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Malign Renal Mixed Epithelial Stromal Tumor Mimicking Angiomyolipoma: A Rare Entity

Anjiyomiyolipomu Taklit Eden Malign Renal Miks Epitelyal Stromal Tümör: Nadir Bir Vaka

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ABSTRACT Epithelial and stromal tumors of the kidney have a variety ranging from malignant mixed epithelial and stromal tumor to cystic nephroma. Generally it has female dominance. In our case report, we presented a right kidney tumor in a 19-year-old male patient who presented to us with macroscopic hematuria. Open radical nephrectomy was applied as treatment. Histopathologically, it resulted as a mixed epithelial and stromal tumor with rhabdomyosarcomatous differentiation and containing sarcomatous components. In this case, we presented a mixed epithelial and stromal tumor, which is rarely seen in a male patient, although it is mostly observed in women. This condition, which is difficult to diagnose due to the lack of distinctive radiological features, should be considered in patients presenting with hematuria.

Keywords: Angiomyolipoma; hematuria; kidney neoplasms

ÖZET Böbreğin epitelyal ve stromal tümörleri, malign miks epitelyal stromal tümörden kistik nefromaya kadar değişen bir spektruma sahiptir. Genel olarak kadın dominansına sahiptir. Bahsettiğimiz bu olguda, 19 yaşında makroskobik hematüri ile tarafımıza başvuran erkek hastada saptadığımız sağ böbrek tümörünü sunduk. Tedavi olarak açık radikal nefrektomi uygulandı. Histopatolojik olarak rabdomyosarkomatöz diferasyon gösteren ve sarkomatöz kompenent içeren, miks epitelyal stromal tümör olarak sonuçlandı. Bu olgu ile nadir izlenen ve daha çok kadınlarda gözlenmesine rağmen erkek hastada saptanan miks epitelyal stromal tümör sunuldu. Preoperatif olarak ayırt edici radyolojik özelliği bulunmaması nedeniyle tanısı zor olan bu tablo da hematüri ile başvuran hastalarda akla gelmelidir.

Anahtar Kelimeler: Anjiyomiyolipom; hematüri; böbrek neoplazileri

Epithelial and stromal tumors of the kidney show a wide spectrum from cystic nephroma to malignant mixed epithelial and stromal tumors (MEST). These tumors show a female predominance of 6 out 1.[1] In our case, we are presenting a 19-year-old male patient who did not receive any hormonotherapy and presented with macroscopic hematuria. In the magnetic resonance imaging (MRI) and enhanced computerized tomography (CT) taken in our clinic, there are distinct heterogeneous and locally hyperintense areas in the inferior part of the right kidney with smooth sharp borders. After contrast enhancement, a lesion with areas that had heterogeneous contrast enhancement was observed in the solid parts, and its size was measured approximately 96 mm on the long axis. Its appearance is evaluated as a renal tumor. Our case was evaluated as an angiomyolipoma and angioembolization was performed before applying to our hospital. The patient underwent open radical nephrectomy due to the size and the localization. Macroscopically, it had an appearance with hemorrhage located in the lower pole of the kidney. Histological features of our case contained a malignant mixed epithelial tumor with rhabdomyosarcomatous differentiation and containing sarcomatous components. Immunohistochemically, epithelial membrane antigen (EMA) was positive and pax8 was negative in the epithelial component, while vimentin and desmin were positive in the stromal component.

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With this case report, we showed a 19-years-old male patient that had malign MEST and the preoperative diagnosis of MEST is difficult due to the lack of a specific radiological finding. When MEST is suspected of showing malignant transformation, other malignancies such as Ewing sarcoma need to be differentially diagnosed and further molecular investigation should be performed.

