Abstract:
Chromophobe renal cell carcinoma comprises about 5% of all cases of renal cell carcinoma. Patients with chromophobe renal cell carcinoma have a wide age range of 16 years to 86 years with approximately 75 of them being diagnosed in their fifth to seventh decade. A 42 year old lady presented with complaints of abdominal pain and burning micturition of 10 days duration. CT scan of abdomen showed exophytic soft tissue density lesion in the lower pole of right kidney. Right radical nephrectomy was done. The histopathological diagnosis of the mass was Chromophobe renal cell carcinoma - eosinophilic variant.

Keyword:
Chromophobe renal cell carcinoma, eosinophilic variant

INTRODUCTION:
Chromophobe renal cell carcinoma was recognized by Thoenes et al in 1985. It comprises about 5% of all cases of renal cell carcinoma\(^\text{(1)}\). A predominance of tumor cells with more densely eosinophilic oncocytic cytoplasm is seen in 30% of cases. This group of tumors constitutes the eosinophilic variant of Chromophobe renal cell carcinoma. The distinction between the typical and the eosinophilic variants of Chromophobe renal cell carcinoma is clinically not important, but it is necessary to differentiate the eosinophilic variant from oncocytoma, a benign condition\(^\text{(2)}\). We report a case of a 42 year old female with Chromophobe renal cell carcinoma-eosinophilic variant.

CASE REPORT: A 42 year old lady presented to the Department of Urology with complaints of abdominal pain and burning micturition for a period of 10 days duration. CT scan showed exophytic soft tissue density lesion in the lower pole of right kidney suggestive of a right renal mass. Contrast CT showed a lower pole cortical hypodense lesion in the right kidney. Right radical nephrectomy was done and Specimen sent for histopathological examination.

PATHOLOGICAL FINDINGS:
Gross examination:
A right nephrectomy specimen measuring 10 x 6 x 5 cm was received. External surface of the kidney showed a partially encapsulated mass of size 4 x 4 x 4 cm in the lower pole. Cut surface showed a partially encapsulated mass infiltrating into the kidney. Mass was brownish tan coloured, soft to firm in consistency with focal areas of necrosis. Renal vein was grossly free of tumor (Figure 1) Microscopic examination: Microscopic examination showed a partially encapsulated tumor composed of cells arranged in solid sheets and nested pattern. Cells had a well-defined cell border, abundant eosinophilic cytoplasm with a perinuclear halo and wrinkled, hyperchromatic nuclei. Few binucleate cells were seen (Figure 2,3). Renal vein was free of tumor. Hence a histopathological diagnosis of chromophobe renal cell carcinoma was made. The presence of eosinophilic granular cytoplasm suggested an eosinophilic variant. Further sections were stained with immunohistochemical markers cytokeratin 7 and CD10 to rule out the possibility of oncocytoma and the eosinophilic variant of clear cell RCC. Immunostained sections showed positivity for CK 7 (Figure 4) and CD10 stain was found negative (Figure 5). The immunohistochemical markers were supportive of the histopathological diagnosis of chromophobe renal cell carcinoma.

Figure 1: Cut surface showed a partially encapsulated, brownish tan coloured mass infiltrating into lower pole of kidney.

Figure 2: Photomicrograph shows tumor composed of cells with well defined cell border, abundant eosinophilic cytoplasm and a perinuclear halo. (H&E 100X)

Figure 4: Photomicrograph shows tumor cells positive for CK 7 (H&E 400X)
Figure 3: Photomicrograph shows cells with well defined cell border, abundant eosinophilic cytoplasm with a perinuclear halo and wrinkled, hyperchromatic nuclei. Binucleate cell seen. (H&E 400X).

Figure 5: Photomicrograph shows tumor cells negative for CD10 stain (H&E 100X).

DISCUSSION:
Chromophobe renal cell carcinoma (RCC) is an uncommon variant of RCC, accounting for approximately 5% of renal cell carcinoma\(^3\). Chromophobe RCC is diagnosed mainly in the 6th decade of life. Incidence of Chromophobe renal cell carcinoma is similar in both men and women. 86% of Chromophobe renal cell carcinomas are diagnosed in stage 1 or 2. Renal vein invasion is seen in about 5% of cases\(^4\). Incidence of metastatic disease in chromophobe renal cell carcinoma is 6-7%\(^5\).

Chromophobe RCC is a heterogeneous group including classic type, eosinophilic type and mixed type. Eosinophilic variant contains greater than 80% eosinophilic cells with nested, alveolar or sheetlike architecture. Cells show eosinophilic granularity, perinuclear clearing, peripheral accentuation of cytoplasm. It is often bilateral (11%) and multifocal (22%). Classic type of Chromophobe RCC contains greater than 80% pale cells with a alveolar or sheetlike architecture. Cytoplasm has flocculent soap bubble appearance. Chromophobe RCCs with mixed histology have variable architecture\(^4\). Our case had the histomorphological features of the eosinophilic variant of Chromophobe renal cell carcinoma.

The eosinophilic variant of Chromophobe RCC is difficult to distinguish from renal oncocytoma and the eosinophilic variant of clear cell RCC\(^3\). A significant number of immunohistochemical stains have been reported individually to be useful for distinguishing Chromophobe RCC from oncocytoma and clear cell RCC. The most useful markers in the differentiation of these renal tumors are CK 7, CD10, RCC marker and vimentin. CK 7 is positive in Chromophobe RCC and negative in clear cell RCC and oncocytoa. CD10, RCC marker and vimentin are positive in clear cell RCC and negative in Chromophobe RCC and oncocytoa\(^6\). Our case showed diffuse cytoplasmic positivity for CK 7 and was negative for CD 10.
CONCLUSION:
The distinction between conventional renal cell carcinoma, chromophobe renal cell carcinoma and oncocytoma should always be done because they have different clinical outcome(1). The outcome for patients with chromophobe RCC generally is better than for those with conventional RCC, but worse than for patients with renal oncocytoma, of which the overwhelming majority are benign and do not metastasize(7).

REFERENCES: