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MIXED EPITHELIAL AND STROMAL TUMOUR OF THE KIDNEY - A RECENTLY RECOGNISED RARE ENTITY

MERCY JOYSTON SWAMIDOSS
Department of Pathology,
MADURAI MEDICAL COLLEGE AND HOSPITAL

Abstract :
Mixed epithelial and stromal tumour (MEST) a predominantly benign tumour of the kidney has recently been described and accounts for 0.2-0.28 percent of all renal tumours. Here we report a case of MEST in a 45 year old postmenopausal woman. She presented with abdominal pain and dysuria. Radiological studies revealed a renal mass which was suspected to be malignant. The resected kidney showed a solid and cystic mass arising from the lower pole of the kidney. Histologically the tumour showed biphasic pattern with epithelial and stromal components and a diagnosis of MEST was made. Immunohistochemistry showed cytokeratin positivity in the epithelial component and vimentin positivity in the stromal component. There was no malignant focus. The prognosis of these tumours is usually very favourable. However, malignant cases have been described. Therefore, while dealing with cystic lesions of the kidney this rare entity and the even rarer possibility of malignant change should be borne in mind.

Keyword : Mixed epithelial and stromal tumour, kidney, Immunohistochemistry

INTRODUCTION:
In the recent past, a rare but distinctive kidney tumour – Mixed epithelial and stromal tumour (MEST) has been described. First described by Michal and Syrucek[1] in 1998, this tumour has been included in the WHO 2004 Renal Tumour classification[2]. This is a benign tumour composed of epithelial and spindle cell stromal components and occurs almost exclusively in women. However a few malignant cases are also on record. This case is being presented for its rarity.

CASE REPORT:
A 45 year old woman presented with dysuria and abdominal pain, involving the right lumbar region and right loin, for one month. She had no significant illness in the past. She had attained menopause two years ago. Her physical examination was unremarkable except for tenderness in her right loin.

There was no palpable mass. Ultrasonogram of the abdomen showed a hypoechoeic mass measuring 7.0 x 4.5 cm near the right renal pelvis. Contrast enhanced Computed Tomography (CT) studies of the abdomen showed a moderately enhancing mixed density mass lesion measuring 6.3 x 6.0 cm in the region of the right kidney. A preoperative diagnosis of malignancy probably transitional cell carcinoma, was made and right radical nephrectomy was done.

MACROSCOPY:

We received the nephrectomy specimen with a mass in the lower pole of the kidney (Fig. 1). The kidney measured 9.5 x 9 x 3.5 cm. The mass was 6 x 5.5 x 4.5 cm in size. Ureter was 6.5 cm long. Cut surface showed solid and cystic areas (Fig. 2).

Fig. 1 Nephrectomy specimen with the Mass 6 x 54 x 4.5 cm

Fig. 2 Cut section shows well encapsulated mass in the lower pole of the kidney showing solid and cystic areas.

MICROSCOPY

Histopathological examination was done. Hematoxylin and eosin stained sections showed a biphasic tumour composed of epithelial and stromal components(Fig. 3,4). The epithelial component was composed of tubules showing focal areas of dilatation and papillary formations lined by cuboidal to columnar epithelium(Fig. 5). The stroma showed sheets of spindle shaped fibroblasts. There was no cellular atypia or increased mitotic activity (Fig. 6). The above findings were consistent with Mixed Epithelial and Stromal Tumour of the kidney.

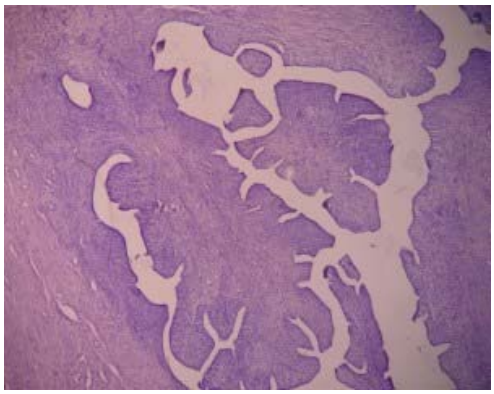
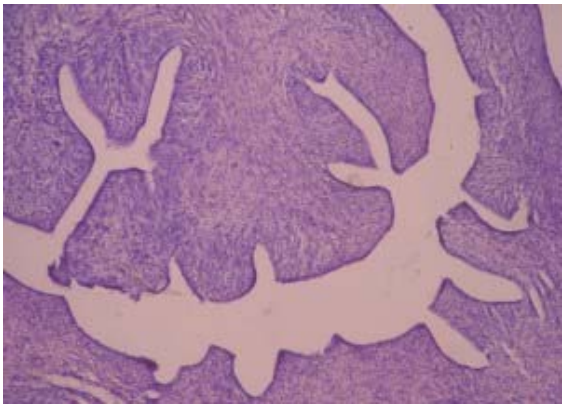


Fig. 3 Biphasic tumour with epithelial and mesenchymal components. (H & E, 40X)

Fig. 4 Epithelial component – tubular structures that show papillary formations. The mesenchymal component shows ovarian type stroma with fascicles and sheets of spindle cells. (H & E, 100X)



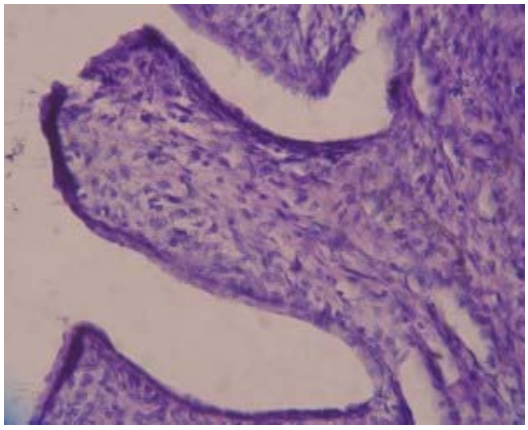


Fig. 5 Papillary structure with flattened epithelial lining and stroma composed of spindle shaped fibroblastic proliferation.(H & E, 400X)

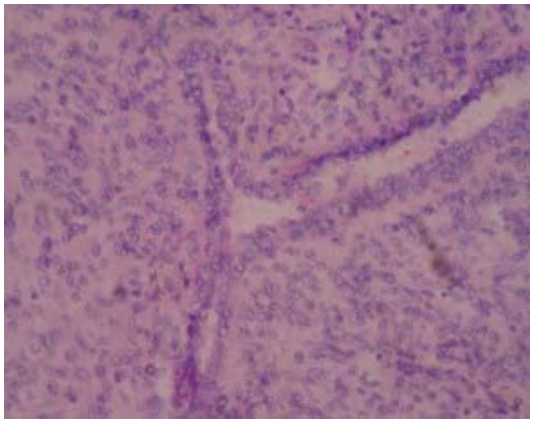
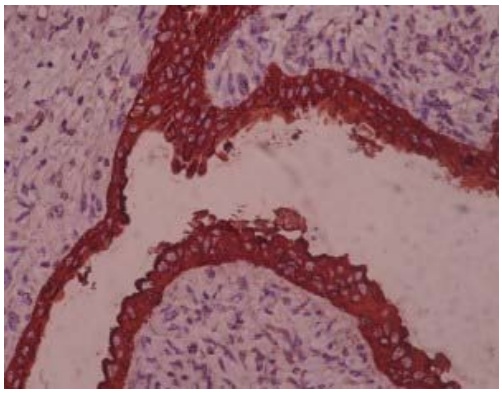


Fig. 6 Compressed tubule lined by cuboidal cells with surrounding spindle shaped cells.(H & E, 400X)

IMMUNOHISTOCHEMISTRY:

Further sections from the paraffin embedded blocks were taken and immunohistochemical studies were done with antibodies to cytokeratin and vimentin. The epithelial component of the tumour showed tokeratin uptake(Fig.7). The fibroblastic mesenchymal component showed positivity for vimentin(Fig.8). With confirmatory immunohistochemistry, a final diagnosis of Mixed Epithelial and Stromal Tumour of the kidney was made.



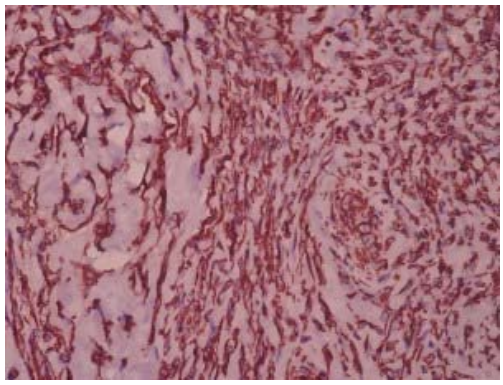


Fig. 7 Epithelial component shows strong positivity for cytokeratin.(400X)

Fig. 8 Stromal component shows strong positivity for vimentin.(100X)

Mixed epithelial and stromal tumour is a benign biphasic tumour which has a predilection for perimenopausal women. The mean age at presentation is 46

years. About 100 cases have been reported so far of which only 8 were in men[4.] Our case was a 45 year old post menopausal woman. The patients usually present with non-specific symptoms such as flank pain, hematuria or urinary tract infection – like symptoms. Some of them have a palpable abdominal or flank mass. In our study the patient had dysuria and flank pain. Imaging studies are not diagnostic. MEST usually masquerades as advanced renal cell carcinoma or urothelial carcinoma[4] as in our study. Grossly the tumour is unilateral, solitary, well circumscribed and arises from the renal parenchyma or pelvis. On cut section it is tan or yellow and is composed of solid or solid and cystic areas. The tumour in our study was unilateral, solitary with solid and cystic areas. Microscopically, this is a biphasic tumour showing spindle cell stroma and epithelial components. The mesenchymal component shows fascicles and sheets of spindle cells resembling ovarian stroma with variable degree of smooth muscle, fibroblastic or myofibroblastic differentiation with interspersed collagen. The epithelial component consists of round and regular tubules to more complex structures with papillations and cystic dilatations. They are lined by cuboidal to flattened epithelium which may show clear cell change or hobnail cells. The epithelial component reacts for cytokeratin and epithelial membrane antigen. The stromal component shows positivity for vimentin, desmin and CD 34 and nuclear expression of estrogen and progesterone receptors. Our study showed cytokeratin uptake by the epithelial component and vimentin positivity in the stromal component. The popular hypothesis for the origin of MEST is that of hormonal imbalance in perimenopausal women or of exogenous administration of estrogens. This drives the proliferation of primary mesenchymal metanephric blastema in the kidney which has the capacity for dual differentiation – epithelial and mesenchymal[5,6,7]. The other hypothesis is that of the abnormal migration of ovarian stromal cells during embryogenesis. It has been proposed that MEST is the renal counterpart of multicystic lesions of the biliary tract and pancreas containing ovarian stroma[3,8]. Ultrastructurally and immunohistochemically the epithelium displays features suggestive of differentiation toward renal ductal epithelium[3,9,10]. Comperat et al noted translocation t(1;19) in a case of benign MEST[11].. Most of the cases reported were benign. But rare cases of aggressive MEST have been documented. Cases with a fatal outcome have been reported by Nakagawa et al[12],Svec et al[13] and Bisceglia et al[14]. Carcinosarcoma arising from a mixed epithelial and stromal tumour of kidney[15],a malignant tumour with rhabdoid features[16], MEST with focal papillary renal cell carcinoma[17], a mucinous borderline tumour[18] and others[19,20,21] have been described. The most common differential diagnosis is cystic nephroma. But several recent studies[22,23,24] have proposed that cystic nephroma and mixed epithelial and stromal tumors of the kidney are two different manifestations of the same or atleast similar entities. Turbiner et al proposed Renal epithelial stromal tumour (REST) as a unifying term to encompass the spectrum of morphological findings and to emphasize the probable pathogenetic and histogenetic relationship.

CONCLUSION:

To conclude, knowledge of this rare and distinct renal neoplasm - Mixed epithelial and stromal tumour is important. Though the overall prognosis is favourable, recurrence and malignant transformation of MEST are known to occur. Imaging studies do not distinguish between

benign and malignant lesions. Hence, if partial nephrectomy is done, it would be worthwhile to do an intraoperative frozen section to confirm tumour free margins rather than to establish the nature of the tumour.

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