CASE REPORT

A 19-year old male patient applied to our urology outpatient clinic with right flank pain and macroscopic hematuria for 20 days. He also had dullness and tenderness on his right side with prolonged fatigue. There was no fever, weight loss or dysuria. His medication history was unremarkable but three months before, he had a history of angioembolism for possible angiomyolipoma. Angioembolism was applied because it was thought to be angiomyolipoma based on radiological imaging and clinical symptoms in the outer center. Our physical examination showed tenderness and minimal pain on his right upper quadrant and right flank, however other routine genitourinary examination was normal. His routine laboratory investigations had normocytic anemia with positive HBsAg antigen. Blood testesterone levels were in normal range. There was no urinary tract infection, abnormal blood clotting tests or kidney function. A dynamic enhanced MRI of the abdomen showed a 96 mm solid lesion that located in the lower pole of kidney with features of straight border composed of heterogeneous contrast enhancement. On the other hand, contrast enhanced CT images of the abdomen revealed 97 mm smooth bordered cystic lesion arising from lower pole of right kidney and central part of this lesion had 21 HU (Hounsfield Unit) enhancements to compressing through collecting system of right kidney (Figure 1). There was no pathological lymph nodes according to these radiological studies. After a several days close follow-up, his hematuria continued and several time blood transfusion was applied as a result we prepared our patient to surgical exploration. Informed patient consent was taken for surgery and also futher scientific purposes. The patient underwent opened right radical nephrectomy (Figure 2). On surgical exploration the tumor was in close relationship with vena cava, intestines and surrounding tissues. All tumoral kidney was removed with proximal part of the right ureter. No postoperative complications were observed. The patient was started to be followed up by medical oncology in the first month after the operation. Contrast-enhanced whole body tomography was performed in the 6-month follow-up and did not reveal any finding in terms of metastasis. The patient is being followed up by medical oncology.

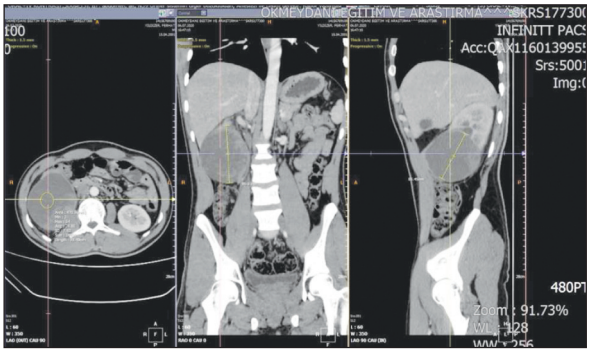

FIGURE 1: Axial, coronal and sagittal sections of the right renal tumor on enhanced computerized tomography of the abdomen.

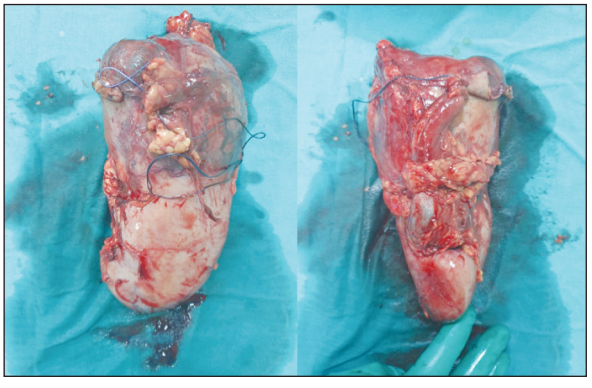

FIGURE 2: Macroscopic images of right renal tumor.

PATHOLOGICAL FINDINGS

On macroscopic examination, a well-circumscribed, 7.5x7x7 cm tumoral lesion was observed in the lower pole of the kidney with an intense hemorrhagic appearance. The tumor looked like to be invading the renal sinus. In addition, free tumor fragments are observed in the renal pelvis and ureter. Histological features of our case contained malignant mixed epithelial tumor with rhabdomyosarcomatous differentiation and containing sarcomatous components

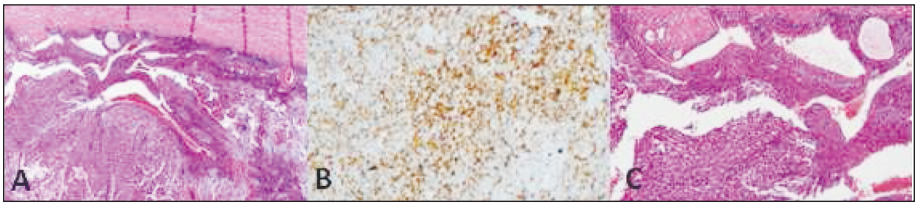

FIGURE 3: A) Ovarian like stroma in the periphery of the tumor, tubular structures lined with hobnail epithelium and malignant transformation (H&E, x40), B) Immunohistochemical focal cytoplasmic Desmin expression in tumor cells (Desmin, x200), C) Tubular structures lined with hobnail epithelial cells containing basophilic stromal cells in the wall and larger sarcomatous cells (H&E, x100).

