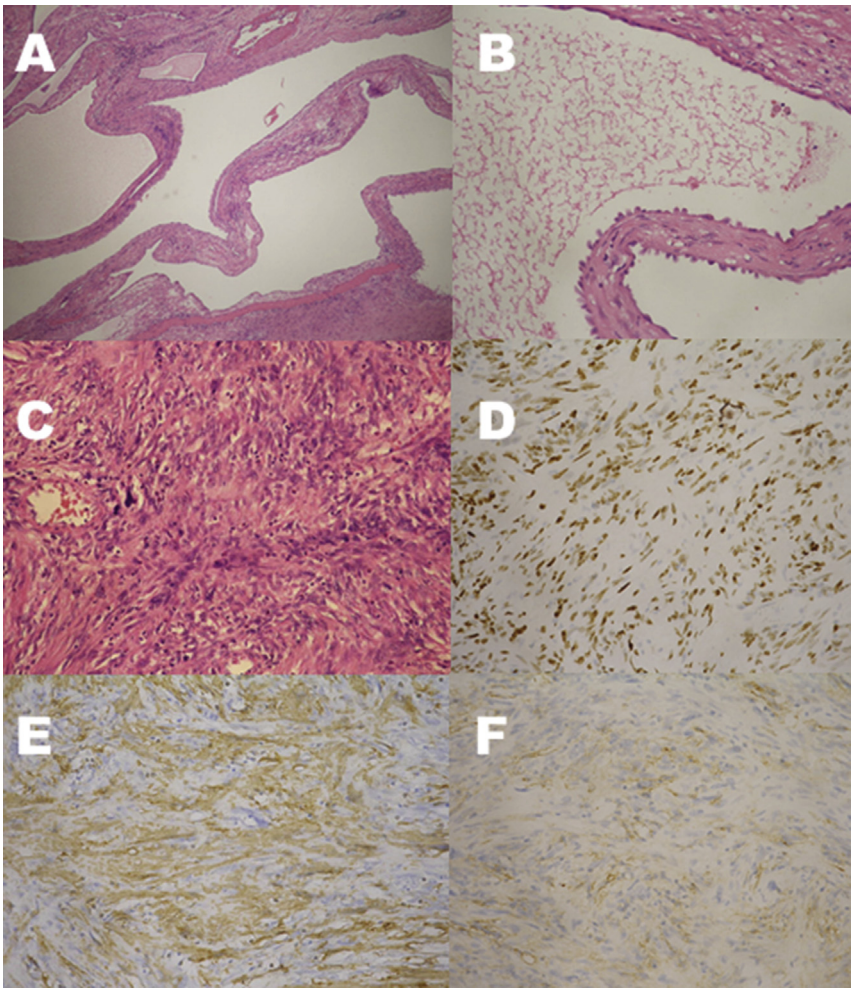

Fig. 2. Microscopic findings of the tumor disclosed the cystic parts and solid parts of the tumor (A). (Magnification: ×40); The bland flattened cells or hobnail cells around the cystic component (B). (Magnification: ×200); Cellular spindle or smooth muscle cells with scattered bizarre hyperchromatic cells in the solid component (C). (Magnification: ×200) Immunohistochemical study showed positive staining on progesterone (D), smooth muscle actin (E) and CD34 (F).

Conflicts of interest

None.

Acknowledgment

Any institution has not financed this case report.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.eucr.2017.11.025.

References

1. Michal M, Syrucek M. Benign mixed epithelial and stromal tumor of the kidney. *Pathol Res Pract*. 1998;194(6):445–448. https://doi.org/10.1016/S0344-0338(98)80038-1.
2. Adsay NV, Eble JN, Srigley JR, Jones EC, Grignon DJ. Mixed epithelial and stromal tumor of the kidney. *Am J Surg Pathol*. 2000;24(7):958–970. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=med4&NEWS=N&AN=10895818.
3. Zou L, Zhang X, Xiang H. Case Report Malignant mixed epithelial and stromal tumor of the kidney: the second male case and review of literature. *Int J Clin Exp Pathol*. 2014;7(5):2658–2663. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4069895/.
4. Park HS, Kim SH, Kim SH, et al. Benign mixed epithelial and stromal tumor of the kidney: imaging findings. *J Comput Assist Tomogr*. 2005;29(6):786–789. http://www.ncbi.nlm.nih.gov/pubmed/16272852.
5. Turbiner J, Amin MB, Humphrey PA, et al. Cystic nephroma and mixed epithelial and stromal tumor of kidney: a detailed clinicopathologic analysis of 34 cases and proposal for renal epithelial and stromal tumor (REST) as a unifying term. *Am J Surg Pathol*. 2007;31(4):489–500. https://doi.org/10.1097/PAS.0b013e31802bdd56.