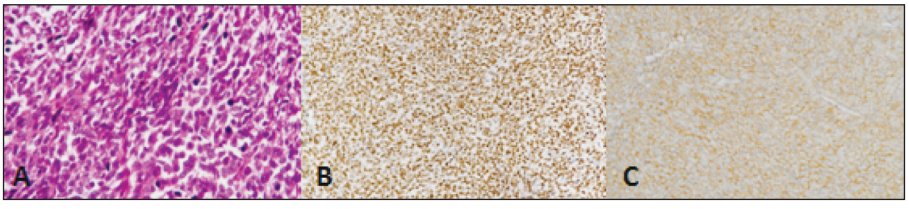

FIGURE 4: A) Tumor cells with narrow cytoplasm with high mitotic activity (HE x400), B) Immunohistochemical diffuse nuclear FLI1 expression in tumor cells (FLI1, x200), C) Immunohistochemical diffuse membranous CD99 expression in tumor cells (CD99, x100).

(Figure 3A, 3C). Immunohistochemically, EMA was positive and pax8 was negative in the epithelial component, while vimentin and desmin were positive in the stromal component (Figure 3B). Tumoral areas with high necrosis and mitotic activity were observed in the morphology (Figure 4A). Areas on the periphery of the tumor suggested malignant sarcomatous transformation from a MEST. A large immunohistochemical panel was applied to the malignant sarcomatous component, and focal staining was observed with desmin, the most specific marker. This finding is relevant with the malignant sarcomatous component showing muscle differentiation. Although CD99 and FLI-1 positivity was not specific, it caused the differential diagnosis of Ewing sarcoma (Figure 4B, 4C). Therefore, advanced molecular analysis was performed. Immunohistochemically, EMA was positive and pax8 was negative in the epithelial component, while vimentin and desmin were positive in the stromal component. Tumoral areas with high necrosis and mitotic activity were observed in the morphology. Areas on the periphery of the tumor suggested malignant sarcomatous transformation from a MEST.

DISCUSSION

MEST was firstly described in 1998 by Michal et al. In 2004, who recognized this tumor as a distinct category.[2,3] This tumor is usually seen in perimenopausal women and patients that has prostate cancer receiving hormonotherapy. Patients can usually present with flank pain and hematuria, or it can be detected approximately 25% incidentally.[4] Radiologically, it contained complex cystic and solid components, and both CT and MRI can be confused with angiomyolipoma and synovial sarcoma so it is difficult to distinguish radiologically.[1,5,6] Malignant transformation, recurrence and metastasis of MEST are rare. Especially, malignancy is seen mainly in epithelial and mesenchymal components. Malignant transformation of the mesenchymal components includes synovial sarcoma, rhabdomyosarcoma, chondrosarcoma and unclassified sarcoma.[7-10] Local recurrence was observed in cases with malignant stromal component.[11] But in the follow-up of our case, there was no finding of local recurrence or metastasis.

In our case, CT gave us information but did not help us confirm the preoperative diagnosis. There are studies in the literature stating that ^{18}F-labeled fluoro-2-deoxy glucose positron emission tomography/CT whole-body scanning can be performed in order to present the patient with preoperative diagnosis and treatment options.[12] Although MEST is usually benign, it has been described in malignant variations. A frozen section examination may be required to clar-

ify the intraoperative diagnosis and avoid overtreatment.[3]

Briefly, MEST is seen as a benign kidney tumor that is frequently seen in women. Malignant transformations have been observed rarely. In our case, a rare malignant MEST with muscle differentiation is presented. Immunohistochemical examination is not sufficient for differential diagnosis, and advanced molecular examination is required to confirm the diagnosis. The pathogenetic mechanism and clinical behavior of this malignant neoplasm require further study on more cases.

Source of Finance

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Emre Can Polat, Alper Ötünçtemur;* ***Design:*** *Emre Can Polat, Musab Ümeyir Karakanlı;* ***Control/Supervision:*** *Alper Ötünçtemur, Emre Can Polat;* ***Data Collection and/or Processing:*** *Mehmet Ali Sezgin;* ***Analysis and/or Interpretation:*** *Çağlar Çakır;* ***Literature Review:*** *Musab Ümeyir Karakanlı.*

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